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1915

JANUARY 1915

# THE CLAY-WORKER

OFFICIAL ORGAN OF N. B. M. A.

Hotel Statler Headquarters.

N.B.M.A. Convention Feb. 15-20 1915.

PUBLISHED MONTHLY BY
T. A. RANDALL & CO.
Indianapolis, Ind.

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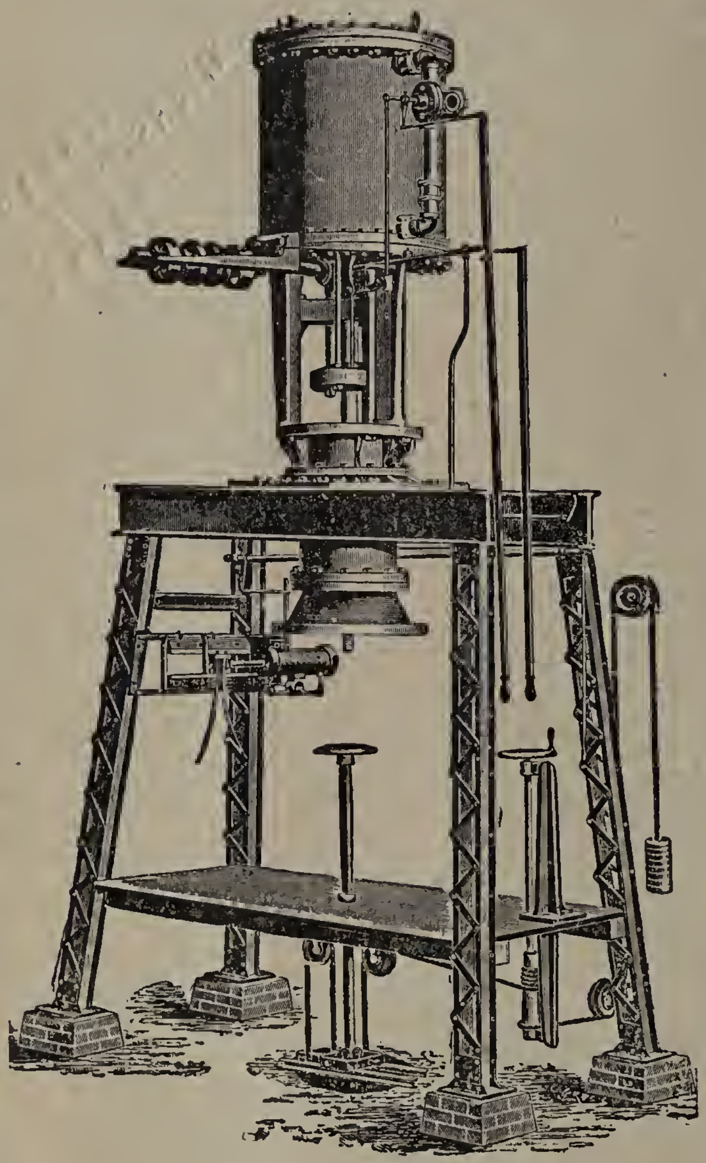
BUYERS' READY REFERENCE LIST Pages 7, 9, 12 and 16

INDEX TO ADS Page 99

Ask for a Sewer Pipe Press, Dry or Wet Pan, or other Clayworking Machinery, and there is NO TELLING WHAT YOU WILL GET.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

---

## THE TAPLIN, RICE-CLERKIN CO.

**Akron, Ohio**

The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

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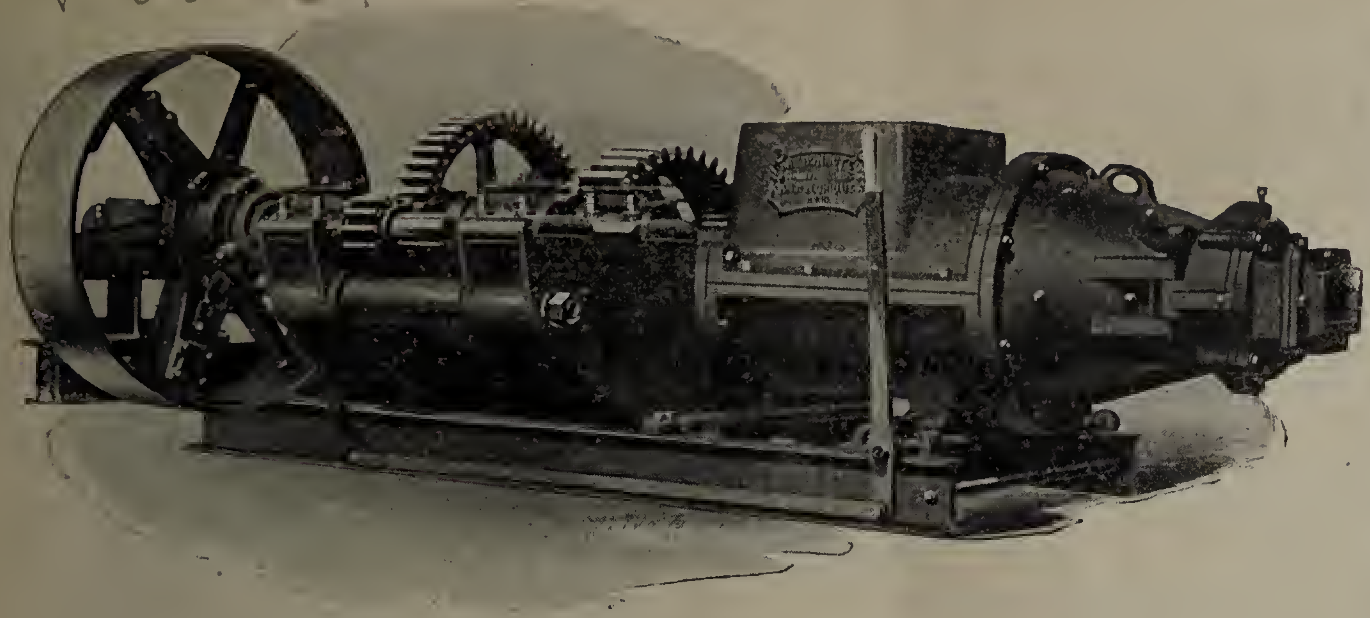


**Read the Experience of a Well-known Manufacturer of High-grade Face Brick.**

**Uses Three of Our Rotary Automatic Cutters and Three Brick Machines.**

Canton, Ohio, Oct. 23, 1914.

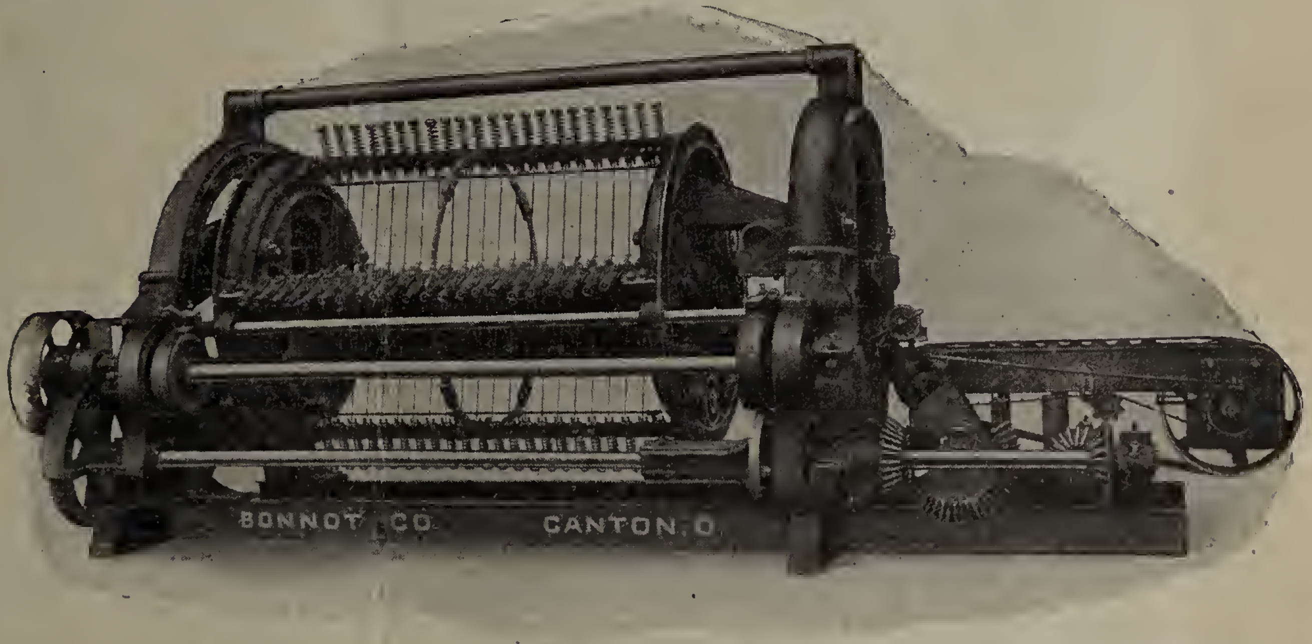
The Bonnot Co.,
City.

Gentlemen—After having operated practically all makes of machinery, five years ago we decided to standardize the equipment in our plants and have so far installed three of your Rotary Automatic Cutters, two No. 10 Brick Machines, and one No. 14 Combined Brick Machine and Pug-Mill, two Double-Geared Pug-Mills, two 9-ft. Dry Pans and three Piano Wire Screens. As our old equipment wears out we expect, if the pleasant relationship that has existed to date continues, to install your machines, as we feel they represent the best values available.

At any time that you desire to show interested parties any of the equipment in our plants you are at liberty to do so.

Sincerely yours,
THE BELDEN BRICK CO.,
(Signed) P. B. Belden, Gen. Mgr.

**A Reliable, Smooth-working and Satisfactory Automatic Cutter.**



**No. 20 Catalog Describes the Complete Line.**

# THE BONNOT COMPANY

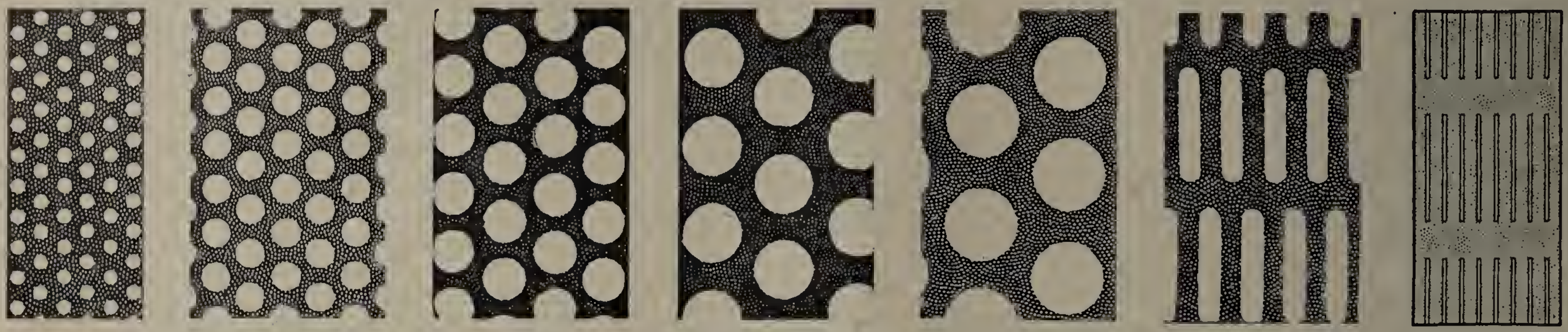
909 N. Y. Life Bldg., KANSAS CITY, MO. CANTON, OHIO
211 Higgins Bldg., LOS ANGELES, CAL.

370409

# PERFORATED STEEL SCREENS

## FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

### Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

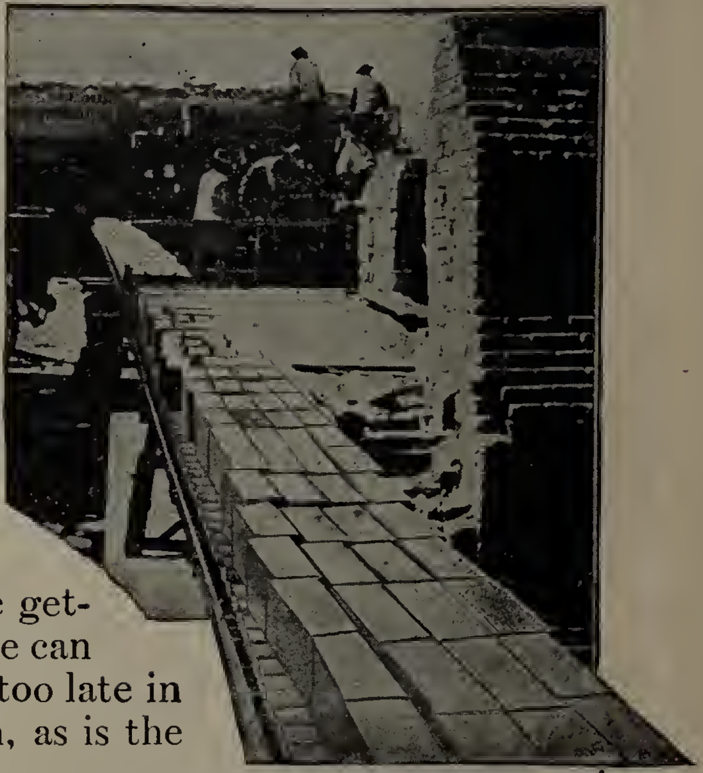
Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

# A Steady Stream of Brick From Kilns to Cars.



**The Mathews Patented Gravity Brick Conveyer Doubles the capacity of every man in your Car-Loading Crew.**

A Mathews Gravity Brick Loading System will prove its full worth when the rush orders commence to come in. Then you will wish you had taken the time early in the spring to get together with us to study out your problems. Right now we know there are many brick men who will not attempt to handle their brick another year with wheelbarrows. Every day we are getting letters from manufacturers who are anxious to know what we can do for them. There are a great many others who will wake up too late in the season for us to help them, as is the case every year.

*Our Expert is at your service.*

**Catalog and Detail Information sent on request. We will not be able to fill orders quickly late in the season.**

SPEED — MATHEWS GRAVITY CARRIER COMPANY — The MATHEWS WAY — The SAVING WAY — ECONOMY

MAIN OFFICE AND FACTORY
ELLWOOD CITY, PENN.

BRANCH FACTORIES:
TORONTO, ONT.
LONDON, ENG.

RODGERS

RODGERS FOR DRYERS

A NEW YEAR

AND

A NEW DRIER---

*Rodgers* "UNI-TROL"

(Trade Mark Registered)

PATENTED IN

U. S. A. AND CANADA

---

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists
Brick Works Engineers

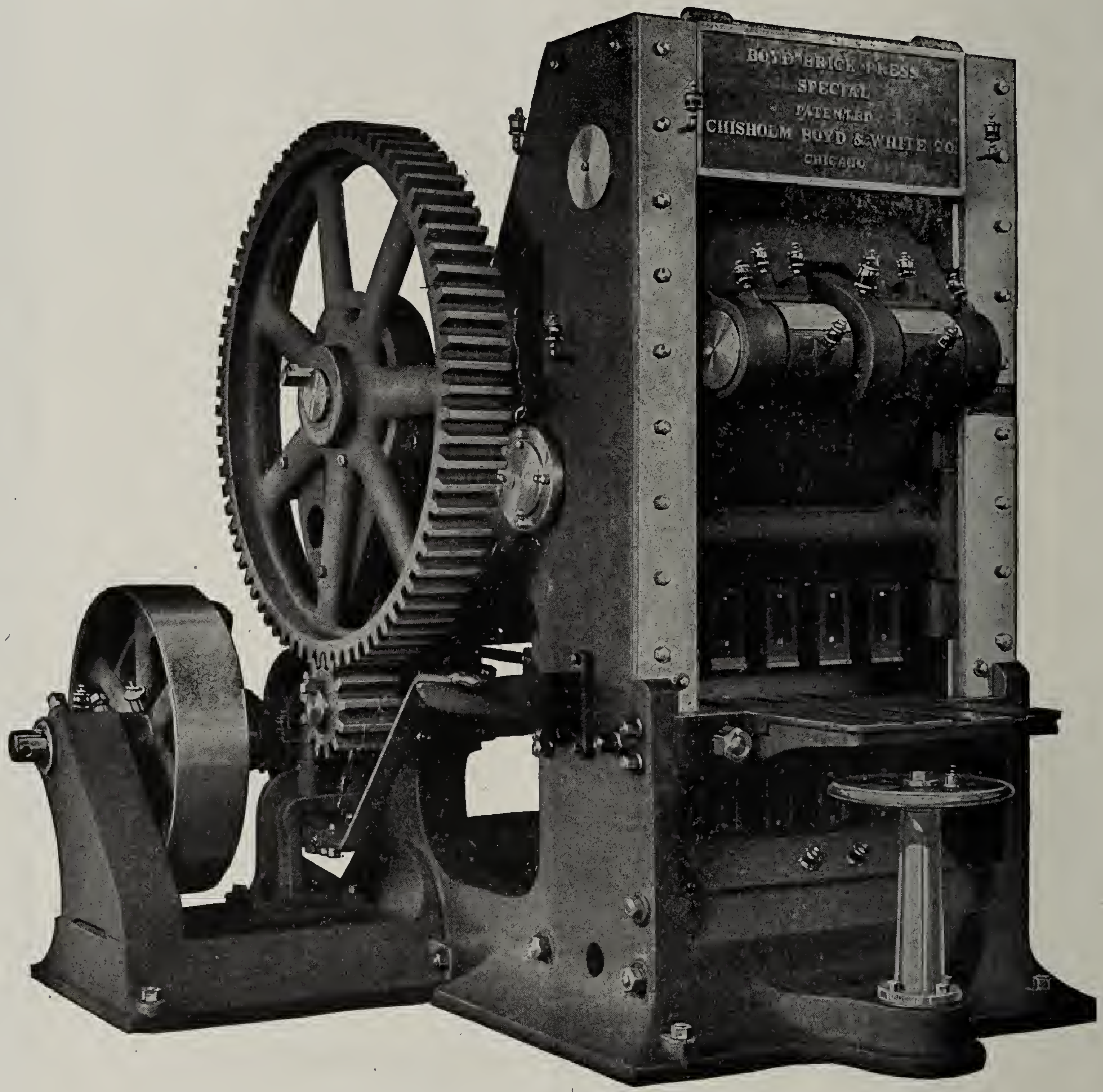
Largest Manufacturers of Brick Drying Equipment in the United States

30 North LaSalle St. .:. .:. CHICAGO

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED-PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

---

### Ammeters.
TheBrown Instrument Co.

### Analysists and Chemists.
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Automatic Clay Bin Emptier.
Fate Co., The J. D.
Raymond Co., The C. W.

### Automatic Cutting Tables.
(See Cutting Tables.)

### Barrows and Trucks.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Barytes, Carbonate of
Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

### Bearings, Roller.
(See Supplies.)

### Belting.
Gandy Belting Co.
Sawyer Belting Co.

### Belt Conveyors.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Blowers.
American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

### Brick (Building).
Bloomfield Clay Co.
Hydraulic Press Brick Co.
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.
American Clay Machinery Co.
Mathews Gravity Carrier Co.

### Brick and Tile Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.
Wellington Machine Co.

### Brick Machines (Stiff Mud.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press.)
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

### Brick Recutter.
Raymond Co., The C. W.

### Brick Setting Machinery.
American Clay Machinery Co.

### Buffing Machinery.
American Clay Machinery Co.

### Burning and Drying Systems.
American Blower Company.
Boss, John C.
Buhrer, Jacob.
Dennis, F. W.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
National Dry Kiln Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

### Cars.
(See Dryer and Dumping Cars.)

### Castings.
Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.
American Pulverizer Co.
Arbuckle & Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Clays.
Bloomfield Clay Co., The.

### Clay Dryers.
American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.
Stevenson Co., The.

### Clay Gatherers.
(See Scrapers.)

### Clay Steamers.
Raymond Co., The C. W.

### Clay Technologists.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.
(See Supplies.)

### Coloring Materials.
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.
Orton, Edward, Jr.

### Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick and Tile.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

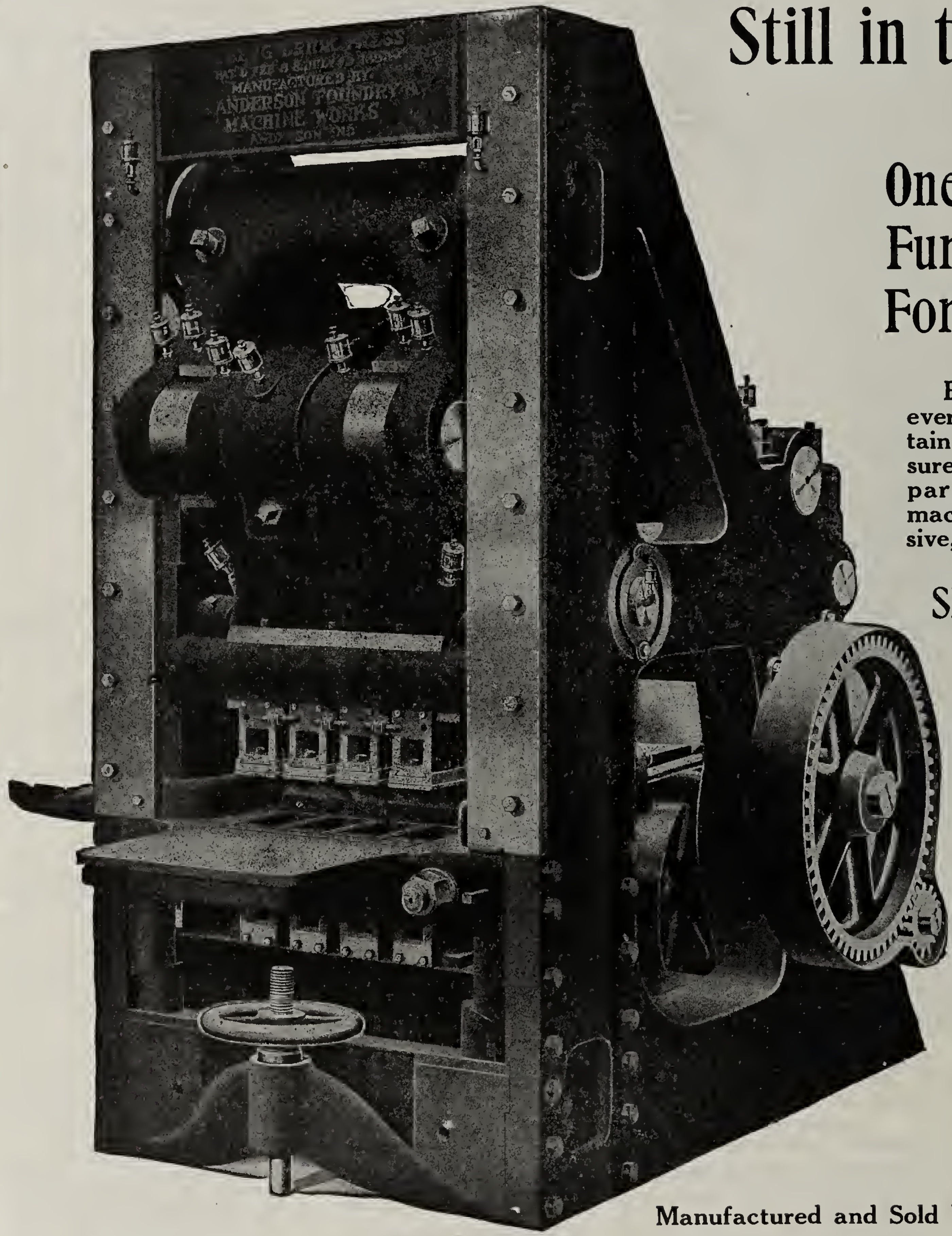
### Dryers.
American Blower Company.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co., H.
National Dryer Company.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
National Dryer Company.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.

(Continued on page 9.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

**SHIPPED IN ONE PIECE.**

All Machines Are Equipped With

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Standard Dry Kiln Co., The.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

### Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

### Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wellington Machine Co.

### Electric Instruments.

Brown Instrument Co., The.

### Electric Shovels.

Thew Automatic Shovel Co.

### Electrical Furnaces.

Brown Instrument Co., The.
Richardson-Lovejoy Engr. Co.

### Electrical Locomotives.

Atlas Car & Mfg. Co.

### Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

### Elevating Equipment.

(See Conveyors.)

### Engines.

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

### Engineers.

Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

### Fans.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Filler (Paving).

Barrett Mfg. Co.

### Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

### Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

### Fire Clay.

Bloomfield Clay Co.

### Floor Tile.

Chicago Ret. & Fire Brick Co.

### Flower Pot Machinery.

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The.
Taplin-Rice-Clerkin Co.

### Friction Clutch Pulleys.

(See Supplies.)

### Furnaces.

Brown Instrument Co., The.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

### Gas Fire Continuous Kilns.

Raymond Co., The C. W.

### Gears.

(See Supplies.)

### Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

### Gravity Haulage.

American Clay Machinery Co.

### Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

### Hand Winch.

(See Supplies.)

### Hangers.

(See Supplies.)

### Hoists.

(See Supplies.)

### Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Illustrators.

Lamb, J. & R.

### Insurance.

Mantel, Tile & Grate Monthly.

### Jacks.

(See Supplies.)

(Continued on page 12.)

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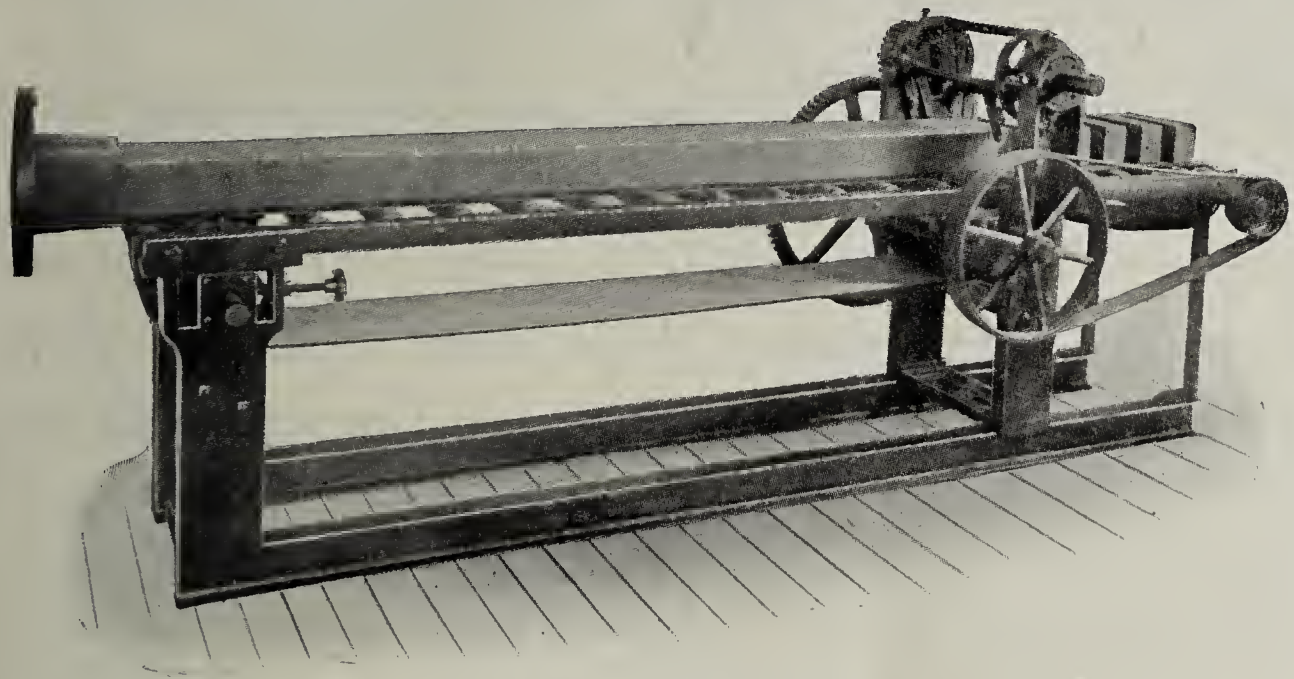
## MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Breakroll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

## ROOFING TILE MACHINERY

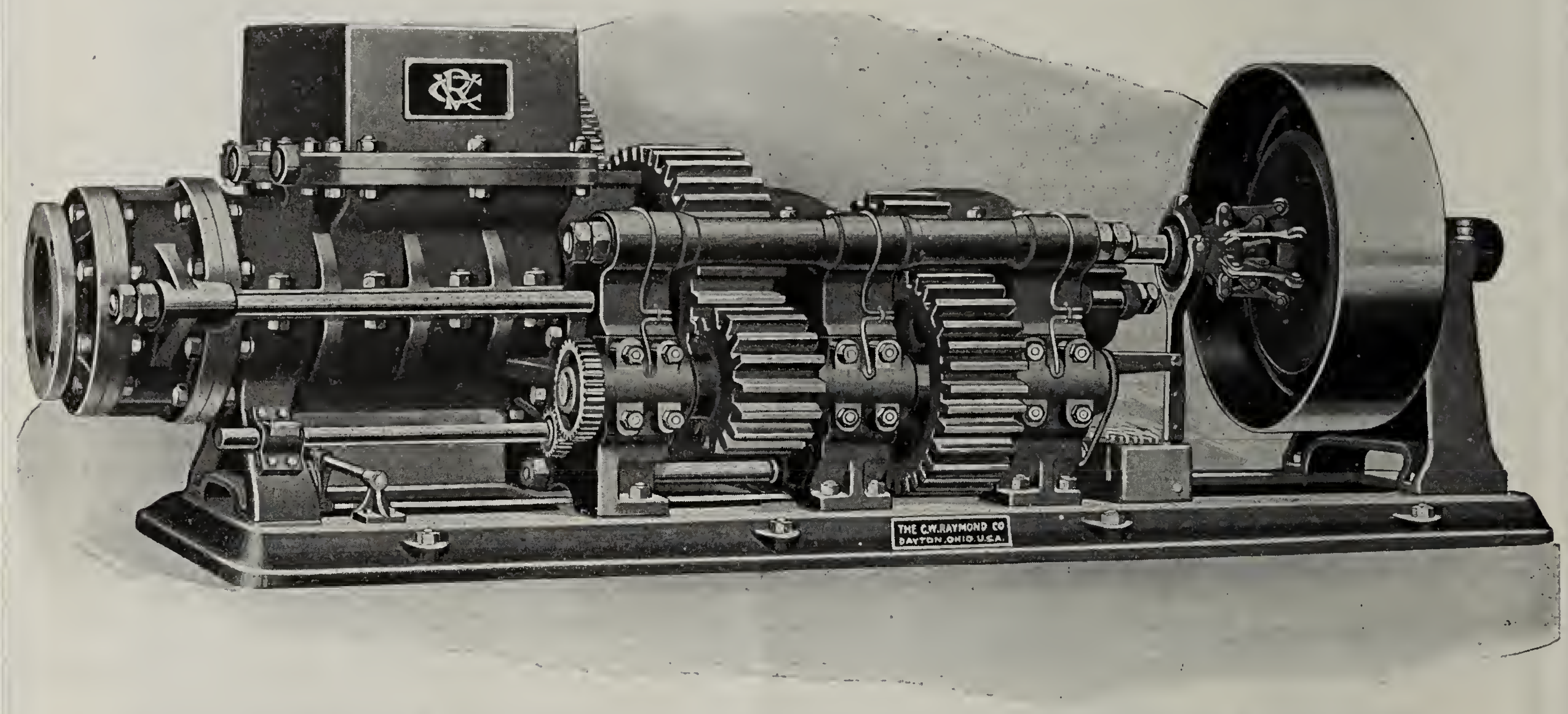
Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

## MUELLER BROS.

**1436 Macklind Ave.** (on Friso Tracks) **ST. LOUIS, MO.**

# MADE IN THE U. S. A.!

# A REVELATION!



**THE RAYMOND CVR" HOLLOWARE MACHINE**

That's the story in a nutshell. You have been looking for a machine, honestly made with sufficient strength to meet all reasonable demands made upon it; one that will be always on the job; one having the most modern appliances. Well, here it is, and while you think of it write for more information, which is yours for the asking.

---

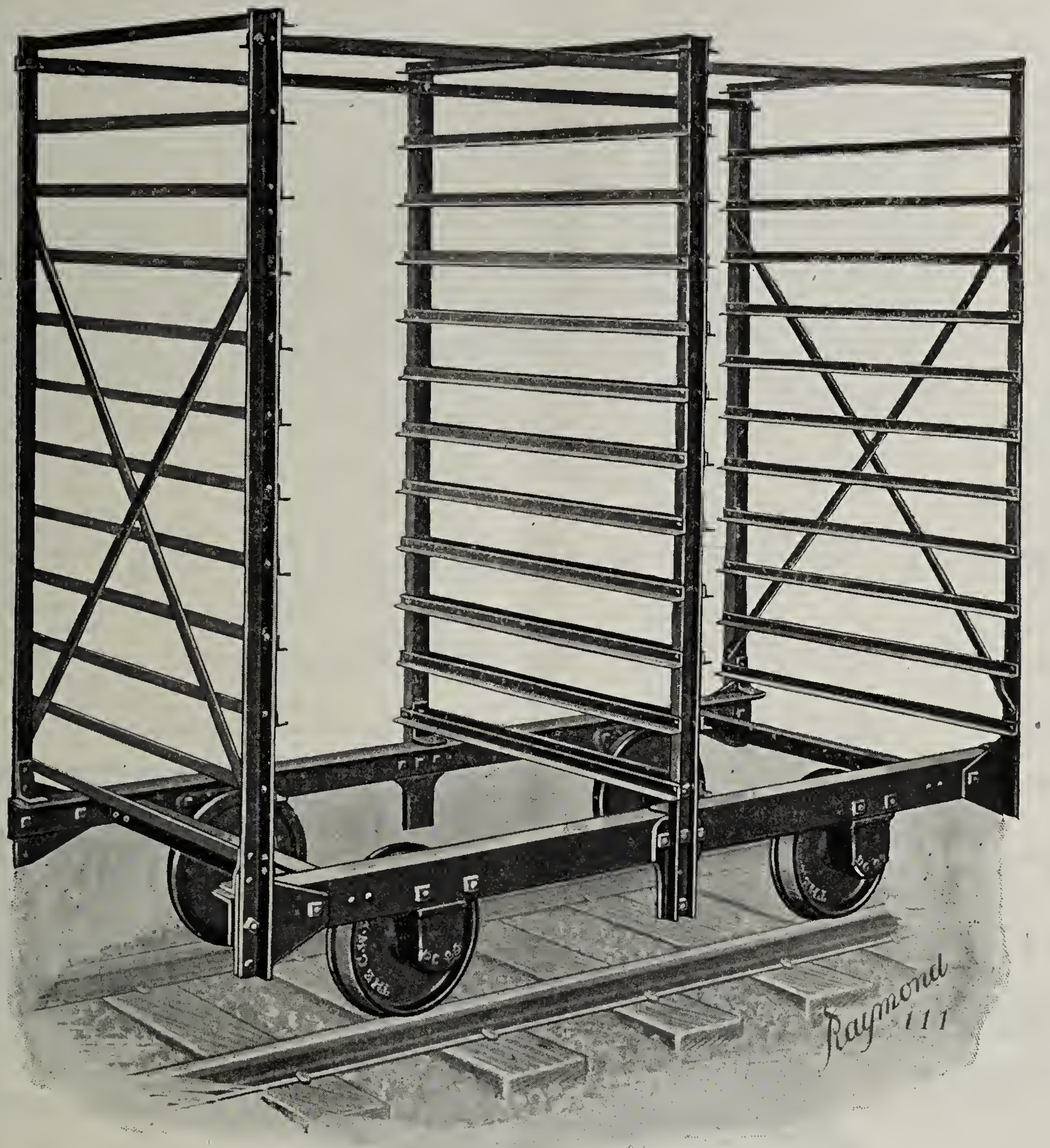
## The C. W. Raymond Company

**The Largest Exclusive Builders of Clayworking Machinery
in the World**

**Dayton Ohio U. S. A.**

See ads on pages 136 to 139.

# A CAR THAT LEADS THEM ALL!



## CAR "F"

You would really enjoy a car like this. Twelve tiers, all so well braced that the top load is well supported and as free from vibration as the bottom load. Roller bearings with renewable bushings running in oil, insure minimum wear and friction. Reversed gusset plates. Height 5 feet 10 inches. Distance between tiers 4¾ inches. Length 76 inches. Width 36 inches. Standard 24-inch gauge. Shall we send more information?

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

## Buyers Ready Reference List—Continued.

**Kilns.**

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Vogt, Anton.
Yates, Alfred.

**Kilns, Doors, Castings and Frames.**

(See Supplies.)

**Kiln Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Kiln Furnaces.**

Illinois Supply & Con. Co.

**Knives.**

(See Supplies.)

**Locomotives.**

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

**Manganese.**

(See Coloring Materials.)

**Mechanical Draft.**

Boss, J. C.
Rodgers Engr. Co., The L. E.

**Mineral Paint.**

(See Coloring Materials.)

**Molds (Brick).**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

**Mold Sanders.**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

**Mortar Colors.**

(See Coloring Materials.)

**Motor Trucks.**

Wm. E. Dee Co.
Fate, Co., The J. D.

**Oil Burners.**

Illinois Supply & Con. Co.

**Paints.**

(See Coloring Materials.)

**Pallets.**

Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

**Pans (Dry and Wet).**

(See Dry and Wet Pans.)

**Paving Brick or Block.**

(See Brick.)

**Perforated Sheet Metal.**

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

**Pitch (Paving).**

Barrett Mfg. Co.

**Plows.**

(See Scrapers.)

**Poidometers.**

Schaffer Eng. & Equip. Co.

**Portable Track.**

Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

**Pottery Machinery.**

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Power Plant Equipment.**

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Presses.**

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

**Pug Mills.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Pulleys.**

(See Supplies.)

**Pulverizers.**

American Pulverizer Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Taplin-Rice-Clerkin Co.

**Pumps.**

Dean Bros. Steam Pump Wks.

**Pyrometers.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

**Rails and Railway Equipment.**

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

**Rattlers (Paving Brick).**

Ceramic Supply and Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

**Recording Gauges.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

**Represses.**

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson & Co.

**Revolution Indicators.**

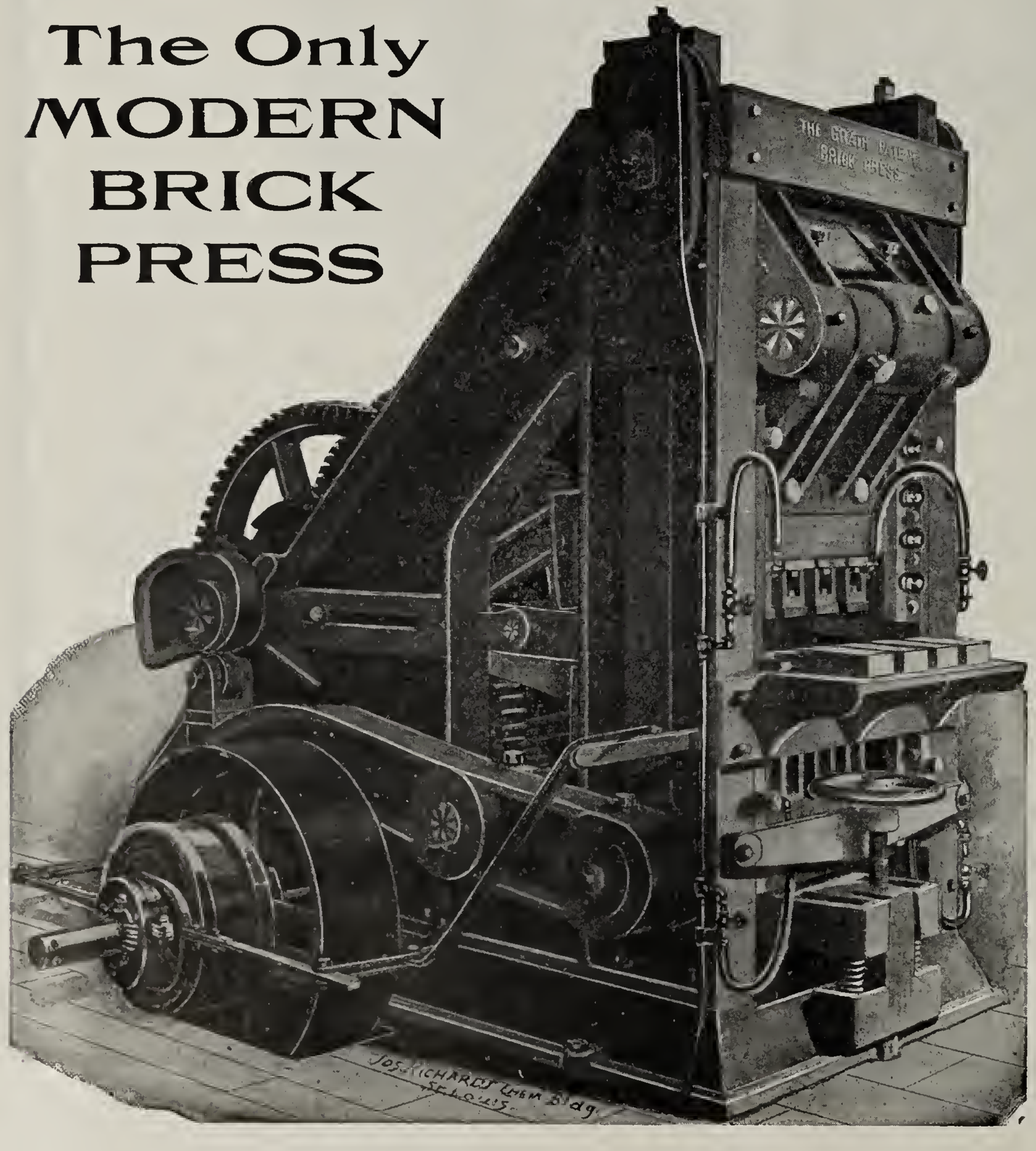
Brown Instrument Co.
Ceramic Supply & Constr. Co.

**Revolving Steam Shovels.**

Thew Automatic Shovel Co.

(Continued on page 16.)

The Only
MODERN
BRICK
PRESS


THE GRATH PATENT BRICK PRESS

THE GRATH
PEERLESS PRESS

(Made in Four and Five Mould Sizes.)

For shales, fireclays and surface clays. Gives FULL pressure without brick cracking or splitting open.

Guaranteed capacity six to seven thousand perfect brick per mould.

The Jersey Clay Products Co., Newbern, Ill., turn out with four mould press 28,000 perfect brick in ten hours.

Thickness of brick changed in less than two minutes.

Ill. Supply & Const. Co.
722 Century Bldg., St. Louis, Mo.

The Layton, Pa., Plant of the Kier Fire Brick Co.

**BUILD WITH BRICK**

# 25,000 Silica Fire Brick

**are being dried every day by the**

# Sirocco

TRADE MARK.

# Waste Heat System

and dried economically, at the Layton, Pa., plant of the Kier Fire Brick Co.

They decided to convert their waste heat into a valuable drying element. You can do the same. The cost is small as compared to the results obtained.

Our Brick Engineering Department will lay out a Sirocco System for you, by the installation of which **you** can turn a **waste** into a **gain.**

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
San Francisco, Cal., 667 Mission St.
Dallas, Texas, 1908 Commerce St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 705 Merchants National Bank Bldg.
Boston, Mass., 120 Milk St.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country,"
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

SHAWMUT VITRIFIED PAVING BRICK WORKS
Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

ALTON BRICK COMPANY
Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION
The Barr Clay Co.
C. C. Barr, Pres. • Streator, Ill.

The Danville Brick Company,
Manufacturers of the Unsurpassed
Danville Paving Block.
Danville, Ill.
LET US QUOTE YOU PRICES.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED
KUSHEQUA
Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

McAVOY VITRIFIED BRICK COMPANY
PHILADELPHIA, PA.
*"McAVOY BLOCK"*

PROMENADE TILE
Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

C. P. MAYER BRICK CO.

The MAYER BLOCK is Unequaled in Abrasion Test.

Tile Underdrainage.
By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

THE DECKMAN-DUTY BRICK CO.
CLEVELAND, OHIO.

THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

"Best Paving Block Made"

Daily Capacity
500,000
The Metropolitan Paving Brick Co.
Canton, Ohio

Merely Advertising as the BEST
doesn't make it BEST.
"WHO EVER SAW PAPER REFUSE INK?"

**IRONSTONE BLOCK**

Out tested every block tested in competition
with it during 1913.

FOR HEAVY TRAFFIC
STREETS AND FREIGHT YARDS.

**TERRE HAUTE VITRIFIED BRICK CO.**
TERRE HAUTE, IND.

**Murphysboro Paving
Brick Company**

Manufacturers of

The Celebrated
**EGYPTIAN PAVING BLOCK**
The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

**Do You Want Clay?**

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

**Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.**

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

**The BLOOMFIELD CLAY CO.,**
(C. A. Bloomfield, Treas. and Manager)
P O. Box 413. METUCHEN, N. J.

**CLINTON PAVING BRICK CO.**
Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

**Clinton Paving Brick Company**
Clinton, Indiana

**VITRIFIED PAVING BRICK**

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second edition.

Mailed to any address on
receipt of $2.00.

**T. A. Randall & Co. (Inc.) Publishers**
Indianapolis

**Bessemer Limestone Company**
Youngstown, Ohio.

Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver
Made.

**PURINGTON PAVERS**
ARE MADE OF

**GALESBURG
SHALE**

**PURINGTON PAVING BRICK CO.**
GALESBURG, ILL.

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Wellington Machine Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Constr. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Central Iron Works.
Eagle Iron Works.
Illinois Supply & Con. Co.

### Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

Thew Automatic Shovel Co.

### Steam Specialties.

Dean Bros., Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

### Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply and Com. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Steele & Sons.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Switches.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., H.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Com. Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

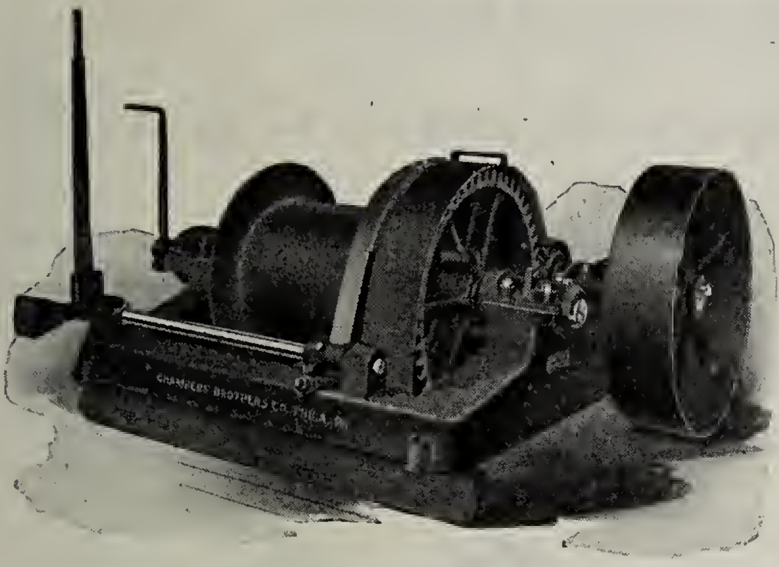
POTTERY ADVERTISING NOVELTIES

Majolica and Terra Cotta Work
for Sculptors a Specialty.

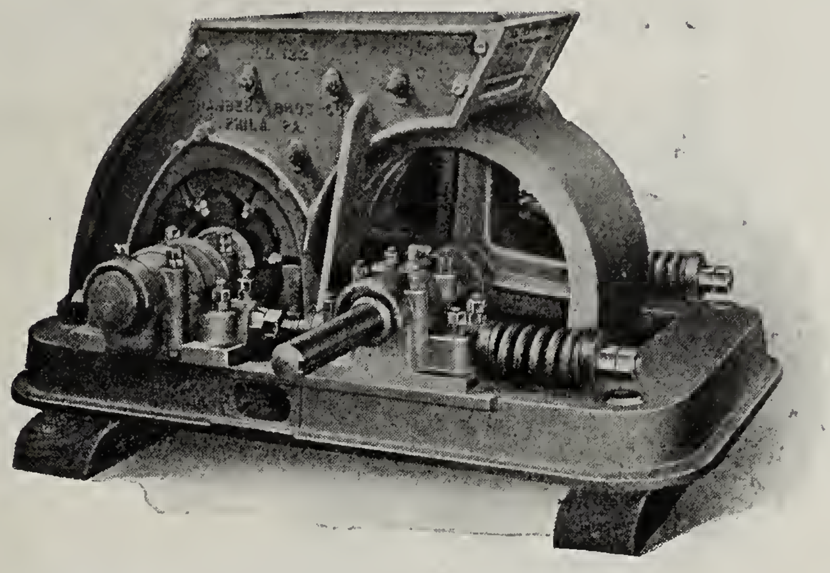
DUANE F. ALBERY
421 Sherman Ave., Evanston, Ill.
Correspondence solicited.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machinery



No. 2 Iron Frame Friction Hoist.



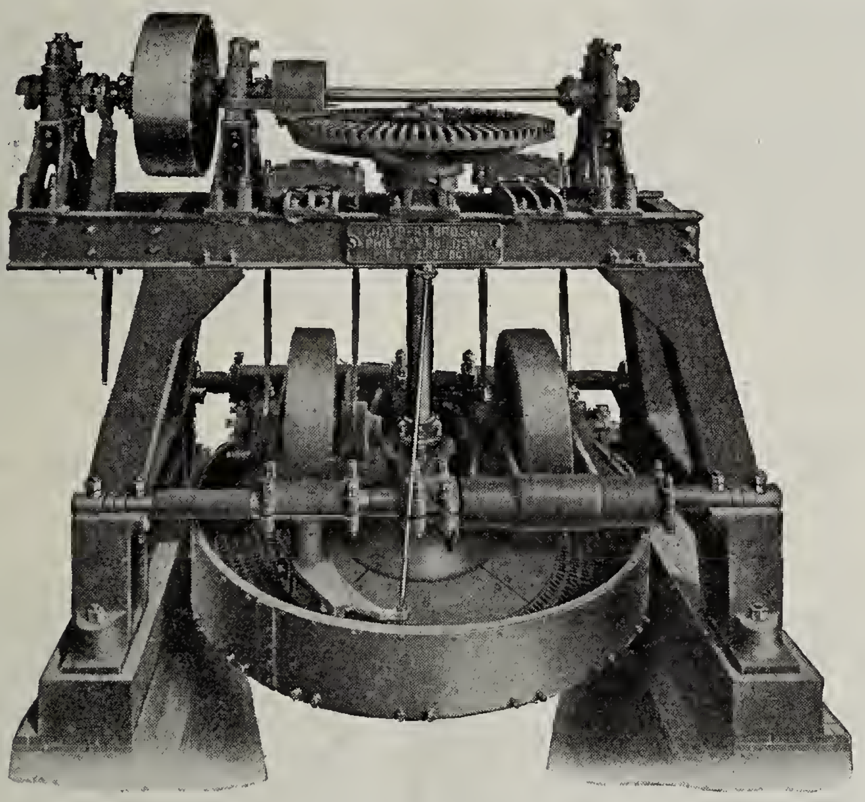
Special Disintegrator With Relief Springs.

### THE SUSPENDED PAN

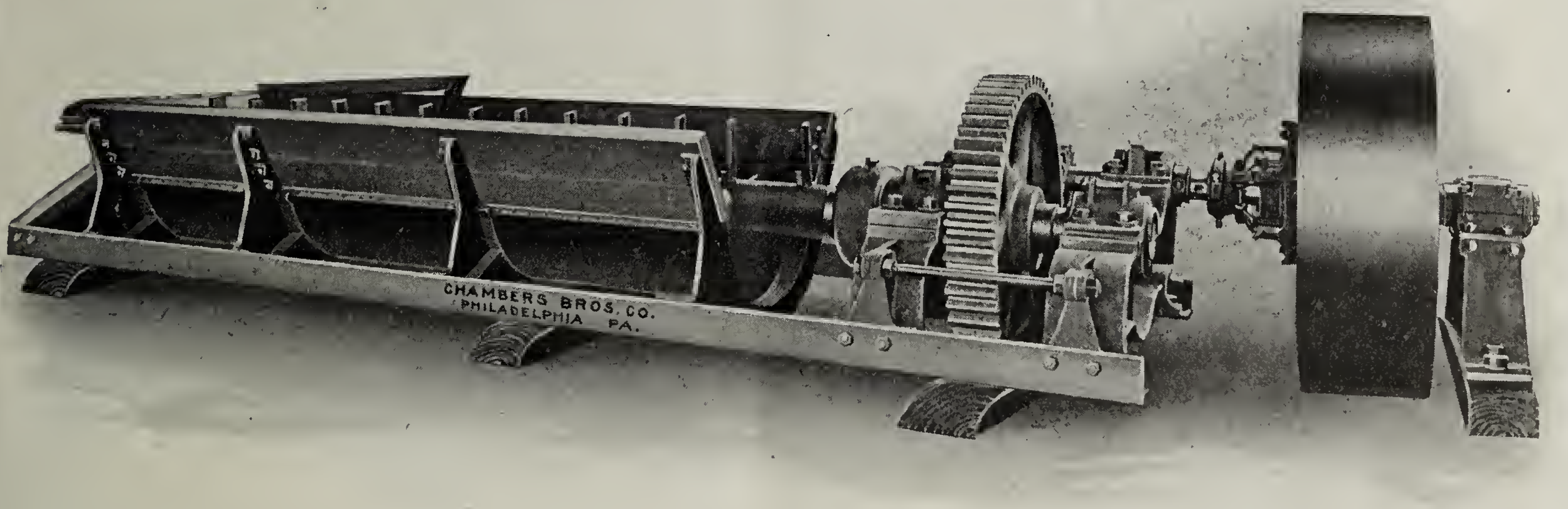
Has no underneath step bearing and requires no central pier for support. Sweeps or wipers are eliminated, as the ground material can be hoppered to conveyor belt or to the elevator boot.

The grinding rollers are provided with suspension rods and springs, so adjusted that the rollers just clear the pan bottom when machine is empty. Step bearing is in the steel cross-head above instead of below the grinding machinery.

The journal bearings of both shafts are made in halves and babbited. They are readily removed for re-babbiting without dismantling the machine. The rollers are mounted independently so that the motion of one does not affect the other. Curved steel scrapers with reversible and renewable toe-pieces. Very hard tires and grinding plates. Malleable screens.



No. 2 Suspended Dry Pan. 9 Feet Diameter. 40,000 Pounds Weight.

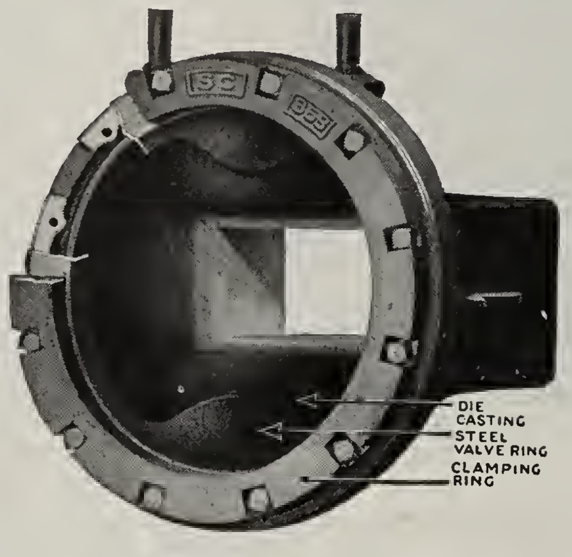


SINGLE SPUR GEAR GRANULATOR NO. 50.

Weight about 16,000 lbs. Machine frame 19 feet 18 inches long. We build a variety of Granulating and Feeding Machines of different capacities, both Spur Gear and Bevel Gear construction, to suit different installations. Send for complete catalog.

# Chambers Brothers Co., Philadelphia, Pa.

Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

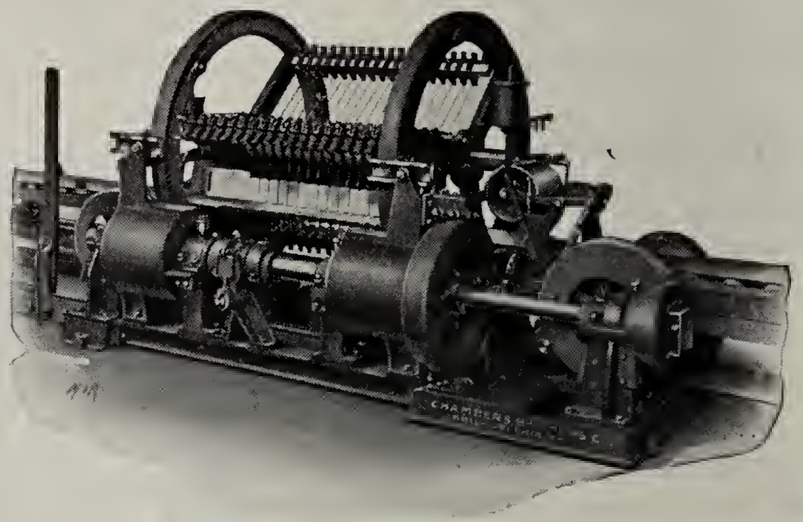
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

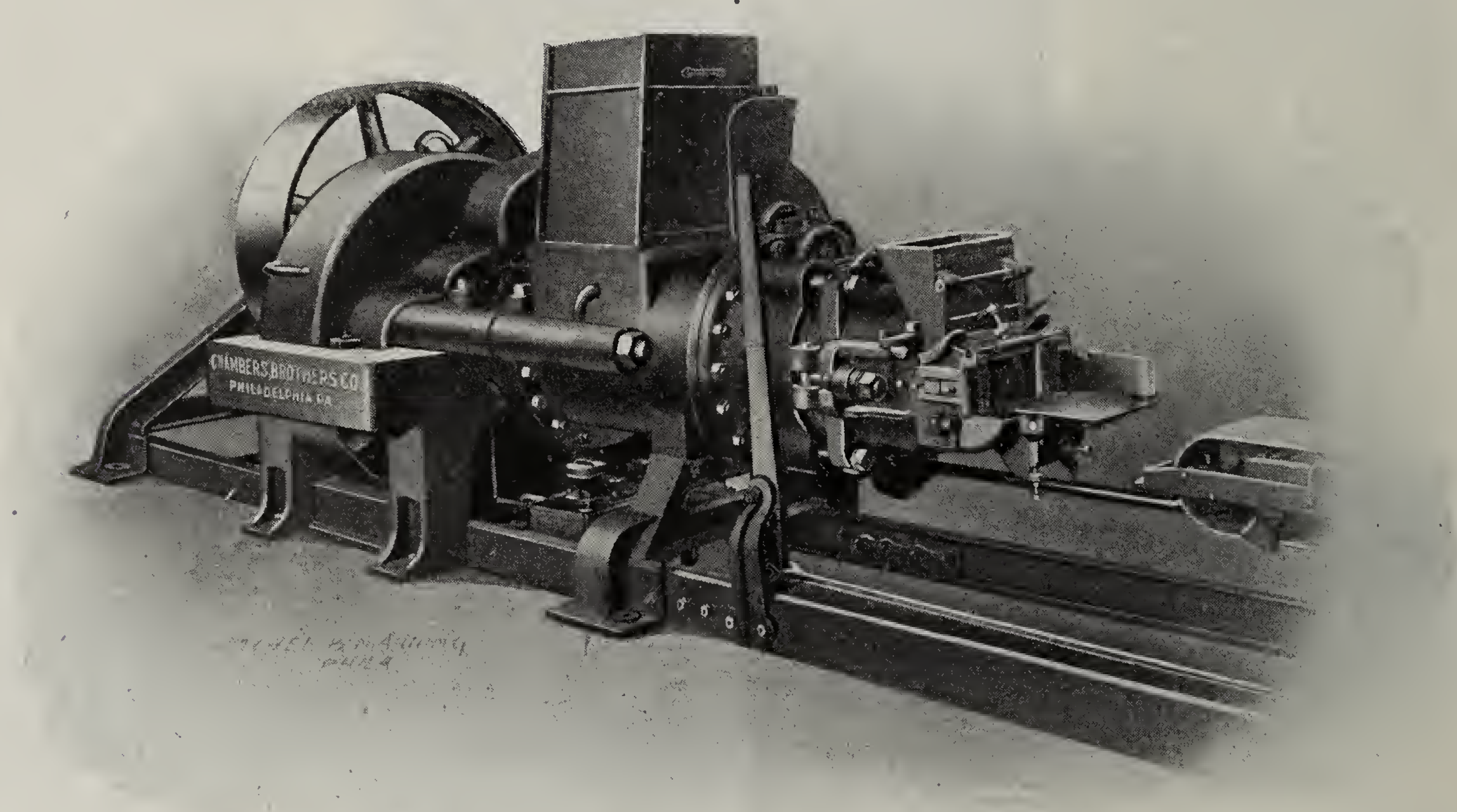
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine—For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

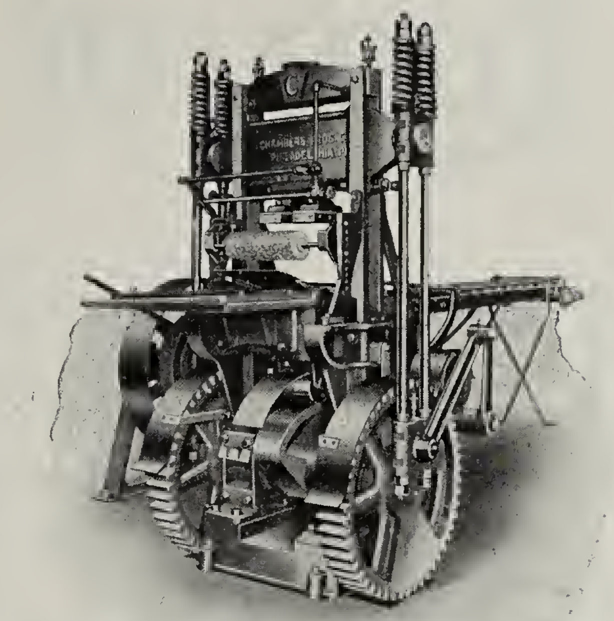
# Chambers Brothers Co., Philadelphia, Pa.

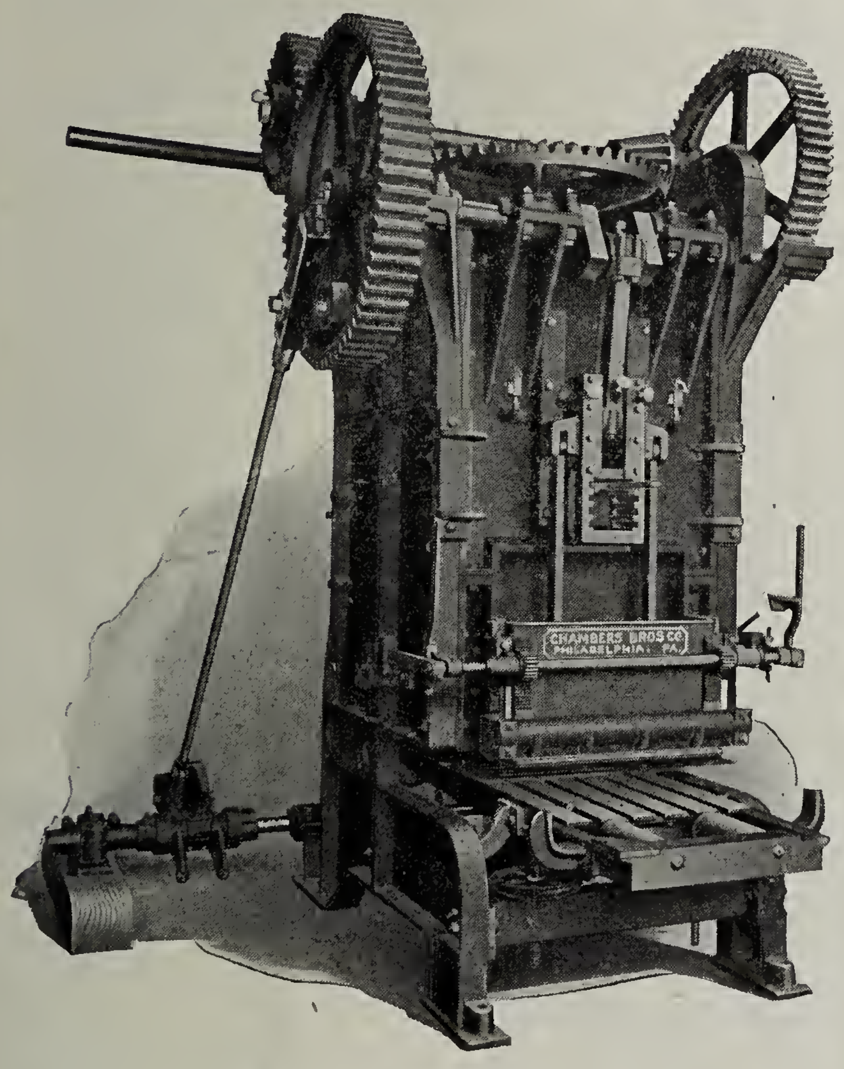
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

THE BELMONT
SOFT MUD BRICK MACHINE

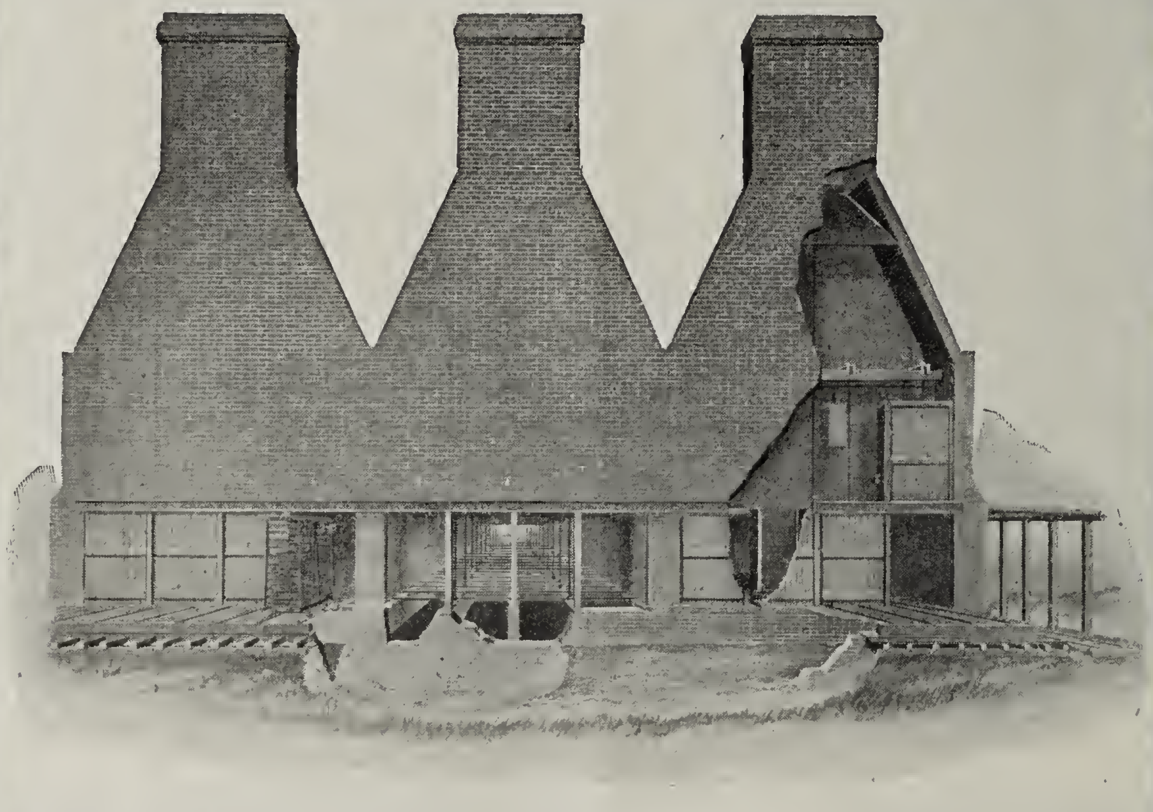
Molds sharp clean edge brick as stiff as can be dumped from the molds.

# Absolute Control

FOR the successful drying of your product, it is essential that the drying elements be absolutely under the operator's control. Any user of

# The Standard Drier

will be pleased to tell you about the complete success of The Standard Drying System in this and other respects. Write for the catalog. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis. Ind.



Twelve-track Standard Drier of the most up-to-date type of fireproof construction. Timber almost entirely eliminated. Walls and stacks of brick. Roof of tile, concrete or brick.

THE CLAY-WORKER

The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIII. INDIANAPOLIS, IND., JANUARY, 1915. No. 1

Written for The Clay-Worker.

# THE CONVENTION CITY.

## SOME OF THE MANY ATTRACTIONS OF DETROIT, WHICH HAVE MADE IT ONE OF THE MOST POPULAR CONVENTION CITIES IN THE WORLD.

BEAUTY AND INDUSTRY is the delightful twin accompaniment that enters the discussion wherever the name of Detroit is mentioned. It is sometimes difficult to reconcile the thought of manufacturing, shops, factories, and hustling dynamic business and industrial activity, with unparalleled beauty, yet Detroit, often spoken of as THE CITY BEAUTIFUL, occupies that paradoxical position among American cities.

DETROIT - THE AUTOMOBILE CITY
Geo. H. Clippert & Brother Brick Co.
COMMON, STOCK AND HOLLOW BRICK
CAPACITY 75 MILLION BRICK PER YEAR.
Michigan Central & Pere-Marquette Sidings
143.
Clay-Worker

Clippert Brothers' factory-office and their immense illuminated sign, which faces the main line of the Michigan Central Railway, and so catches the eyes of the multitude.

Perhaps Detroit may have been favored more than most cities for the reason that many of her manufacturing concerns produce commodities of such a character that many of the unpleasant features of production have been eliminated, coupled with the fact that modern construction with the most painstaking sanitary conditions makes Detroit factories the marvel of the industrial world.

Detroit, with 615,000, is the seventh city in population in the United States, and if it were possible to put the question to vote would undoubtedly prove overwhelmingly to be the first in popularity, for it is claimed by Detroiters that visitors and tourists themselves originally christened it as the city "WHERE LIFE IS WORTH LIVING."

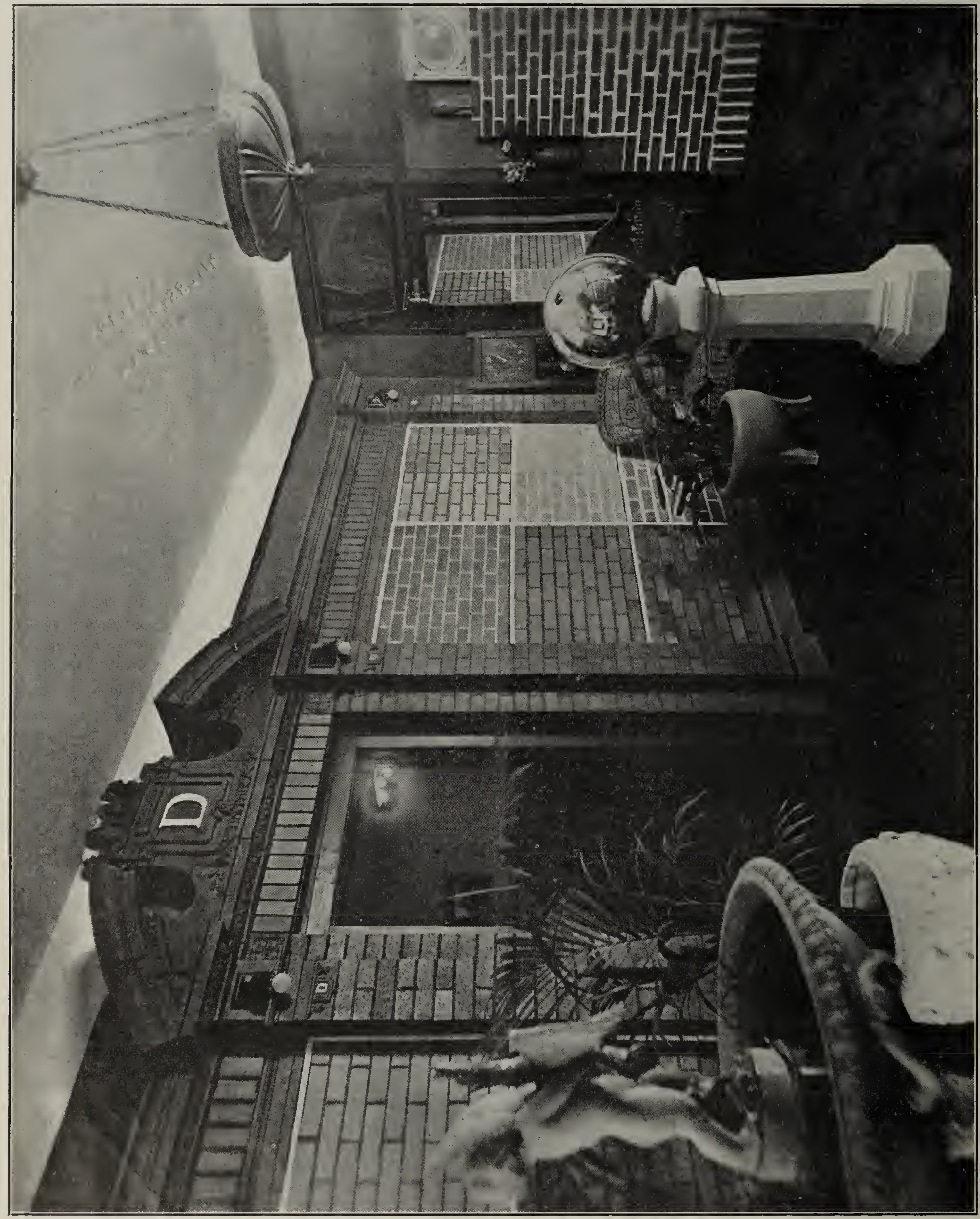
Detroit is pre-eminently the historic city of the Great Lakes and the Middle West, and was founded in 1701 by Cadillac, who erected a fort called Pontchertrain. This was a century before the Louisiana Purchase gave to this country the site of the present city of St. Louis.

The matter of location has been a factor of highest value to Detroit in all periods of its commercial and industrial activity, being located on the Detroit river or strait, which is unique among the waterways of the world. It has no tides; it never dries up and never overflows its banks, but with an equable flow, carries on its surface a tonnage larger than that handled at Liverpool and Hong Kong combined. The harbor at Detroit, while not land-locked, is so protected that the severest storms hardly disturb a vessel at its moorings, making shipping and pleasure-boating safe to a degree that is unknown on other large bodies of water.

A few financial figures in connection with Detroit may be interesting. The banking capital and surplus totals $23,000,000; savings deposits, $90,000,000; commercial deposits, $100,000,000 annually; clearings, $1,333,000,000.

With $30,500,000 expended last year for new buildings, Detroit shows an activity which has been surpassed by few modern cities.

The many opportunities for taking delightful one-day trips from the city of Detroit is shown by the fact that on the excellent fleet of excursion steamers, eleven million pleasure seekers sailed from Detroit last year



The Beautiful Display Room of the Dresden Brick Company, Detroit, Mich.

—without the loss of a single life—a record in transportation affairs.

Detroiters take pride in the fact that there are over fifty one-day trips—out in the morning and back in the evening—at an expense so small that it is scarcely worth considering.

That "Venice of America," the St. Clair Flats, is probably one of the most interesting sights on the Great Lakes.

There is no more interesting industry today than the manufacture of automobiles and nowhere in the world does the visitor have the opportunity of observing the great progress made in the production of automobiles than in the city of Detroit.

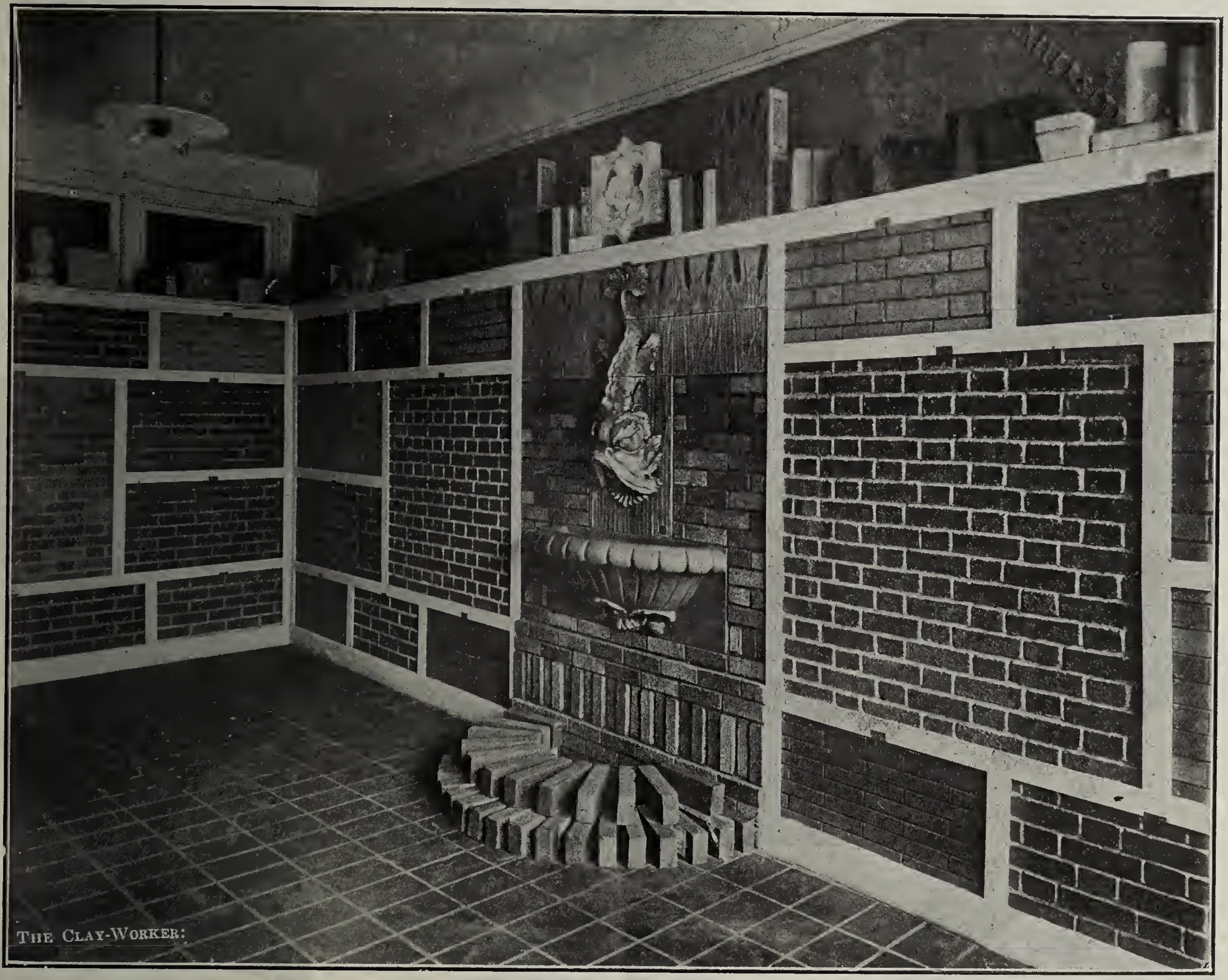
During the last year, three hundred and ninety-five thousand automobiles were manufactured in the city of Detroit, at a market value of $400,000,000. The number of people employed in this industry alone would populate a fair sized city, as there are about seventy-five thousand of them. One factory alone produced one hundred and eighty-five thousand automobiles last year, making an automobile every thirty-four minutes during the months of April, May and June. This factory, after making a little more than 10 per cent. manufacturer's profit, paid dividends of $11,000,000—or 500 per cent. on the original capitalization. They employ about thirteen thousand men and during the month of February of last year, produced 1,170 cars every day.

The large number of automobiles owned by residents has resulted in over seven hundred miles of improved and four hundred and twenty-five miles of paved streets and boulevards.

Detroit owns its own electric light plant and water works system, at a total valuation of $15,000,000; has over one hundred public schools and eighty-five private educational institutions.

That Detroiters believe in the slogan adopted by visitors that "In Detroit, Life is Worth Living," is shown by the fact that the government census report shows that almost 40 per cent. of the people own their own homes. Further evidence of this fact is the increase in population of about forty thousand per year.

Detroit does not depend wholly for its prosperity upon the automobile industry. It leads in the production of stoves, adding machines, chemical products,



A Corner of the Show Room in the Offices of the Thomas Bros. & Co. (Ltd.), Detroit, Mich.

# SOME OF THE DETROIT 'LIVE WIRE' BRICKMAKERS WHO WILL ENTERTAIN CONVENTION WEEK.

WM. CARPENTER.

CHARLES F. CLIPPERT.

H. W. HOLMES.

RALPH SPENCER.

CHARLES H. BRYAN.

G. V. CATHEY.

WM. B. WREFORD.

WM. CLIPPERT.

F. B. HOLMES.

shoes, pharmaceutical output, cigars, soda, cars, paints—and so the list grows.

The hospitality of the citizens of Detroit is proverbial. It is estimated that two million people visit Detroit during the summer season, all of them carrying away a lingering memory of a welcome that is lasting.

Detroiters claim an advantage over most other cities for the reason that a trip abroad may be indulged in with very little effort on the part of the stranger. One may embark every ten minutes for the domains of King George, arriving at the pretty little city of Windsor, Ontario. This is a typical Canadian town and has always been the Mecca of visitors from the United States, for the reason that Canadian customs and styles are in evidence on every hand. Adjacent are the cities of Walkerville (famous for the distillery of Canadian Club Whiskey) and Ford City, at which is located the Canadian plant of the Ford Motor Company.

## The Executive Committee of the Detroit Brick Manufacturers' and Dealers' Association.

GEORGE H. CLIPPERT.

J. A. MERCIER.

J. S. HAGGERTY.

What is of especial interest to clayworkers is the fact that Detroit is distinctively a brick city. Her sky line today is of brick. Her great commercial buildings viewed from the river front by millions of visitors every year are of brick and most of her modern residences are built of brick, and a ride through her beautiful boulevards and drives gives one a very pleasant impression of substantial home life. Detroit people live well. Her building for years past has been of the safe and sane variety, which means the extensive use of good building brick and terra cotta. The Detroit market requires nearly half a billion brick every year and these are all made by local manufacturers whose plants are located in and about the city. An excellent grade of common brick is made and supplied at an average price of $7.50 per thousand delivered at the job, certainly a very reasonable price for the best building material.

Her brick men are progressive, broad-minded, successful business men who play an active part in the commercial and civic affairs of the city. The reader may readily see this written in the faces of those pictured on another page. They have always taken an active interest in the N. B. M. A. From the first meeting in 1886 they have been represented at every convention, and now that they are to play the part of hosts a second time, members and guests may expect a cordial welcome and delightful, intelligent entertainment, in keeping with the spirit of the Association, which spells progress for the brick industry of the nation.

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### GOVERNOR DUNNE TO WELCOME ILLINOIS CLAYWORKERS AT STATE CAPITOL.

Governor Dunne will give the address of welcome at the New Leland Hotel, Springfield, Ill., where the Illinois Clay Manufacturers' Association will hold its thirty-seventh annual convention, February 8, 9 and 10, 1915. The clay men of Springfield, along with the co-operation of the Springfield Commercial Association, are giving their earnest support, while a large number of prominent clay manufacturers throughout the state have signified their attendance. With the large attendance promised and a program which will be of material benefit to all, this will be the best convention in years. The first two days will be spent in giving papers and discussion of subjects which are of interest and vital importance to all clay manufacturers. Subjects dealing with cost accounting, insurance difficulties, manufacturing troubles and upon selling.

On Tuesday evening, the clayworkers will endeavor to cast aside their many troubles and partake of a bounteous spread—the annual banquet, and with Dr. Converse, a veteran clay man of Springfield, as toastmaster, this feature in itself will long be remembered.

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The right idea in connection with advertising is to make it a feature of your business, and not merely an incident. When you do that you are more likely to handle it in a business manner, and to get more out of it in the way of returns for the money invested.

## FACTS AND FIGURES ABOUT ROOFING TILE.

IT IS a little difficult to get at the exact figures of the production and consumption of clay roofing tile because the industry has not yet assumed enough magnitude to get a separate classification in the general statistics covering the clayworking industry. Neither is it possible to get specific figures on the magnitude of possibilities in the roofing field. There is, however, enough data available along these lines to make it readily apparent that there is plenty of room for a wonderful expansion in the roofing tile business.

From such figures as are available we can deduce the following: Of tile, other than drain tile, manufactured in the clayworking industries in 1912 there was a total production valued at $5,356,184. This, evidently, includes mantle tile and other decorative tile as well as roofing tile.

The roofing slate production for the same period, for the year 1912, was 1,197,288 squares, valued at $4,636,185. Here we have some specific data, data showing the number of squares of roof made of slate in the year, which runs approximately a million squares.

The production of wooden shingles has averaged for the past several years approximately thirteen billion shingles. The unit of measurement in shingles is the thousand, which is equivalent to the square, consequently we have an annual use of shingles in round numbers of thirteen million squares.

In addition to tile roof, slate roof and shingle roof, we have the metal roof and the composition roof and it is impossible to get an approximate idea of the amount of roof space covered by these per year. It is perhaps safe to assume in this connection that on the big office and factory buildings with flat roofs the composition and gravel will continue being used, which would leave the main field for competition the field in which clay roofing tile has its opportunity to expand, that of the roofing which is included under slate, shingles and quite a percentage of the metal roofing, such as is used on residences, churches, etc., in the form of either sheet metal or metal shingles.

At the present time it is doubtful if there is half a million squares of roofing per year covered with clay tile roofing. Judging from the amount of other roofing material used, there is easily a possible field of fifteen million squares, or we might say, a chance to multiply the volume of clay roofing tile business thirty times. The field is perhaps even larger comparatively than that, but taking that as a basing figure, it is easily evident that there is room for wonderful expansion in the roofing tile industry if the product can be made and distributed more generally and at such a figure that with the better quality which it offers in the way of a roof, it will be used. There is no question, either, but what if roofing tile were readily available at every brickyard or along with the brick, there would be more of it used, and practically every man building a brick home would top it off with a tile roof.

The Thomas Bros. & Co. (Ltd.) Brick Display Room, Detroit, Mich.

# BUTTON-HOLE TALKS.

## JUST JOGGING ALONG.

HOUR AFTER HOUR we rode steadily on through the wheat fields of Minnesota, golden in color and golden in fact, as well. Undulating hills, stretch out, flecked with cloud shadows and dotted with the sheaves that will feed the world, the world that is waiting for them and that needs them now and will have greater need for them later on. The world that seems to have forgotten building up and is devoting its energies to now tearing down. A world that has ceased construction and taken up destruction. A world that has forgotten the commandment "Thou shalt not kill," and, with a lust of blood, and in a return to savagery, is wantonly killing, mercilessly, savagely, ruthlessly shedding seas of men's blood, in a cause they know not of and in a matter in which they were not consulted. The multitude had no choice. The ambitions of a few rulers are being floated in the hearts' blood of the multitude. The masses are slaughtered, but the rulers, the instigators, are safe beyond the whirr of the destroying bullet. All the men but the old, and all the boys but the very young, will be killed or crippled. All the women and children will hunger. Great structures, the pride of past achievement, will be wrecked and destroyed. Posterity will be buried in war debts and civilization set back for generations and the harvest will be suffering and misery unutterable.

W. D. Gates.

But these quiet dwellers of Minnesota and Dakota will feed them. The toilers here have been working that they might feed them. They did not know it, but that was to be the end of their labors. They are combing these wide prairies and gathering in the kernels of the wheat which, when gathered, will be rushed, by rail and steamship, to and across the seas to far off European countries to feed the fighters, to nourish their bodies, to make more blood to be there poured out at the behest of the pampered autocrats. But these fighting hordes must pay for it. These quiet farmers will gather in the good round dollars, paid now by these autocrats, but borrowed by them and to be repaid by their surviving subjects in the sweat and toil and misery of succeeding generations of the descendants of these fighters. The price they are now paying is only a first installment. The debts of their war will last many a year and will be paid in self-denial and sorrow. Truly being governed and being ruled is a costly and hazardous game.

So, on and on, through the wheat fields of Minnesota and Dakota and on into Montana and the cattle country. The flocks of thousands of sheep have wool on their backs that will go into the uniforms of these contending armies. Wool from these same flocks will lap the life blood, will clot and thicken as it covers the ghastly rents of the hurtling metal. Those herds of cattle will go to feed and nourish them. Those droves of horses will go to carry them, to rush them into battle, to themselves there perish and, like as not, to be themselves there used as food.

Man must fight, but man must be fed. It has become unpopular and unfashionable that he fight as an individual, but quite the proper thing that he fight collectively and that he then shall fight brutally, and shall then disregard all rules, even those of the prize ring. For generations nations lavish money on instruments of destruction, dearly bought by the toil of the masses, until there comes the time for testing. Then they call their men, their very best, to leave their creative work, the tillers of the soil, the builders of their buildings, their cunning artificers, their writers, their artists, and massing them into packed armies, they try out these costly instruments of annihilation, testing them to find out which are the most destructive. Stopping progress, stopping creative work, they wreck what has already been accomplished and impose on posterity an insufferable burden of war debt. Why should not a nation be as wise as an individual? Individual fighting is past, is relegated to the age of savagery, why should not national, collective fighting be as well?

At Three Forks, Montana, the head waters of the Missouri river, there faces the train a new hotel, bearing the name "Sacajawea," bringing to mind the expedition of Lewis and Clark and their Indian woman guide, thus recalled in the naming of the hotel, built here in the place of the home from which she was taken when a child. A pleasing testimony to her loyalty, efficiency, perseverance and courage.

As we proceed, the landscape grows rougher. Little, queer shaped, mesa topped hills, dry creeks and rivers with alkali whitened beds. Little shacks, squatting in the distance, lonesome, dreary and treeless, yet sought out as homes and preempted by adventurous pioneers with the westward wanderlust. Still a cattle country but with little occasional struggling fields of wheat, proclaiming man's efforts in misunderstanding nature and trying to grow what was never intended. Then on into valleys where the river beds show no alkali, but water with trees dotting the banks. Way out beyond, the blue tops of the first mountains glimpse and beckon us on. Cabins built of sod, and with roofs of sod with weeds growing on them. The blue haze of the mountains grows more and more distinct, showing patches of white snow, sure enough snow, and we panting down here in the hot, dusty sun heat. Out there, by the creek, is a sure enough "Prairie Schooner," anchored and at rest for the night, evidencing that the restless pioneer still lives and is moving westward, restless, hopeful and ever dreaming of an Eden yet to be reached. Into the foothills, yellowish with dead grass, stretching, cloud-flecked, away to the mountains. Then mossy looking with what we know to be woods, but looking like moss in the distance. Now the mountains and foothills are casting their shadows far back, long, glorious shadows, showing glorious beauties, unrevealed by the vertical, noon-day sun, but growing more and more glorious, as the sun declines. We speed on, way down in the bottom of deep canyons, where the walls of the mountain have riven wide apart, deep down, following and cuddling up to a little trout stream that finds the way for us and leads us through valleys and into mountain parks. Way up the riven sides are green trees. Clinging to the rock, deep-rooted in their rocky crevices, they hunt out all the nourishment in their rocky home and then die, even as the country youth transplanted in the rocky crevice of the city hall bed room strangles, pines and dies. Down in the mountain parks there are homes where the cunning owner has stolen the water from the brook and by irrigation, lavished luxuriant verdure on his home. Homes, shaded in greenery, apparently prosperous and contented. Shut in by the mountain, it is true, but possibly the mountains may shut in the good and shut out the bad and maybe, indeed, a beneficent wall. It may shut in content, and thrift, and industry, and good fellowship, and love, and may shut out the selfishness, the artificiality, the avarice, the greed of the city and the stain and soil that flourish there.

Some day old Mother Earth was busy here. She took her stratas of rock and, upheaving them, crushing them, twisting them, she forced this backbone of a continent. She left, instead of horizontal, inclined and vertical masses, shooting them high in the air; she left them to her agents, the sun and the frost, heat and cold, wind and water, to powder them and grind them and then send the ground product down into the valley to make them fertile and verdant. Then she colored the rocky masses gloriously. Time smoothed them and toned them and the ages have brought them to what they are, for man's use and enjoyment. A work not at all hurriedly done, but efficiently and completely.

High up, we come out overlooking a big mountain park. Far down, we see checkerboard farms, miniature playhouses, toy trains of cars, and the far winding threads of railroad tracks over which we are yet to go to reach the toy city which we glimpse below, with its desolate, leafless hills, the city of Butte, Montana, the melting pot of mining humanity.

GATES.

# ANOTHER REINFORCED CONCRETE FAILURE.

*A representative of The Clay-Worker visited the ruins of the Edison factories at West Orange, N. J., soon after the fire, armed with a camera and instructions to make a careful study of the conditions and to present an unbiased report. The following illustrated article is the result of his investigations. It shows conclusively that reinforced concrete is not fireproof and therefore not a safe building material.*

CONCRETE and cement construction has had no more persistent booster than Thomas A. Edison, the great inventor, who in season and out of season for years has dwelt upon the excellencies of cement as a structural material, and even went so far as to invent a poured cement house which he declared could be erected for a few hundred dollars. Furthermore, he has demonstrated his faith in the material he advocated by constructing most of his immense plants at West Orange, N. J., of cement.

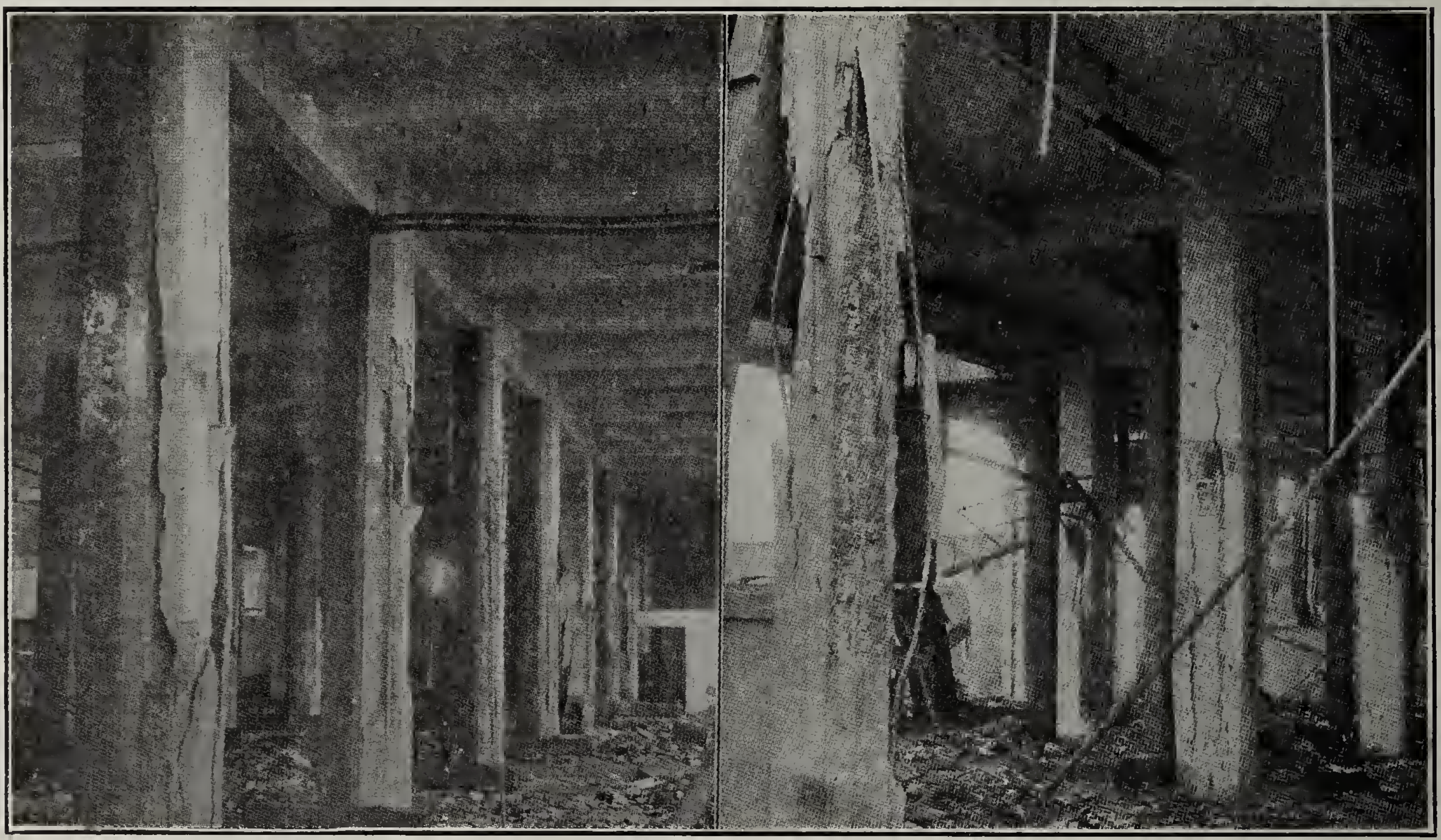
These buildings, which cover an immense acreage and employ thousands of hands have been heralded as fireproof. Indeed, they have been looked upon as model plants since they were built under the direct supervision of the Wizard himself, and men have come to have faith in whatever Mr. Edison does. When it was announced that a great fire had ruined his phonograph plant and his plant for manipulating motion picture films, builders and others were aghast. If the buildings erected from cement under the direction of as great a scientist as Thomas A. Edison are not fireproof, what ordinary mortal can hope to achieve fireproofing? That was the question that asked itself, regardless of the attitude of the individual toward cement or some other sort of construction. And it was a problem to find the answer. Perhaps it is not too much to say that none of them have yet found it. Perhaps, too, it wil be a long time before they do.

Incidentally, it may be remarked that Mr. Edison has a plant out in the New Jersey mountains where he makes what has been declared to be a very superior article of cement. This cement mixed by his formula into concrete is supposed to possess about the best features of which cement is capable. It may be remarked that it would be a poor manufacturer who didn't aver that his own wares were suitable for most purposes for which they were intended. Or, one might go farther, and say that he would be a poor manufacturer who wouldn't utilize his own material when that were possible. The onus of the damage wrought by this fire upon a supposedly fireproof building does not lie upon Mr. Edison's cement, nor has it changed one iota by his advocacy of cement as a building material. The case rests upon the behavior of cement under certain specified conditions, and these conditions happened to be in conjunction at Mr. Edison's plant. Moreover, the prominence of the owner and his enthusiastic advocacy of cement construction for years makes the fire a still more interesting theme to engineers and builders alike.

A representative of "The Clay-Worker" visited the plant shortly after the fire and purposes telling by description and illustration just what was visible there. It was quite impossible to get by the guards to the inside of the burned buildings. No amount of persuasion could accomplish that, so what was seen was from the outside and in a way is superficial. Still, even that is worth while and may develop interesting phases of the building proposition as it proceeds.

The factories which burned were four stories high. They were built with a large number of columns supporting each floor, all of reinforced concrete, perhaps twenty inches square. How many steel rods were used in these columns it was impossible to discover, though one which had sheared showed four rods in the break. More might have been there, but four were seen.

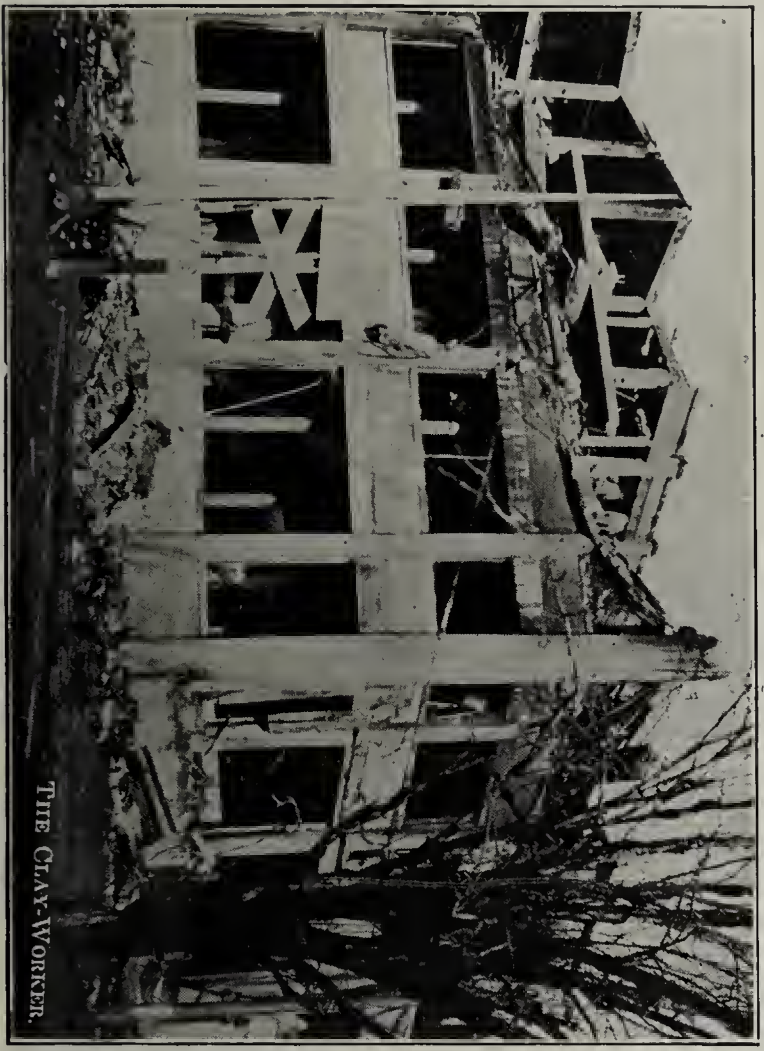
The buildings occupy a huge rectangle as large as a dozen or more city blocks, with each building suitably divided from the others. Through the yards runs the railroad and cars can be conveniently switched to every part of the works.



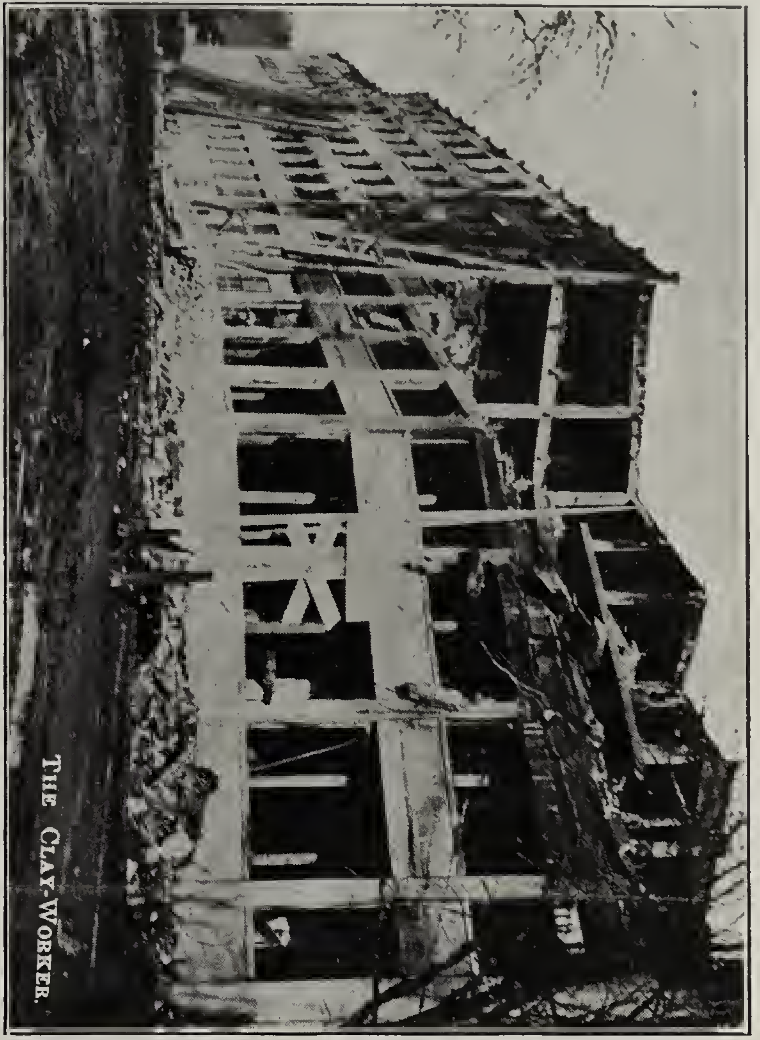
Two Views Showing Manner in Which Reinforced Concrete Columns Failed.

Of course, these are mere matters of administration, but they serve to show how thoroughly the works were planned with a view of economy of labor and time.

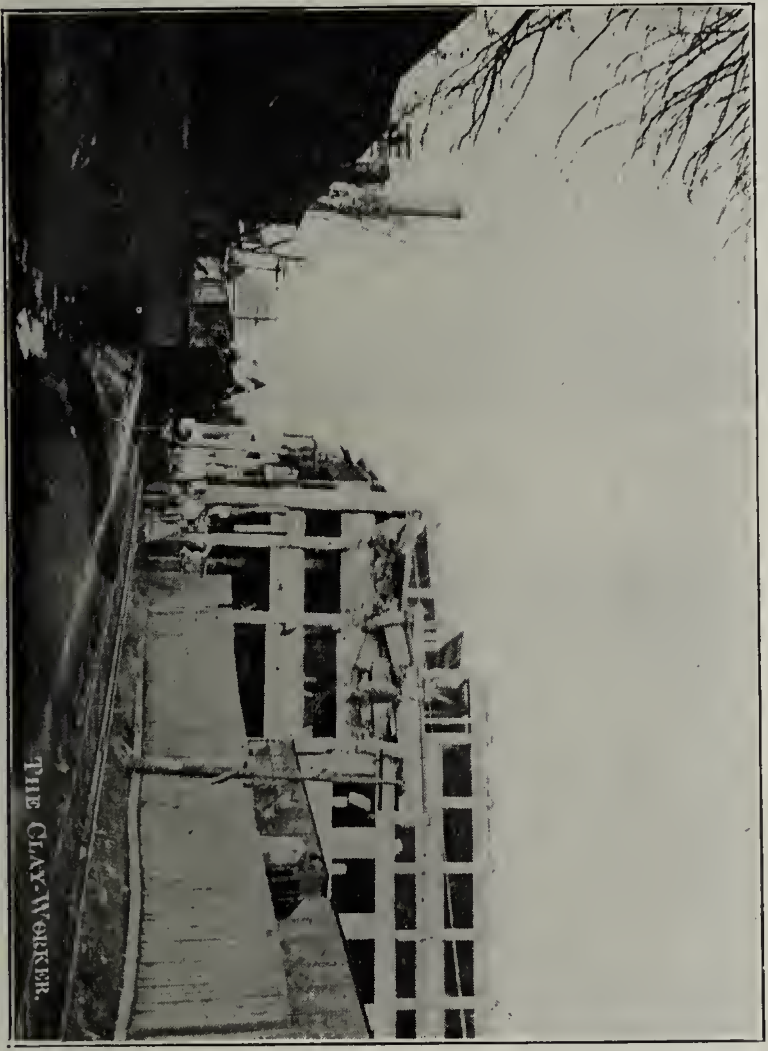
So far as could be seen no heavy machinery was operated above the ground floor. All the shafting in sight showed that most of the machinery must have been light, though here and there a heavy machine might have been placed. Still, none were observable, and since the shafting had not been removed it may be assumed that the heavy machines, had they existed, had not been removed either.



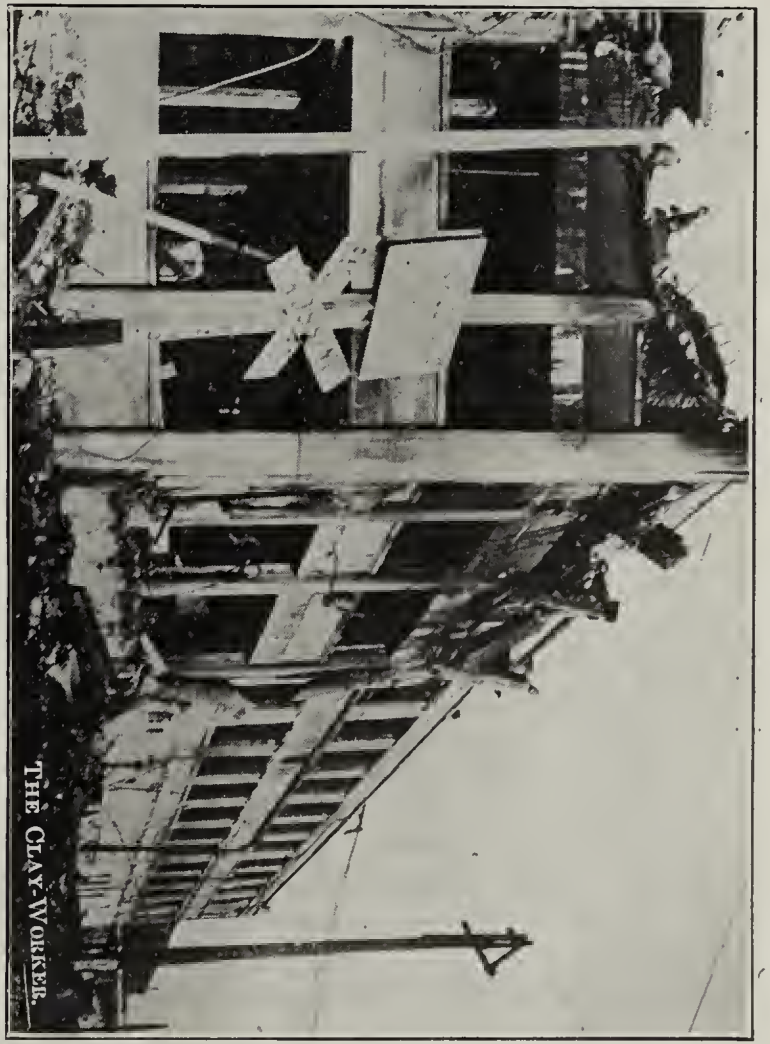
Wreck of Phonograph Factory.



A Badly Wrecked Concrete Building Shored Up With Heavy Timbers to Prevent Collapse.



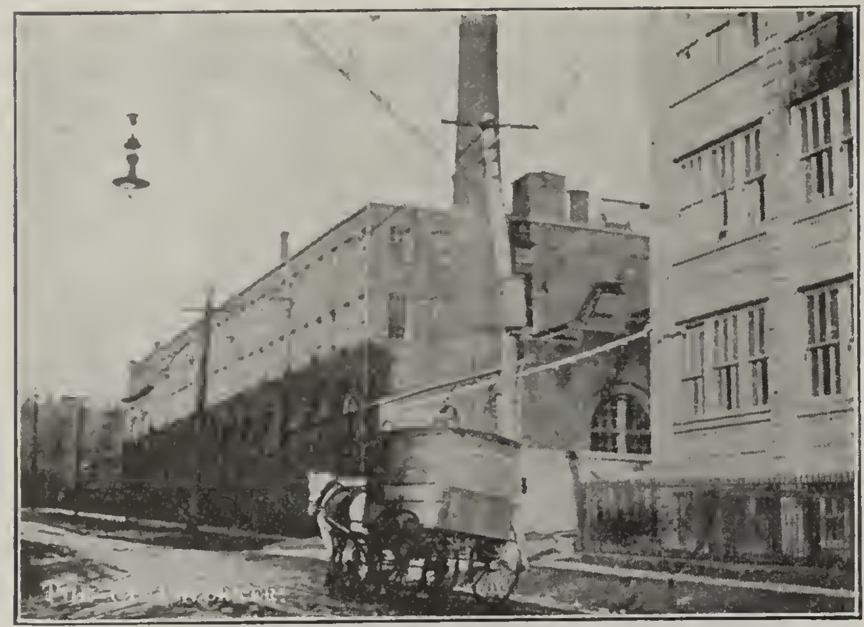
Inside the Rectangle, Showing Collapsed Floors.



Tearing Down What Was Left of One of the Concrete Buildings.

The fire was caused by the ignition of a motion picture film and the flames swept all these buildings around the huge square, completely destroying everything inside them. The only building which was not harmed was the brick administration and office building, which stands in the southwest corner of the rectangle. This was as solid after the fire as it was before. The brick ends of another building on the north side of the square are standing as good as ever, but the cement and wood sides are utterly gone. Of one side not a vestige remained.

These cement buildings are not flat. Some of them are to be used again after necessary reconstruction is completed.



Brick Administration Building Which Stood the Fire Test.

The new administration building, adjoining the brick building, is about ready for occupancy as this is written. The blackened outside walls tell the story of what it underwent and the workmen employed upon it find many cracks made by the heat. But never for one minute has the brick building been untenantable. These are stubborn facts, and quite well worth considering.

The southeast corner of the building in which the phonographs were made is a wreck. The roof and upper stories have collapsed and a tangled mass of wreckage is all that remains of it. Workmen are engaged in actually removing it with shovels.

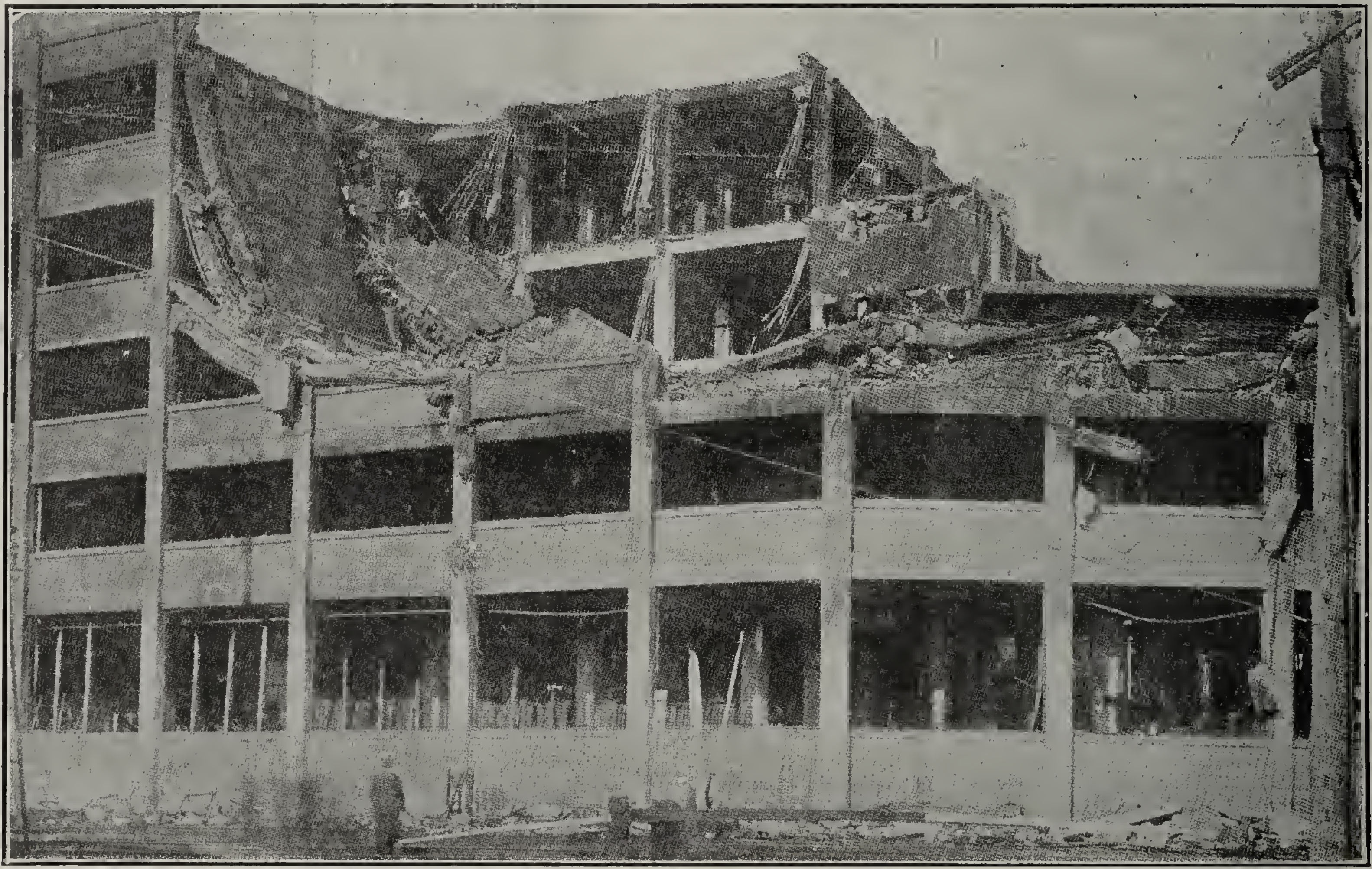
This is what happened. The cement under the action of the heat has crumbled back into its original constituents. They are tearing it down with shovels. Pick up a bit of the broken material which the workmen throw down. If it doesn't crumble to dust when it strikes the ground one may crumble it to pieces with his fingers.

It may be said that it has dissolved under the action of water, but if the story has been truly told very little water hit any of the buildings. The pressure was too light to permit it, and because they didn't have a profusion of water to pour upon a fireproof building, it burned quite as a wooden one would have done under similar conditions.

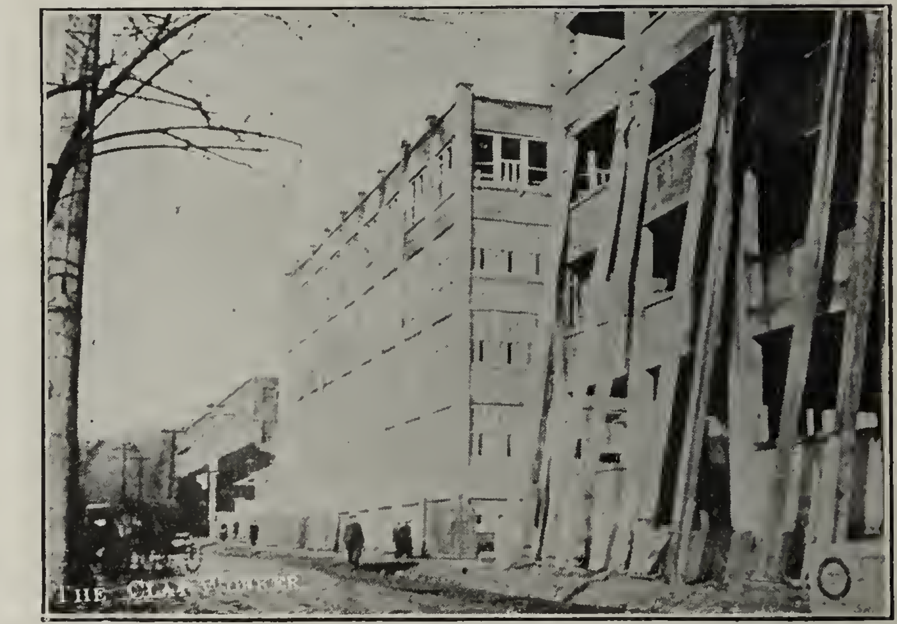
No, not quite, for there are brick ends, and one brick building standing amid the tangle. They can use the brick ends again if they wish and they are using the brick administration building. These may be minor incidents of a disastrous conflagration, but they are important.

Inside the rectangle the situation is more appalling than it is on the outside. The inside walls of the buildings, so far as can be seen between the fence pickets and by stolen glimpses here and there before the vigilant guards order the inquisitive ones away, the tangle looks hopeless. And, indeed, it is slow work picking up the twisted and broken iron and shoveling the buildings themselves into carts to be drawn away.

Let us look at another matter which will interest builders. On the south side of one of the largest buildings are fourteen columns supporting the outside edge of the floor-



A Sample of Failure of Reinforced Concrete in the Edison Factories.



A Closer View of the Shoring to Prevent Collapse of One of the Concrete Buildings.

ing. Architects figure upon the thrust of the flooring when estimating the strength required for columns or any other support. The columns might fail there where the thrust is strongest and where the weight comes without anything to offset it. In other words, where the floor joists, whatever their composition, rest upon these columns, there is the heaviest thrust and the one which is most likely to cause trouble.

Of the fourteen columns along the front of this building, five are sheared clean off. They broke with a curious diagonal fracture downward, half way between the third and fourth floors. Two of them looked as though the steel reinforcement was cut clean off as well. In the others the rods apparently held. But the building is shored up with wood shoring to save it from total collapse. Three other columns are cracked in the same way and in the same general direction. But the crack has not opened sufficiently so one may see into it. All the rest of the columns have shaled seriously, some apparently half way down to the middle.

What happened in the inside of the building? It isn't easy to say because no one was permitted inside. But shoring was plainly visible and where the corner of the building has come away so as to permit a fair view of the interior, two columns were seen which had bulges about half way up from the floor to the ceiling above the ground floor. It looks as though they had been blown up as a bubble, or as the glass blower makes a bubble in the tube with which he is at work. Mind, the writer does not attempt to offer any scientific or engineering explanation of this phenomenon. He is merely describing what he saw and leaves the explanation to those who have had experience in such matters and understand what has happened. All the other buildings were so enclosed as to prevent a view of the interior.

The steel rods used for reinforcing which have been taken out as the disintegrated material is shoveled away are twisted and bent as though a huge giant had taken them in sport. It is seldom that a ruin is more complete. Some of the rods are two inch, yet they are bent and twisted like threads and it is quite impossible to straighten them. In other words, the concrete in which they were encased seems to have fallen away and they were left to withstand the effect of the fire and the heavy pressure quite without protection. Under such conditions the inevitable happened and the building suffered proportionately.

Those about the place were very reticent about giving information. Indeed, they did not seem to relish the idea of publicity at all. They even objected to having photographs made, but by walking around and around the various structures and waiting for the change in the light it was possible to obtain fair photographs which show the effects of the fire and illustrate what has here been said. The wood shoring is plainly visible in one, and it is no exaggeration to declare that if that shoring were removed the entire building would collapse. There were indications, too, of similar shoring inside other buildings, but it was impossible to obtain views of them so these will have to be taken as a part of the imaginary portion of the big fire.

What lesson can the brick man draw from this fire? If he looks at the brick buildings standing in the midst of this tumult of wreck and loss he will think more highly than ever of his material. He will believe, as he should have believed all these years, that his brick or burned clay in any form is the best material with which to build. The ruin which he may see around this great plant will convince him that he has a right to insist upon the oft repeated assertions that brick is the most suitable material with which to build factories. He can go forth to sell his product with the assurance that it will stand the destructive agencies of fire and will assure safety from collapse in any case.

Thirty-five hundred employes were thrown out of work by this fire. It will be months before the plants can be put in operation again. Meantime, some three thousand men are employed in picking up and cleaning up and getting the buildings ready for reconstruction and re-occupancy. Not all of these are the employes, but many are. To assist the families of the men thus ruthlessly thrown out the company was supplying food and had numerous signs scattered about telling them where to go for it. One restaurant near the works had been taken over by the concern and posters in several languages were on the door telling the employes what to do to obtain this aid.

The oldest building destroyed was erected in 1888. Others have been put up from time to time since. The last one was built in 1912. The new concrete administration building was put up early last year, so it is but two years old.

Across the street from the burned buildings is the great storage battery plant, five stories high, also built of concrete of the same design as the others. It is, of course, impossible to obtain the formula which was used in mixing this material. But whatever it was it is almost white when finished.

Much has been said regarding the shortage of water. But it may be stated that a shortage of water seems an anomaly when the fireproofing is considered. The owners believed that their buildings were beyond danger from fire and therefore did not think of a water supply. Even though the material stored in one of them, at least, was extremely inflammable, it was considered safe because they did not believe the buildings would burn even if a fire was kindled in one of the rooms. But they know better now.

The loss was enormous. The firm carried no insurance and it is reported that five million dollars will not make the loss good. While this is not official it is said to be a conservative estimate. Many are of the opinion that that sum will not cover it, but, however, that may be it is quite enough. It is a safe assertion that in the future Mr. Edison will adopt some of the precautions which others follow. If he would "Build with Brick" it would solve his problem for all time, but the buildings will be restored with cement.

They are at work twenty-four hours a day now getting out sand in a neighboring sandpit and huge search lights throw their brilliant rays upon the men as they work during the night shifts. And shortly the mixing will begin and the buildings will be restored as they were before.

But rightly viewed this fire is the biggest boost burned clay has had in years. To have the supposed fireproof buildings of the most ardent advocate of concrete construction burned is a lesson to others which will likely exert much influence. Brick will start the year 1915 with this influence in its favor.

And it may be added here that what the Edison firm thinks of brick is illustrated in the use of that material in the construction of protecting walls along the inside of the cement buildings where they come close together and possible danger from the fire jumping across is present. The purpose of these walls may not be known officially, yet the great point is they are being built of brick. Apparently an ardent cement man may get a glimmer of light.

## TRADE NOTES.

S. J. Heafield, general manager of the International Brick Company, recently organized at El Paso, Tex., states that the company will spend about $15,000 in work on its clay beds near El Paso and will erect a $30,000 plant for the manufacture of various clay products, including common brick, roofing and partition tile, fire-proofing and ornamental brick.

P. O. Ducios, formerly of Little Falls, Minn., but more recently of Boseman, Mont., has leased the brick plant of J. N. Brown at the latter place and is preparing to put in additional machinery. Beside common brick, a number of other clay products will be turned out.

# CONCRETE SHOT TO PIECES.

## Cement Fortifications Valueless.

(Abstracted from the Deutsche Toepfer und Ziegler Zeitung.)

FOR THE LAST few ten-year periods cement construction of fortifications has been considered the most ideal method and material, as it had proved itself of great density and solidity. Thus all French and Belgian fortifications have been built of such material and been considered indestructible. A short time before the destruction of the concrete fortifications of Liege the French and Belgian newspapers proclaimed that it could not be thought of, to capture such forts, as they were also provisioned for at least twelve months. This illusion has been destroyed. The new 42-centimeter siege guns, with their projectiles entering these cement blocks, aided by their colossal bursting power, have torn and shattered them so that they cannot be repaired, but must be built anew. If the concrete had been sufficiently dense and resistant that the projectiles could not have entered, but only rebounded, then the explosive power would have amounted to very little. But as it is, the projectile can bore its way into the concrete, and, when so located, the explosion would cause such terrific destruction, all of which has sounded the death-knell of concrete construction for fortification purposes.

Concrete, no matter how well made has a certain porosity and with the greatest care of putting on the finishing coat the porosity remains and thus it becomes easy for projectiles from siege guns to enter the concrete blocks. The next proposition would be to find a suitable remedy and this can readily be found in VITRIFIED BRICK, which, when burnt sufficiently hard, will resist the boring effect of the projectiles and by the bonding effect of the brick work, there will be additional resistance offered, so that the projectile will rebound and the destroying explosive effect be nullified. These bricks can be made of a sufficiently large size to cut down the number of joints and with true corners and edges the work can be laid up perfectly true and smooth and be far superior to cements, concrete or iron reinforced concrete.

No. 82/83. Professor Dr. P. Rohland (Stuttgart) presents the following statements:

Have been engaged in making concrete "guard shields" to be used by artillery. In a cement test there was inlaid a rusted iron sheet. Upon firing upon this particular cement block there were no holes or cracks, but through the force of the projectiles, this reinforced iron cement block was broken up into a great number of small fragments. This same experience has been had in the present war, in that the 42 c. m. guns did not make smooth holes through the concrete but completely destroyed them.

The cause is as follows: In such iron-cement concrete blocks, in consequence of the colloid-chemical condition of the cement, entailing the closely crowding together of the cement particles, there exists a great tension, which even if released at any one single point, will cause complete fragmentary destruction of the whole mass.

(The translator: This tension feature of cement construction may have been one of the causes of the destruction of the Edison cement concrete buildings.)

Brickwork behaves radically different, in that, should the same be struck by a cannon projectile there would be found (owing to the bond of the brick work) only a hole enlarged somewhat by a few bricks close to where the ball passed through. Thus it becomes apparent that railroad bridges and fortifications built of brick are to be preferred.

No. 88/89. The statement of Dr. Rohland in No. 82/83, in relation to the tension of concrete work is supplemented by the quasi shattering of Rupert's drops. But this acceptation of this worthy author is not the only or principal reason for the weakness against bombs, found in the iron-cement construction. It has been found that concrete shrinks, and cracking caused thereby is favored, that all concrete construction systems are prone to crack more or less, affecting the whole building, the less the shrinkage of the construction is prevented by innerly placed iron. The more, therefore, such iron is innerly used the more prevented will be tendency of the concrete to shrink in consequence of the exudation of water; consequently the more strain or pulling tension, which may endanger the whole structure, if the tension should be relieved or released by sudden blows or similar causes. Thereby all joints will be loosened up and the structure must collapse, whether it be an ordinary structure or a covered artillery stand (fortification).

This defect in concrete has been noticed, but the reason for same or the remedy for same, is as yet not altogether clear. Sometimes the concrete as a whole is the blame and sometimes the cause given is that the concrete is not close grained enough or rather let us say solid enough. Close grained or solid concrete is made by using a small percentage of sand or filler as to the cement, the larger the percentage of filler the more porous will the concrete be. A close grained (rich) concrete has a powerful tendency or endeavor to shrink, hence prone to crack; a poor concrete has the same tendency, but in a greatly diminished degree, but it also has porous properties, hence concrete is not a good material for fortification or other construction. For if a rich mixture is used, numerous cracks ensue or tension is effected and if poor mixes are used then the body is not sufficiently dense But as a matter of fact these defects are aggravated by use of inlaid iron. All this has been proven by the terrific destruction of forts at Liege, Namur, Maubeuge, caused by destruction of the tension entailed by rich concrete construction.

When it is taken into consideration that concrete walls up to 16 feet thick were shattered like glass and blocks 30x20x20 feet were cracked or broken to pieces by explosive projectiles it is readily seen that the death knell of concrete construction has been sounded and a new material must be employed.

No. 102/103. All the fortifications which have been bombarded by us and built of concrete have been worse damaged (at times totally destroyed) than those built even of common brick, thus proving the superiority of BRICK.

J. J. KOCH.

## HOW THE KAISER GOT WET.

A few days ago it was reported that the Kaiser had received a ducking by falling into a flooded trench. A new version of his Majesty's immersion is being told in the London clubs, according to a Dublin weekly paper. If it is not true, it is at least well invented.

The other night, so the story goes, the Emperor arrived at headquarters arrayed in his most glorious uniform—white, with silver facings, white mantle and silver helmet—but dripping wet. The astonishment his bedraggled appearance created was heightened when, taking no notice of his generals, he paced the floor, repeating to himself the strange sentence, "He did not do it. He did not do it."

A veteran general approached him. "Majesty, I am afraid you are not well."

The Kaiser only muttered, "He did not do it," and gloomily strode from end to end of the hall as one in a deep reverie, still murmuring the cryptic phrase.

Then another bold soldier came forward and faced his War Lord. "I am sure your Majesty is indisposed; can I be of service?"

At last the Kaiser was recalled to his surroundings, and with characteristic emphasis exclaimed: "He did not do it. He did not walk on the water."

# DRYING OF CLAY WARES.

### By Ellis Lovejoy.

## Part XIV.
## POTTERY DRYING.

UNDER THE HEAD of pottery we include all ware which is the work of the potter—white and yellow ware, porcelain, electrical ware, sanitary products, stoneware, etc.

The drying of these wares requires different conditions, depending upon the size and shape of the ware, upon the mixture and upon the process of manufacture.

In view of the varying treatment required in the several wares, there is no general type of dryer applicable to all, and it is beyond the province of this article to describe the drying methods in any detail.

Pottery is largely the product of hand labor and each piece as it leaves the potter's hands, or at most several pieces on a pallet, is taken to the dry room by hand.

Since hand work enters so largely into the manufacture of pottery, it is essential that the work rooms have abundance of light and air, and in general we find the potters' benches, jollys, jigs, etc., along the outer walls of the factory building.

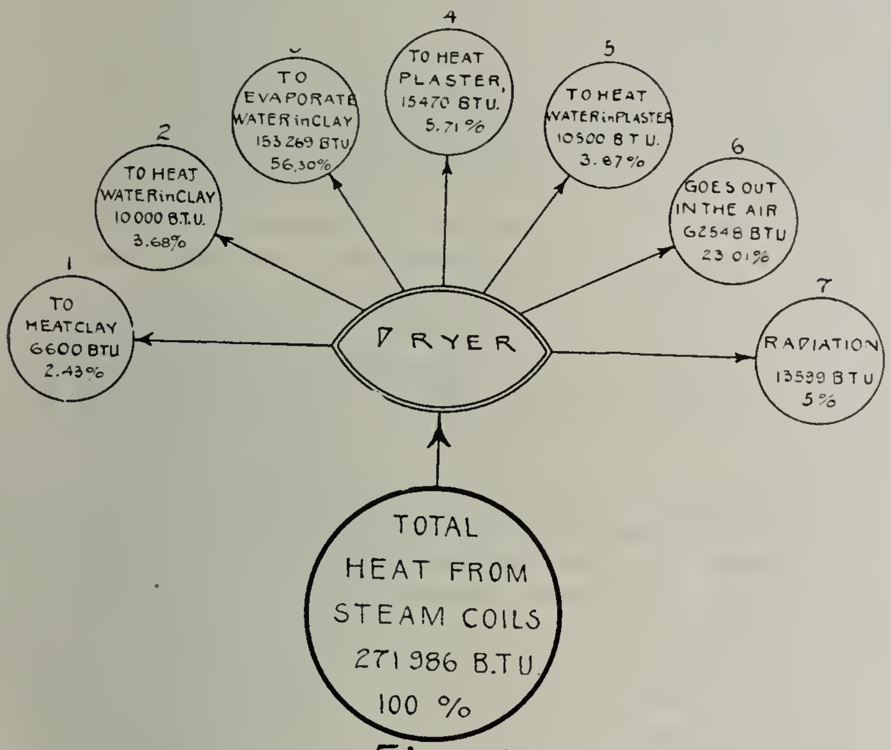

4
TO HEAT PLASTER, 15470 BTU. 5.71 %
TO EVAPORATE WATER in CLAY 153 269 BTU 56.30%
5
TO HEAT WATER in PLASTER 10500 B T U. 3.87 %
2
TO HEAT WATER in CLAY 10 000 B.T.U. 3.68%
6
GOES OUT IN THE AIR 62548 BTU 23 01%
1
TO HEAT CLAY 6600 BTU 2.43%
DRYER
7
RADIATION 13599 B T U 5 %
TOTAL HEAT FROM STEAM COILS 271 986 B.T.U. 100 %

Fig. 54

Since the ware is moved by hand another essential feature is that the distance from the benches to the dry rooms shall be a minimum.

In consequence of these two factors we frequently find the dry rooms in the center of the manufacturing room. The distance to the dry room is thus very short, and, of course, equally short from the dryer to the finisher or back to the potter, to whom the molds must be returned.

A modern arrangement for some lines of ware is the continuous operation plan, now applied to so many industries, in which the raw materials enter at one end and in each stage of the manufacture advance toward the warehouse for finished ware, which places the dry room adjacent to the manufacturing room and opening into it. The succeeding rooms depend upon the character of the ware and the process of manufacture.

The dry rooms for small ware consist of a series of compartments four or more feet wide, depending upon the size of the ware, and ten or more feet long, depending upon the width of the building and the space required for the potters. On either side of each compartment are shelves spaced to suit the ware in question and extending to the ceiling of the room. The passageway between the shelves is simply wide enough for the workmen who fill and empty the shelves, and is made as narrow as possible in order to get a maximum drying capacity within the allotted space. In some lines of ware the compartments or dry rooms are provided with doors which close the room when not being filled or emptied, but in other lines the rooms are merely racks, with passageways for the workmen distributing the ware.

The heating is by steam pipes, usually three one-inch pipes along the floor under each set of shelves, or six pipes to each room. As the ventilation is natural, usually very crude and slow, the air within the room is practically heated by radiation, or, more properly should we say, that the fixtures, walls, shelves, molds, etc., are heated by radiation, and the air is heated by contact with the pipes, and with the fixtures, etc. In some lines of ware which will stand more rapid treatment, the pipes are distributed under each shelf, or each alternate shelf, which brings the heating surface in closer touch with the ware.

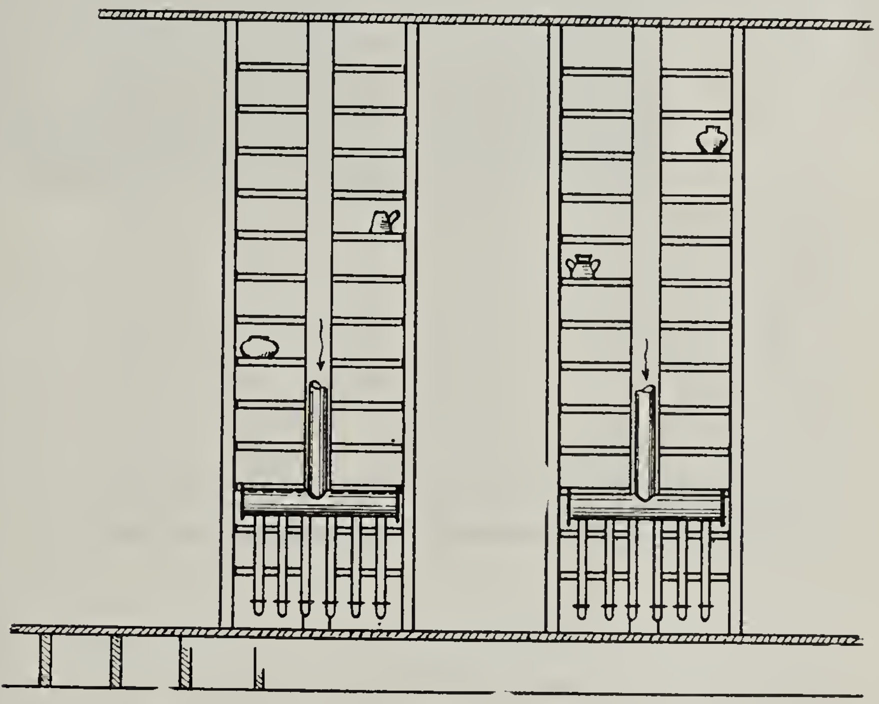


Fig. 55 End Elevation

As in other clay industries, insufficient drying room is one of the handicaps of the pottery industry, and potters are constantly studying the problem of how to increase the drying operation within the space available, without damage to the ware and without increased cost.

Instead of the rooms with passageways the dryer becomes more compact—in fact, the space occupied is more than doubled in capacity—by having the shelves hung on trolleys and overhead tracking, which permit pulling them out for filling and emptying. Thus, each shelf is brought nearer the potter and the distance traveled per day by the off-bearers is lessened. Every foot increase in the distance the ware has to be moved adds to the cost—otherwise there would be no question in regard to dryer capacity. At first glance, the movable shelf plan seems the most advantageous, but it must be remembered that there must be a wide space between the potters' benches and the shelves to provide room for the shelves when pulled out, besides working room around them.

It is a question whether the movable shelves with their greater initial cost and greater cost of upkeep have any advantage over the fixed racks with passageways.

Mr. Herford Hope, in a paper before the sixteenth annual meeting of the American Ceramic Society, and later in a lecture before the potters of Ohio in the Ohio State University, presented a new type of pottery dryer adapted to small ware. Instead of rectangular rooms with shelves on either side, or rectangular racks which can be moved in and out on trolleys, he suggests a hexagonal closet. In the center of each closet there is a vertical shaft to which the shelves are attached radially, and the whole shelf contrivance can readily be swung around a circle, similar to a revolving clothes horse. The door to this closet is opposite the potter's bench, and the passage into it between any two sets of shelves, is "V" shaped. As the shelves of each section or "V" of the shelves are filled, the apparatus is moved one section. Mr. Hope shows that no greater floor space is occupied and that the off-bearers travel less distance per day. If no greater floor space is occupied, and the distance traveled by the off-bearers is reduced, the hexagonal closet is an advance over the rectangular, provided the first cost and the subsequent upkeep are not excessive.

A vertical shaft properly installed offers no mechanical difficulties, and the upkeep will be practically nothing. The initial cost will be greater than the fixed shelves, but not as great as the shelves attached to trolleys. It seems, therefore, that Mr. Hope offers to the pottery industry a decided advance in the type and arrangement of the dry rooms.

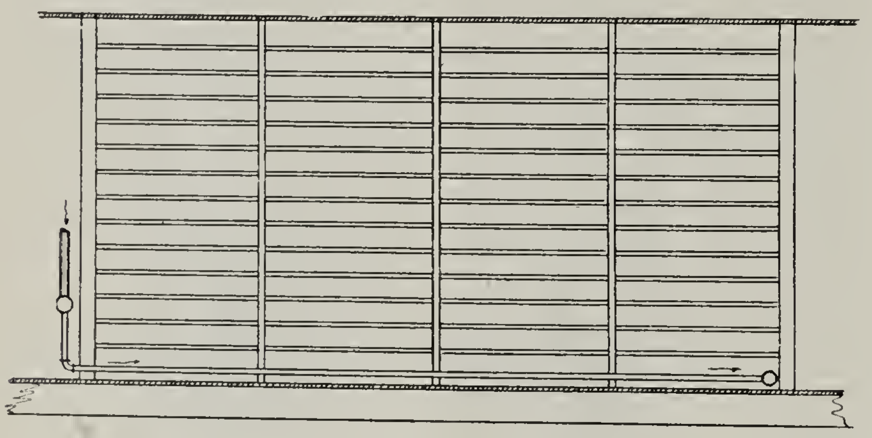


Fig. 56 Side Elevation

Prof. Carl B. Harrop, of the Ohio State University School of Ceramics, in a lecture before the potters of Ohio, on the subject of "Pottery Closet Dryer Calculations," assumes the radiation and convection from the steam piping to be 3.25 B. T. U. per hour per square foot of radiating surface per 1 degree difference in temperature. In a note he explains: "In a case of this kind, it is exceedingly difficult to determine just how much of the heat is radiated from the pipes and how much is carried away from the pipes by convection (by the incoming air). Experiments and calculations show that the radiation will be approximately 1.25 B. T. U. The difference, 2 B. T. U. (3.25—1.25), cannot be carried in by the amount of air at 120 degrees, which was calculated as sufficient to carry out the moisture.

"The explanation of this is that there is an internal circulation of the air going on continuously inside the dryer, i. e., some of the air which goes into the dryer, becomes heated, rises, gives some heat to the ware, takes up some moisture from the air and escapes. Other portions of the entering air does not escape immediately but cools sufficiently to drop to the bottom of the dryer and again passes around the pipes, is reheated and rises again to perform more work."

This accords fully with our view of the action of a natural draft steam pipe dryer as expressed in a previous article of this series.

Prof. Harrop's data is based upon 5 pounds steam pressure and 60 degrees temperature of incoming air, and his calculations develop the following diagram—Fig. 54—as the heat balance for a white ware pottery dryer.

The calculations lead to the conclusion that a closet 4 feet 3 inches wide (containing shelves on either side and passageway in the center), 8 feet high and 10 feet long, will require six 1-inch pipes, 10 feet long, which is common pottery practice.

Figs. 55 and 56 show end and side elevation of the general construction of fixed pottery shelves for small white ware, stoneware, and other ware not too large to be placed in shelves, and which will not permit piping under each shelf.

(To be continued.)

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Written for The Clay-Worker.

## PITTSBURG BRICK AND BUILDING NEWS.

AMONG THE BRICK and clay trade in and about Pittsburg, there has been but comparatively little change in the business conditions. Pittsburg has not experienced any real cold weather in the last two weeks of last year and the first two weeks of this year, therefore building conditions have been very good, hence, the brick and clay manufacturers have been enjoying a demand for their commodities, which demand is slightly above expectations.

The brick and clay manufacturers were largely represented at a meeting of about fifty Pittsburg traffic men in the Fulton Building, recently, at which steps toward the organization of the Traffic Efficiency Club of Pittsburg were taken.

The purpose of the club will be to better qualify traffic men of the Pittsburg district for the duties that confront them in their profession. This organization will be under the supervision of the American Commercial Association of Chicago, of which John P. Curran, the principal speaker at the meeting, is secretary.

Directors of the Harbison-Walker Refractories Company, Pittsburg, Pa., have declared for quarter ending December 31, 1914, dividend of one and one-half (1½) per cent. on preferred stock, payable January 20, to stockholders of record January 9.

The Board of Directors of the National Fire Proofing Company, Pittsburg, Pa., at the regular meeting held Thursday, December 31, 1914, declared a dividend of one per centum (1%) on the preferred shares of the capital stock of the company, payable January 15, 1915, to stockholders of record, January 8, 1915.

William Beckett, a retired brick manufacturer, aged 80 years, died recently at his home, 616 Murtland avenue, Pittsburg, Pa. He was a life-long resident of the East End of Pittsburg and opened the Boyd's Hill brick yards and several other factories in this district years ago. He was a member of the Methodist Episcopal church and of the Royal Arcanum and Odd Fellows. He is survived by his widow, Mrs. Elizabeth Beckett, five sons, William, Fred, Thomas, Albert and Ollie Beckett, and one daughter, Mrs. Mary Elk.

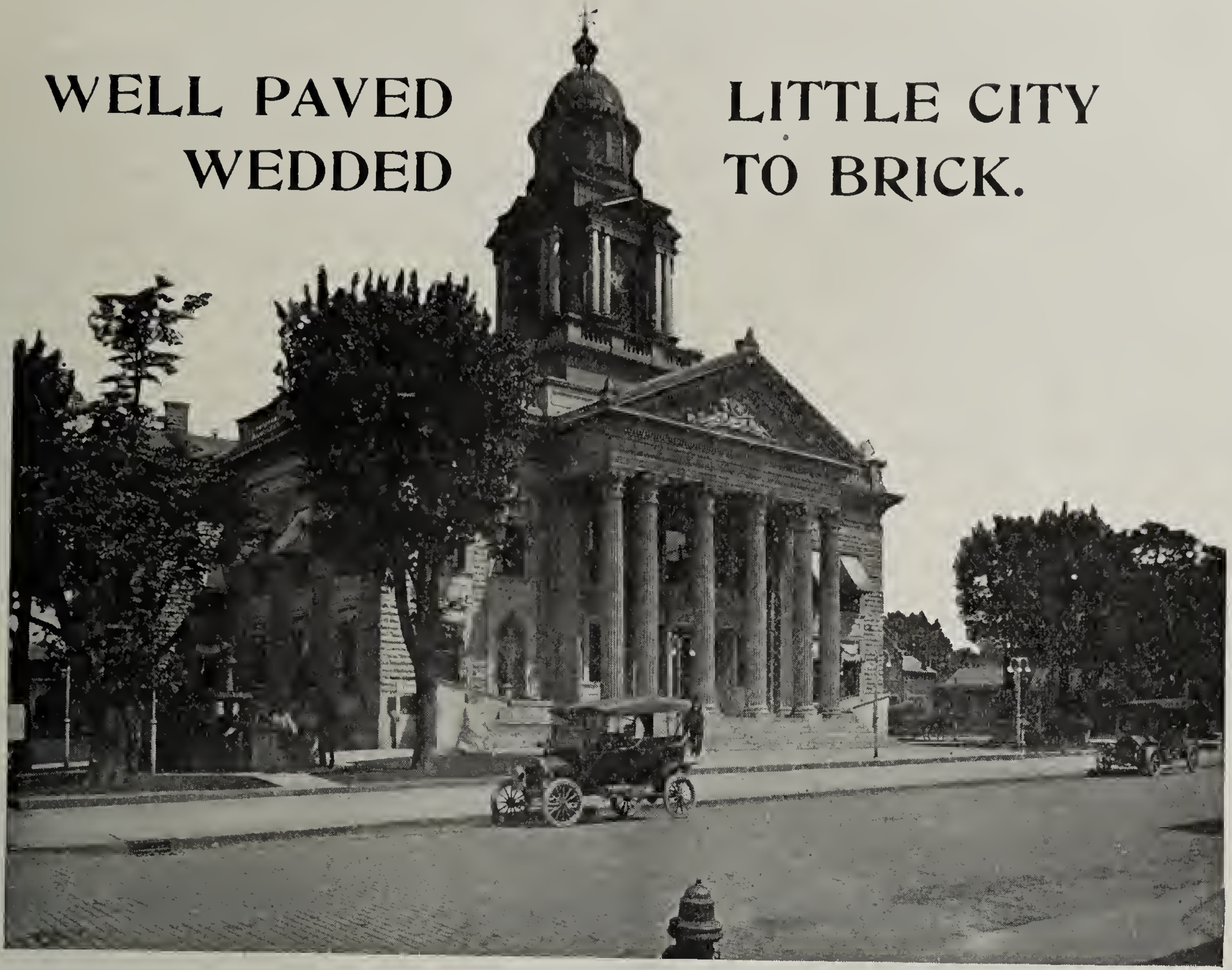
Prof. Edward Orton, director of the department of ceramics, of the Ohio University, recently explained the classification and properties of clays in a lecture in Thaw Hall, University of Pittsburg, Pa.

Improvements are being made on the plant of the Face and Fire Brick Company, at Eastville, Pa. Considerable new machinery is also being installed. While the repairs are being made, it is expected the plant will be closed down for about two months.

On December 25, 1914, the Kane Brick Company, Kane, Pa., received an order through Fiske & Company, of Boston, for 1,000,000 brick. This is the largest order in the company's history. The plant has started operations and will be run to full capacity, four months' work at least being assured.

Stockholders of the Freeport Clay Products & Minerals Company, Freeport, Pa., will hold their annual meeting in the office of the company Tuesday, January 12, 1915, at 1:30 p. m., at which the board of directors for the year of 1915 will be elected, and such other business which may come up, will be transacted.

# WELL PAVED LITTLE CITY WEDDED TO BRICK.



BY E. J. SONGER,
Mayor of Bucyrus, Ohio.

E. J. Songer.

WHEN the writer was a lad it was great sport in balmy wet weather to run barefoot and to slop knee deep across muddy streets in Bucyrus. But just about that time the city dads of Bucyrus got wireless messages from their better halves to the effect that mud in the streets means dust and mud in the house and that means work as well as worn carpets and dingy furniture. And so, straightway, Bucyrus officials got busy. Whether their activity was due to the activity of irate and long suffering housewives or whether they desired better streets for the commercial advantage that would follow, has never been decided, but in the last quarter of a century Bucyrus has emerged from a very muddy village to the best paved city for its size in the country.

Early street improvements in Bucyrus were made with crushed limestone, but for twenty-five years practically nothing but brick has been used. The single exception is two blocks of concrete. The first street paving was done in 1889 after a committee of the town council had visited all the few cities which at that time boasted of brick paved streets. So well was the visiting committee satisfied, that brick was recommended and has ever since been used.

Our first streets were paved with the small bricks then in general use and up to 1894 the small bricks continued to be the accepted size. Improvements after that year were made with paving blocks.

All brick streets in Bucyrus are laid on a crushed stone foundation with a sand cushion and all but one street has a tar filler. One other street is a double course of brick, the lower course being laid flat.

When it is considered that the early brick used were not what they should have been and the foundation construction was not what is today called substantial, it must be conceded that Bucyrus has had most excellent results from the use of paving brick. Especially is this true when it is further considered that not a dollar has ever been spent on any brick street in Bucyrus other than repairs made necessary on account of sunken excavations made by public service corporations.

As mayor of the city of Bucyrus I hope to build our next paved streets with a concrete foundation and a grout filler. If we can thus improve the construction over those laid a quarter of a century ago, I believe the new streets will last a lifetime or even longer.

Just at present we are interested in building the country roads out of Bucyrus with vitrified brick. We feel that brick has made such a good record in Bucyrus, where the traffic is heavy, that in the country we can expect from fifty to a hundred years' service from a properly built brick highway. Over six miles of this modern brick country roadway is now under contract in this county and we hope for more each year.

As to the present condition of Bucyrus streets, it is safe to say that they all give promise of many, many more years of satisfactory use. Some of these streets have been shamefully abused by those making excavations and neglecting to relay the street properly, but even in the worst of such cases there is not a broken place in any of our brick streets. The heavy interurban cars are also hard on streets, but the streets along their tracks are in good condition.

We have one instance of an extreme test on brick streets. East Rensellaer street was paved in 1890. It was completed late in the fall, so late that a hard "freeze up" came before it could be rolled, and to this day that portion of the street has never been rolled. Notwithstanding this defect the street has continued to give good service for twenty-four years and is in fair condition, though not up to other streets in smoothness.

It is not the official family of Bucyrus alone that prefers brick streets. We have on file at the present time petitions from the majority of property owners on eleven additional streets asking that they be paved with brick. All of these streets would be brick paved at once were it not for the fact that other municipal improvements of extraordinary importance and expense must precede additional paving.

The record of our double course brick street may be interesting to other municipalities. This double course was thought to be necessary to carry the heavy hauling of the American Clay Machinery Company, which sometimes runs up to 80,000 pounds, but later on it was found that a single course street was ample for such loads.

The following is a list of Bucyrus streets paved with brick with the single exception of two blocks of concrete on West Rensellaer street. The list shows that Bucyrus was a pioneer in laying brick and has stuck persistently to this material.

**Dates of Construction of Brick Streets in Bucyrus, Ohio.**

| | |
|---|---|
| South Sandusky Ave | 1889 |
| East Rensellaer St | 1890 |
| Lane St. | 1890 |
| East Warren | 1890 |
| West Warren | 1891 |
| Middletown and East | 1892 |
| North Railroad | 1892 |
| North Sandusky | 1893 |
| Walnut | 1893 |
| Center-Cemetery | 1893 |
| Spring St. | 1894 |
| Sandusky Ave., from River to Charles St. | 1906 |
| Prospect St. | 1906 |
| Lucas St. | 1906 |
| Charles St. | 1907 |
| East St. | 1910 |
| Mary St. | 1910 |
| South Walnut St | 1910 |
| West Rensallaer | 1910 |
| Middletown St. | 1911 |
| Galion St. | 1911 |
| Poplar St. | 1911 |
| Mansfield and Public Square | 1911 |

—The Dependable Roadway.

The Brick Paved Public Square at Bucyrus, Ohio.

# THE PURIFICATION OF CLAYS.

A. V. Bleininger, Pittsburgh, Pa.

(Abstract of paper read before New Jersey Clay Workers' Association, June 25, 1914.)

CLAYS IN THE suspended state (slip) represent a disperse system comprised of coarse and fine particles held up by the fluid medium, water. It has been shown that these dispersed particles are exceedingly sensitive to the presence of alkalies, acids and salts. It was found that well defined concentrations of alkali tend to hold all of the fine material in suspension, a condition which was called the deflocculated state. On the other hand, acids and salts are effective in throwing the clay down, coagulation. It was shown also that the critical amounts of alkali brought about a marked increase in the fluidity of the suspension or a decrease in viscosity. This change then, if carried to its maximum, would cause the coarser materials to settle out in a manner much more pronounced than in the case of the ordinary water suspension.

This physical change is intimately connected with electrical phenomena, as has been stated in the discussion on the casting process. The negatively charged clay particles, under the influence of the similarly charged hydroxylions of caustic soda, sodium carbonate or sodium silicate, are repelled by each other and dispersed into still smaller particles. Repulsion may take place only when the electrical charges of the particles are approximately equal. The water thus penetrating deeply into the clay structures causes the material to become fluid. The differences obtaining between the conditions or settling of clay in water and in an alkali solution may be readily illustrated by placing equal amounts of the same clay in two glass tubes and adding to one ordinary water and to the other the same volume of a solution carrying the proper amount of alkali required to bring about complete deflocculation. In the tube containing the water sedimentation of the coarser particles will be observed, but the amount of coarser material thrown down will be less than in the case of the alkaline solution. Likewise the precipitated granular matter, in the case of the water, will be found to contain more or less fine clay matter carried down mechanically, while the alkaline solution brings about a clean, sharp separation between the two kinds of material.

Again, while the water may still carry small particles of iron-carrying minerals, larger flakes of biotite mica, these have been settled in the deflocculating solution.

This suggests, therefore, a means of purifying clays which would not conflict greatly with the ordinary washing process as now practiced. The clay materials would be blunged up, as is now being done, but in place of the water, a very dilute solution of caustic soda or of sodium carbonate and sodium silicate (water glass) in equal parts, used. The amount of soda in this solution should correspond to the amount required to bring about complete deflocculation. The amount of reagents to be added depends upon the percentage of yield and the character of the clay. The quantity necessary can be determined, however, with sufficient accuracy, so that for each ton of crude clay a definite amount of the alkali compound can be added. After the slip has passed through the settling troughs, has been screened and collected in the settling tank, it is allowed to stand.

The finer impurities, fine-grained silica, biotite mica, etc., will now settle. The time of settling governs the degree of purification attained. Longer standing naturally precipitates more of this material than short standing. After a sufficient period the slip is now run into another tank, where it is coagulated for the purpose of filter pressing, because the akaline condition with the accompanying degree of dispersion into exceedingly fine particles, would tend to clog the filter cloth and also would cause the press water to run off turbid. At the same time the efficiency of the process would be greatly decreased, due to the slowness of filtration. In the second tank the coagulating reagent, usually aluminum sulphate, is introduced, whereupon the clay will settle out in a curdled mass, which is pumped to the filter press. This precipitation cannot be carried on in the first settling tank for the obvious reason that the coagulated clay would mix with the impurities which have been settled out.

East Warren Street, the Only Double Course Brick Street in Bucyrus. This Street Is Subject to Very Heavy Traffic.

The amount of alkaline reagent to be used depends upon the character of the clay. In the material investigated so far in this laboratory the amounts varied from 0.05 to 0.15 per cent., or from 1 to 3 pounds per ton of dried clay. The actual cost of the reagent, therefore, should be trifling and should not exceed 8 cents per ton, including the cost of the aluminum sulphate used for coagulation. As has been stated in another paper of this series, the amount of alkali used should not exceed that required for maximum deflocculation as with more reagent the effect would be in part reversed. In fact, too great an addition might entirely nullify the action. It is important, therefore, that in each case the proper amount of alkali be determined by the use of the viscosimeter, or by means of a series of glass settling tubes in which the degree of deflocculation is readily observed.

In rare cases, as with certain Missouri fire clays, sodium oxalate has been found to be more effective than the alkaline compounds mentioned above, but the method of procedure is the same.

Using this method of purification it has been possible to extract from a most unpromising red colored rock mixture from North Carolina kaolin burning to a pure white, though the yield was quite small. Similarly, Georgia kaolin has been treated and resulted in very white clay, free from iron stain and spots. At the same time, however, the plasticity and the shrinkage of the material was greatly increased.

It is evident from the nature of the process that the greater purity of the clay is obtained at the expense of an increased amount of residue or waste, a fact which must be taken into consideration in the commercial application of such a process. So far, the writer does not know of an American washing plant making use of the principle involved here, and our own work is based on experiments carried on in the laboratory and with comparatively small amounts of material. It would seem, therefore, that experiments should be conducted on a larger scale.

## BRICK USED FOR TALL BUILDINGS.

TALL BUILDINGS of necessity are framed of steel. No other building material has yet been found capable of performing the work required in buildings over moderate height and occupy so little space. After an extended use dating back to the Home Insurance Office building in Chicago as the first skyscraper, we place the steel frame at a high standard and should make it the type of construction best suited to all building construction of so-called permanency. Surely, it meets all conditions better than other framing materials and certainly gives results not otherwise obtained.

The manufacture of steel is now so accurately gauged and determined as to practically preclude any failure at the job. Its inspection may be extremely accurate and it has none of the chances taken with other materials during the erecting period. In the matter of fire, its protection is a question of deep concern. It should be surrounded by a material of known fire-resisting quality that it may serve to advantage.

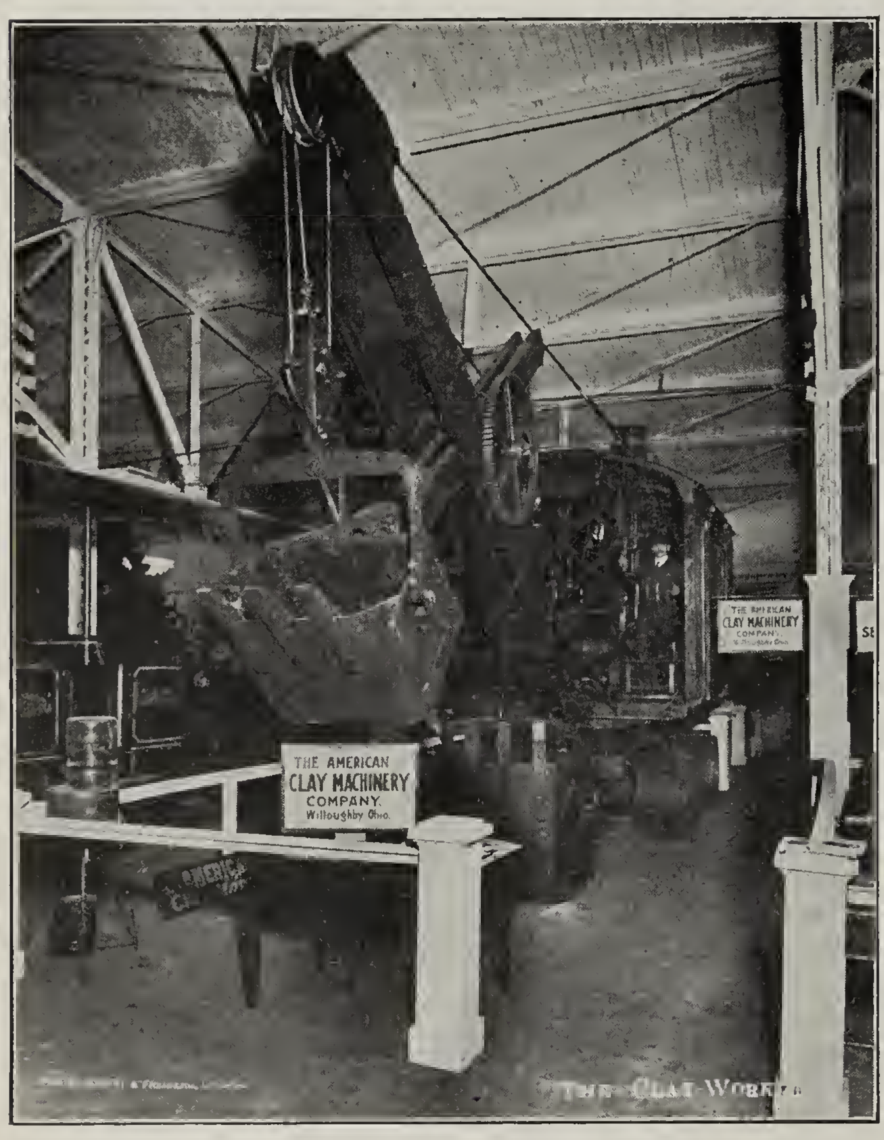
For a long period of years, brick was used as the enclosing wall of the frame, and now, after its competitors have been given a trial, it stands as the safest and best material for the encasing walls. The thirteen-inch brick wall was used as a standard curtain wall, but today we find the 8½-inch reinforced brick wall used as a competitor to concrete. It is reinforced with vertical rods 24 inches on centers rigidly fastened to the steel frame. The brick work thus built in the vertical bay of a wall is given more stability, but there should be used good mortar, composed largely of cement and the bricks thoroughly bedded in the mortar to obtain the best results. Even using a hard brick with such mortar, this wall is the cheapest in price extant today.

Much comment has been heard regarding the value of this wall as a protection against storm waters striking its surface. This wall, laid up well, resists the water as well as any known material and does not crack and thus permit leakage, which is most difficult to remedy. Brick curtain walls are erected in much less time than other materials, and through its very nature of unit construction, is homogeneous in character.

View existing walls on steel frame structures and determine yourself how they stand the wear after a few years of service. A careful inspection will reveal the fact that well laid-up brickwork excels in this position.—Pacific Coast Architect.

## A GREAT GOOD ROADS CONGRESS.

THE ELEVENTH ANNUAL CONVENTION of the American Road Builders, held at Chicago, December 15 to 18, proved one of the most successful in the history of that organization. Good roads boosters from every section of the country came to fraternize and lend their voices to the chorus demanding better highways throughout the land. The meetings were held in the International Amphitheater at the stockyards, which afforded fine facilities for the display of road building machinery. All of the leading firms in that line in the land were represented, and so numerous were they that it was a good day's work to even inspect the various displays casually. On arriving delegates had to register, and receive credentials and badges. This was the one requisite of admission. During the week nearly 4,000 were enrolled and bebadged. The meetings were held in the cozy rooms of the Saddle & Sirloin Club. Owing to the distance from the center of town, delegates were slow to arrive, as a rule, but, as a rule, they were just as slow to depart. Many valuable papers were presented. The one of most interest to paving brick manufacturers was that of Mr. John Laylin, Division Engineer Ohio Highway Department, which was given in full in the December Clay-Worker.



American Clay Machinery Co.'s Exhibit at Good Roads Congress.

The displays of specimen roadways were specially interesting and the best of them all was a section of road showing the Dunn wire-cut-lug brick, just as it appears when laid in streets and country highways. It was a fine exhibition and challenged the admiration of every visitor. In the auditorium was another display of samples of paving brick from all the various manufacturers, and sections of brick pavements taken from pavements that had been in actual use for a number of years, demonstrating clearly the durability of well-laid brick pavements. Also a line of photographs of brick streets and roadways shown by the National Paving Brick Manufacturers' Association and the Dunn Wire-Cut-Lug Brick Company, who, with other paving brick manufacturers, gave an object lesson in good team work. A fine line of brick paving literature was distributed and Mr. Dunn did his usual stunt of presenting each visitor with a carnation. Among those who participated in the brick end of the show were the Alton Brick Company, the Barr Clay Company, the Bessemer Limestone and Clay Company, the Big Four Clay Company, the Carlyle Paving Brick Company, the Clinton Paving Brick Company, the Danville Brick Company, the Harris Brick Company, the Medora Shale Brick Company, the Metropolitan Paving Brick Company, the Murphysboro Paving Brick Company, the Purington Paving Brick Company, the Springfield Paving Brick Company and the Terre Haute Paving Brick Company.

Among the machinery displayed was a new steam shovel, the "Road Builder," which is offered to the trade by the American Clay Machinery Company, Bucyrus, Ohio. It is especially designed for road work, being equipped with a road grading dipper, which adapts it to that particular line of work. It has many novel features which will appeal to contractors who want a general purpose machine. The display was in charge of Herbert S. Simpson, who seemed to take delight in elucidating on the varied novel features of the shovel.

### THE WEBB WIRE WORKS.

This is an age of specializing. Appreciating that fact, three enterprising Jerseymen some years since engaged in the manufacture of music and needle wire. By strict attention to business and the production of the highest grade wire that ingenuity could produce, they have established themselves in the front ranks of that industry and are now operating a plant at New Brunswick, N. J., equipped with every known device for the manufacture of fine wire. Their furnaces are controlled by electric pyrometers and their products are tested by standard machines constructed for that work, by which they demonstrate the superior tensile strength and toughness of their products and keep them to a constant and dependable high average. These are important points in wire that is to be used for brick and tile cutting, to which they give particular attention. A recent visit to their plant found them quite busy considering general trade conditions. As will be seen by referring to their ad on page 99 of this issue, they solicit correspondence and are prepared to fill orders for cutting wires, promptly.

### "AIN'T BRICK PAVEMENTS FINE!"

Sure this world is full of pavement trouble—
  I ain't said it ain't.
Lord! I've had enough an' double
  Reason for complaint.
Cracks and holes have come to fret me,
  Gettin' bigger every day;
Patches and repairs beset me
  On these pavements—say,
But AIN'T BRICK PAVEMENTS FINE!

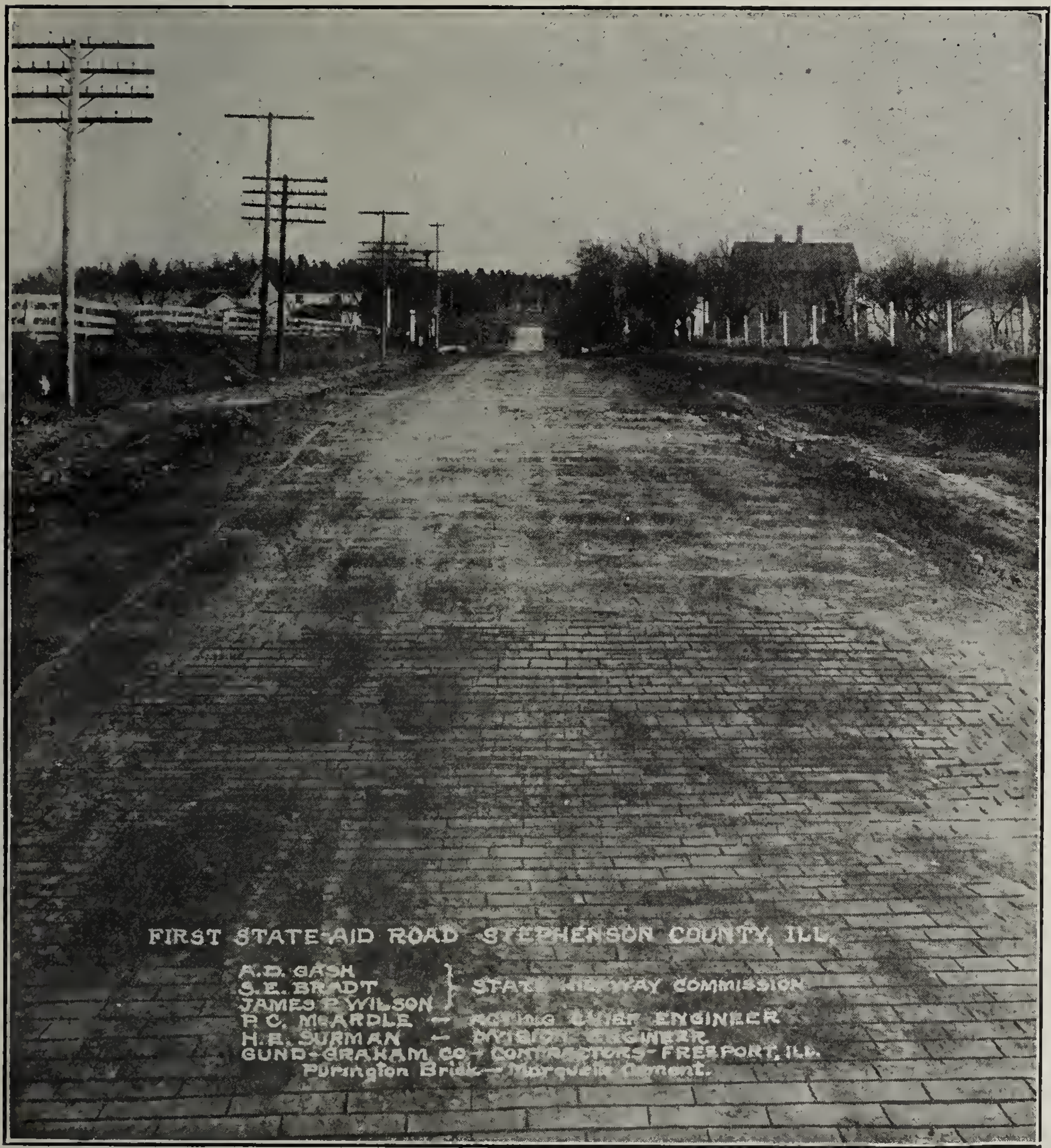
What's the use of all this concrete,
  Making trouble last?
What's the use of roads of gravel,
  Making dust so fast?
Each will have it's tribulation,
  Water with its wine,
Life they have of small duration,
  Pavement troubles? I've had mine—
But BRICK—now say, IT'S FINE!

It's today that I am livin',
  Not a year ago.
Travel's wearin', crackin', grindin',
  As loads increases so.
Then such failures bringing sorrow
  Covered o'er the way;
They may fail again tomorrow,
  They may fail—but, say,
AIN'T BRICK PAVEMENTS FINE!

—W. D. P. Warren, C. E.

## A SPLENDID BRICK PAVED ROADWAY.

STATE AID is now in vogue in road building in Illinois, and promises to play a very important part in lifting the farmers of that state out of the mud. Perhaps, too, it may prove an important factor in lessening the high cost of living. Through the courtesy of the Purington Paving Brick Company, Galesburg, we are able to present to our readers the accompanying view of one of the first stretches of country roads to be improved under the supervision of the State Highway Commission. It is a permanent road, having been paved with Purington brick, and is a fine example of what a country thoroughfare ought to be. It has but recently been opened to traffic, so when the photo was taken a large part of the surface of the road was still covered with the final dressing of sand, but in a few weeks when this has been brushed or blown away, the roadway will be left clean and smooth, a dustless highway, over which the farmers may speed back and forth in their autos in safety and comfort, or with their teams they may easily and quickly haul heavy loads of produce at any season of the year regardless of weather conditions. Such permanent roads emancipate the farmer, increase the value of abutting property, and will ultimately reduce the tax rate materially, and hence are not only desirable, but really an undisguised blessing.


FIRST STATE-AID ROAD STEPHENSON COUNTY, ILL.
A. D. GASH
S. E. BRADT
JAMES P. WILSON
STATE HIGHWAY COMMISSION
P. C. McARDLE — ACTING CHIEF ENGINEER
H. E. SURMAN — DIVISION ENGINEER
GUND-GRAHAM CO. — CONTRACTORS — FREEPORT, ILL.
Purington Brick — Marquette Cement.

The Ideal Country Roadway, Stephenson County, Ill.

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**Preheating of Air of Combustion**—In a series of experiments with oil burners, C. LeGall du Tertre found that he could get a temperature of 1,500 degrees with cold air for combustion. He could raise this temperature to 1,800 degrees if he preheated the air used for burning to 300 degrees. He also found that the combustion at higher temperatures was more complete, and that higher heats could be obtained when the air was preheated.—Revue des Materiaux de Construction No. 107, 1914.

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### ECONOMY IN PRODUCTION.

THE TRADE has made such progress already in labor-saving devices and in economy of production of burned clay products generally that the common impression is that the great need of today is more for economy in the handling and laying of brick rather than in its production.

Still economy in production is a matter of perpetual interest and not one requiring mere intermittent attention. There are always possibilities of development and they must be looked to by those who would not fall behind the procession and lose chances for profit in competition, not being up-to-date in the economies of production.

The phase of this matter that perhaps needs most serious attention right now is economy of production in comparatively small plants. We have followed in clayworking, as in many other lines of industry, the theory that the best way to secure the greatest economy in production is through increased capacity.

It is a line of good logic, too, and has borne wonderful fruits. It is time though to study another phase of the matter, to consider the fact that some of the economy of production in the larger plants is, in a measure, offset by freight cost in the wider distribution of product made necessary through large centralized plants, and to see what can be done in the way of the development of economy in comparatively small plants to serve more restricted territory.

Magnitude and concentration were the slogan of the last decade, but there seems to be a new era dawning now, one of a wider distribution of manufacturing plants, of developing the highest possible efficiency with a limited capacity. This is a line of study that the clayworking industry may well give serious attention to now. The general boosting of brick for home building encourages a wider use of the product, provided it is easily available nearby. This, on the one hand, makes an appeal for small plants more widely scattered. On the other hand, concentration of clayworking industries in certain localities leads to crowding, to sharp competition in the territory and prices too close in the immediate surroundings, and profits too small because of the freight cost of a wider distribution. A more general distribution of the plants themselves would relieve this crowding and sharp competition considerably and this wider distribution in smaller units should be more practical in proportion as we develop ideas for economy of manufacture in comparatively small clayworking plants.

Ideas of economy in manufacture and the improved quality of product should go hand in hand, for it to improve the quality is often equivalent to reducing the cost. Therefore it behooves those who establish plants of limited capacity to study both sides of this question and develop the greatest possible order of efficiency in manufacture along with the best product that can be turned out.

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New ideas are essential leads to progress, but they must have something more than novelty to command them.

# RESEARCH IN BRICK CONSTRUCTION.

*With this installment The Clay-Worker fires the opening gun of a campaign which goes hand in hand with that of the "Build with Brick" movement and will prove of vital interest and importance to the clay trade in general. We ask the co-operation of the clay product manufacturers in compiling data and statistics for publication, in order that every angle of the subject may be treated in a thorough, comprehensive manner.*

THE CLAY-WORKER begs to present in the beginning of this new year the subject of research in brick construction, and to recommend it to the entire clayworking industry for earnest study and experiment throughout the year. In this, as in the campaign for the slogan "Build With Brick," the term brick is used in its broad sense and intended to cover all the burned clay products entering into building construction, including common brick, face brick, hollow tile, roofing tile, terra cotta, etc.

The subject of study, experiment and research into the matter of brick construction, the uses of brick and other clay products in the erection of buildings of various kinds has been under consideration by the editorial force of The Clay-Worker for a number of months, now. We have turned it over and looked at it from various angles and analyzed it and come to the conclusion that it is a subject filled with wonderful possibilities both for the clayworking industry and for the architects who specify and the builders who use brick and other clay products for structural purposes. For some idea of what may be accomplished by good, earnest work along this line, we have but to turn about and review the accomplishments of earnest research work directed in other channels of other clayworking industries.

The greatest examples of accomplishment along this line are furnished by the history of the N. B. M. A. and the story of the progress that has been made in the clayworking industry during the past quarter of a century. In the working of clay itself and making it into brick, tile and other products the industry has developed from a plain, simple hand craft to one of exact science, in which is involved not only thorough chemical analysis but also the use of a wonderful line of machinery and labor-saving devices. There is perhaps not another industry in the country that has made the great progress at the manufacturing end that has been shown during the past generation of the clayworking industry. Practically all of this progress is a direct result of diligent inquiry and persistent experiments, of research work carried on year after year with a view to developing new ideas and improving here, there and everywhere the process of manufacturing products in burned clay.

In the time of this work there has been developed not only new methods and better facilities for manufacture, but it led to testing experiments with the product itself, to a standardization not only in the matter of size, but also in color and strength, density and various other features of the clay products.

In time when brick paving attained the point where it was ripe for such enterprise the attention of this branch of the clayworking industry was centered on experiments and research work not only in the making and testing of paving brick, but it was found advisable to go beyond this and do some research work in the preparation of the foundation for and the laying of the paving brick itself. It is now a matter of history and pretty common knowledge in the brick fraternity of what wonderful results have been accomplished by investigations along this line. They have resulted in the establishing of positive and specific directions or specifications for laying out and constructing a brick paved street or a brick paved road so as to get the very best results and get them in the most economical manner. There is perhaps no other one thing more important to the progress of the paving industry or to the manufacturers of paving brick than the research work that has been done along the line of the proper laying of the brick.

Now, since all these things have been accomplished in their own particular line, it naturally follows that good of the same order may be accomplished by making an earnest, thorough study of brick construction with the purpose in view of determining primarily exactly what specifications should be followed to get the most satisfactory results in doing different kinds of work. There are other things to be accomplished in this kind of research, too, the exact number and extent of which will only be determined by the work itself. We can easily see where certain new and different ideas may be developed, but it is not possible to foretell even all the different phases of the matter that may be brought out in the course of time.

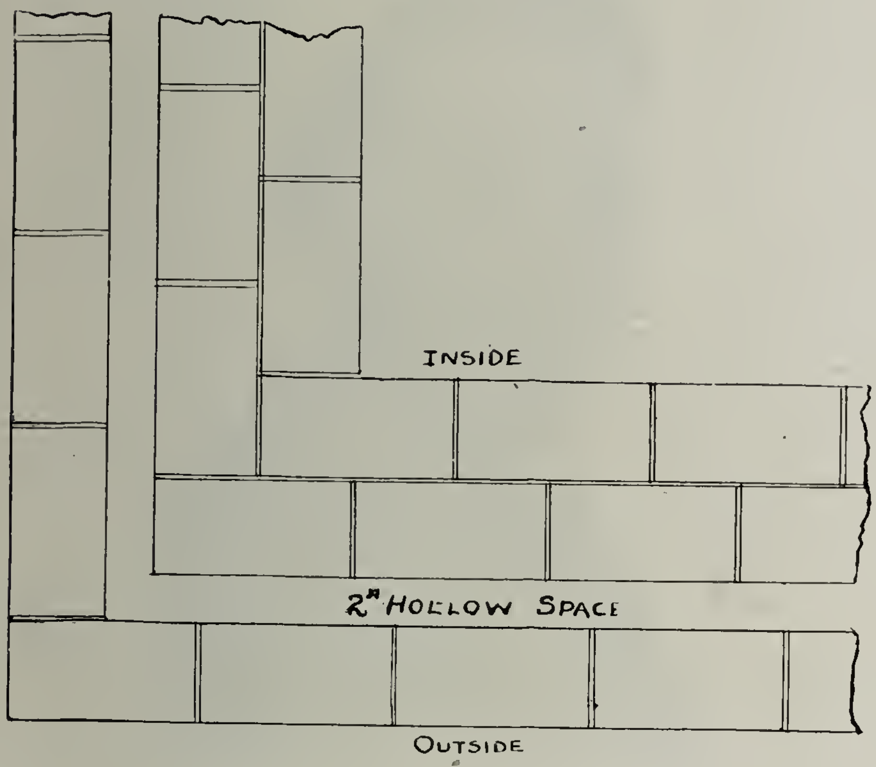
Hollow Brick Wall Warehouse Used for Storage, the Interior of Which Is Always Perfectly Dry.

It may not only develop more specific knowledge of results obtained by different forms of structural detail, but in the rounds there is a possibility that we may get some new light on the size, shape and general make-up of brick and of the other units of burned clay which enter into construction work. This is a phase of the matter that has been given considerable thought by the editorial columns of The Clay-Worker, and the result of these deliberations will be set forth in the course of time.

The purpose at present is to center attention upon the subject of the use of brick and tile for structural purposes, and it is the structural rather than the architectural phase of this matter that is to be studied. We have had a fair share of attention centered on the matter of architectural design and beauty so far as outward appearance is concerned. Also, this will continue as a subject of interest, but the research work in brick construction which The Clay-Worker desires to inaugurate now and enlist the entire brick fraternity in, just as it enlisted the clayworkers in the "Build With Brick" slogan, is a study of wall building or structural work in detail with the view of determining the relative cost and values of certain forms of construction, and of hunting out interesting forms that are different and new, to the end that in the rounds we may find out positively what is the best form of construction for any given purpose or size of house and what is cheapest, what is best and what is advisable under certain conditions.

It is known in a general way that we have in the home building branch of the industry several types of wall construction. There is the framed wall, with simply a veneer of brick on the outside; there is the solid brick wall; there is the wall made of an outer course of brick veneer and the inner of hollow tile; there is the wall made entirely of hollow tile with cement plaster or stucco as an outside coating of veneer, and from time to time there are certain unusual developments in wall building which hold interest and offer study that may be of value to the trade.

An illustrative instance of this kind happened in connection with the building of a new home by a friend of the writer. He employed a young, struggling architect to make plans of his home, which was to be of brick wall construction, because he wanted to help the architect get a start, and besides, the architect had some unique ideas that seemed good.



Corner Detail of Hollow Brick Wall.

In due time the plans were drawn and were satisfactory in general appearance, but when it came down to a study of details the owner of the proposed building found something about the wall plans that he didn't understand. The architect explained to him that he was going to show the people something about brick construction. He had drawn this wall to be hollow, that is, to have a hollow space between the inner wall and the outer course of brick.

The owner had never heard of anything of that kind before and because the architect was a young man and the idea was untried, so far as this owner knew, he refused to accept it and finally in the rounds paid off and discharged his architect and built the regulation solid brick wall for his home.

Some time later, in the same city, a manufacturer of fancy hardwood and parquetry flooring wanted to add a new warehouse to his plant, a warehouse for carrying and preserving in a perfectly dry state his stock of finished flooring material. This man was something of a mechanic himself and was given to the development of unique and individual ideas, so he designed and developed his warehouse building according to his own ideas, and here again the hollow wall idea in solid brick construction made its appearance.

This flooring man wanted a good, tight warehouse in which he could be insured of dryness and in which he could also maintain an even temperature at the minimum cost for heat and for regulation.

He secured floor and foundation dryness by raising the grade above the level of the surrounding ground, then filling in with a good bed of cinders, under which he installed a system of tile drains to carry out any moisture that might rise from the ground underneath, and over this he put a concrete floor that he could come on to with his motor truck for loading out stock. Surrounding this floor was a massive monolith concrete foundation for his brick wall.

He wanted this brick wall with a dead air space to keep moisture from working through from the outside, even during rainy weather. He looked over the proposition of using hollow tile for the inner wall and brick for the outer wall, but was afraid that the tile would not be strong enough to stand, that bundles of flooring jambing against it might knock holes through it. He wanted to be sure and safe, so he concluded to put two thicknesses of brick for the inner wall and leave a two-inch air space, and put a face brick veneer outer wall.

When he went before the building inspector to get a permit to erect his flooring warehouse there was absolutely nothing in the way of a building code that recognized in any way a hollow wall construction of this type. The result was that the building inspector hummed and hawed quite a while before he would issue a permit, with no other reason for hesitating but the fact that a hollow wall of this description had never been mentioned or described in any way as a permissible or recognized form of construction. The building inspector in this instance was almost in the position of a home builder who balked at the idea of his architect constructing his brick wall with a hollow space in it.

By and by, permission was secured for the building, however, and that building is standing today as one of the finest examples of storage warehouses for flooring or other finished woodwork that is to be found in the country. It illustrates a type of building that serves a particular purpose, and since there may be other types of buildings for substantially the same purpose, it is well to examine into these that we may come to understand which is best and most desirable. Also, the incidents connected with it tell us very plainly that one of the needs which will develop out of this research work into building construction will be that of informing the makers of building codes in the cities about the different types of construction, so that they may know what to do when a plan is brought to them involving points of this kind.

In the warehouse in question there are some interesting details in connection with the fact of its being built with a two-inch air space between the inner main wall and the outer veneering of one course of brick. This wall was drawn in at the joist-line so that it finished out at the top as a solid wall.

The most interesting feature of the detail, though, is in the wall ties. The builder, who was his own architect, in casting about for something substantial in the way of wall ties found that nearby was a metal working institution that manufactured washers for bolts, and some of the waste product of this washer factory attracted his eye and suggested possibilities. He found that this scrap stock of the washer factory was being sold for junk and he could buy it on rather favorable terms. It was of flat bar metal the thickness of an ordinary bolt washer and the scraps ranged in size about four by nine inches. Out of these there had been punched all the round washers it was practical to get, leaving just a skeleton of metal, and it was these he used for wall ties, placing the ties on every four layers of brick about eighteen inches apart. They made splendid ties and held firmly, and under the circumstances their cost was comparatively small.

Wall ties constitute an item that should have some special study in connection with research work in brick construction. This instance of the use of washer factory scrap for wall ties indicates two facts. One is, that we are rather lacking in definite, positive knowledge on the subject of wall ties, and the other is, that the average man without enough specific knowledge is likely to be a bit suspicious of the light weight wall ties commonly used, and to want something that looks more substantial.

Another thing worthy of special thought is that in the construction work of today we are making use of and depending much more upon wall ties than in the old days. There is not much use of the English and Flemish and other bonds made with brick themselves, but where face brick is used the face brick is practically always an independent course, simply held to the main wall by light metal ties.

In the frame wall veneer construction the general practice seems to be to put on storm sheathing outside the studding, then build a course of face brick outside of this with practically an inch of space between. Building paper is put upon the plank sheathing to prevent moisture from the mortar reaching through to the wood and causing decay, and the wall is supported, that is, the brick outer wall, with light metal ties, simply nailed to the wooden sheathing and imbedded in the mortar between the layers of brick.

In the erection of ordinary dwellings with the inner wall of hollow tile and the outer wall of face brick the construction work is substantially the same as that in the frame wall with the brick veneer, except that the brick veneer is built right up against the hollow tile wall. There is no bonding of the two, however, except with these same light metal wall ties. Moreover, even when a solid brick wall is erected in an ordinary dwelling the practice is quite common, of depending upon metal wall ties instead of following the old-time method of bonding the brick together itself. Therefore, we have in this question of ties a subject that needs study that we may have specific light on the merits of the different offerings, and may develop what constitutes the ideal wall tie.

Henry H. Camp.

What we need to do first in all this research proposition, however, is to collect quite an array of examples of brick construction as it is done today, get as many different forms of construction and of forms differing in detail or rather the data pertaining to them collected together as practical, and then supplement this with suggestions of new forms, and finally, by analysis, deduction and elimination, through experiments, determine certain standards to recommend for given purposes that out of it all we may get knowledge of value to both the clayworking industry and to the building contractor, and finally make this a means through which we may improve brick construction, both in the matter of quality of workmanship and in efficiency.

The Clay-Worker is gathering data of this kind itself and expects to keep up the work until the subject has been pretty thoroughly covered. Meantime, however, the readers interested in this subject can co-operate and assist materially by furnishing us pictures or drawings and descriptions of interesting examples of brick construction in their community.

## THE BUILD SAFE MOVEMENT.

A MOVEMENT, which promises to be as widespread in its activities as that for good roads and as extensive in its results is the Build Safe Movement.

This is a national effort fostered by the Society Advocating Fire Elimination. This organization, while but six months old, already has enlisted the aid of interests in all branches of the manufacture and sale of fire-safe materials.

In its efforts it is equally unselfish with those for good roads. It advocates no class of material or type of construction. Its policy is very liberal, recognizing the need even for a rational use of wood. It is, however, a sworn foe to the wood shingle, against which it has declared uncompromising war.

Ralph P. Stoddard.

In the adoption of a wide-open policy, it resembles the National Paving Brick Manufacturers Association, which was content to advocate the building of good roads and the improvement of bad ones—taking its chance with other materials in making these improvements.

As an example of the adaptability of all the common materials to home building, it will erect in Cleveland this year an absolutely fireproof house. In this structure will be incorporated brick, tile, cement, stucco, gypsum, metal lath and re-enforcing, asbestos and asphaltum. When completed, the house will be publicly fired to show the extent to which fireproofing may be carried for a moderate outlay.

The efforts of the S-A-F-E are aimed directly at the prospective home builder, in an effort to convince him that fire-safe construction of any type is more satisfactory in the first place and more economical in the long run, than burnable construction. It seeks to impress upon his mind that a safe house is a better investment in one year or in fifty years. With the demand coming thus from the consumer, as it were, it is convinced efforts with architects and contractors will be necessary.

That its work is meeting a popular demand is daily demonstrated. Its mail contains all manner of inquiries regarding non-burnable construction, from requests for advice as to various types of materials to estimates of cost on every conceivable type of house. It has in process of compilation a book of plans of houses actually built, which will include bona fide bids on these houses, constructed of various materials.

Credit for grasping a great big idea is due its founders: H. H. Camp, president, Camp Conduit Co.; R. J. Dawson, secretary-treasurer, Cuyahoga Brick & Shale Co.; W. T. Rossiter, general manager, Cleveland Builders Supply Co.; W. W. Farr, president, Farr Brick Co.; Wm. A. Fay, president, Cuyahoga Builders Supply Co., and H. S. Burgess, general manager, Cleveland Brick Sales Co. These men backed the society with their money and their brains and its growth is more than justifying their predictions.

When the society was formally organized, Henry H. Camp was unanimously chosen to be its first president. Its funds were placed in the hands of W. T. Rossiter. William A. Fay is its vice president.

In the selection of its secretary, Ralph P. Stoddard, it was particularly fortunate. His conduct of the building department of the Cleveland Leader, with many years prior of publicity and promotion work especially fitted him for the work in hand. Publicity from his pen now covers the entire country, more than one hundred newspapers and magazines using the product of his pen. The parade in Cleveland on Fire Prevention Day was but an example of what he is capable in the line of publicity.

The growth of the S-A-F-E has been exceptional. From an initial membership of six, it has increased its membership in six months to almost one hundred. The fact that more than half of these are from out of the city gives proof that it meets a demand of those concerned with the manufacturing and marketing of safe materials in all parts of the country.

Negotiations are on for branches of the society in Pittsburgh, Chicago, Columbus and Cincinnati. With these as a nucleus, it plans a system of local chapters eventually to cover all of the larger cities of the country.

It is taking an active part, through its consulting engineer and counsel, in the revision of building codes throughout the country and in the extension of fire limits.

In short, the Society Advocating Fire Elimination is doing a national work in the interest of Safety First in Building.

## FREE ADMISSION OF FIRE BRICK INTO CANADA.

There have been some recent changes in the custom regulations of Canada that are of particular interest to manufacturers of fire brick. A recent consular report from Canada says anent this subject:

According to an order of the Canadian commissioner of customs, in effect November 20, 1914, the following are considered to be fire brick of a kind not made in Canada and, as such, entitled to free admission under tariff No. 281: Rectangular fire brick (9 by 4¼ by 2½ inches), valued at over $16 per thousand at place of export and of an estimated weight, each, of 6 pounds 13 ounces; other rectangular bricks of fire clay, of dimensions not greater than 9 by 4½ by 2½ inches, valued at more than $0.235 per 100 pounds at the place of export; "key" brick for arches of smelting or reduction furnaces; "neck" bricks and edge bricks for smelting or reduction furnaces; magnesite fire brick; and silica fire brick containing not less than 90 per cent. of silica.

The following kinds of fire brick are dutiable under No. 282 at 12½ per cent. ad valorem under the British preferential tariff and 22½ per cent. under the general tariff, the latter rate being applicable to imports from the United States: Rectangular fire brick (9 by 4¼ by 2½ inches), valued at not more than $16 per thousand; other rectangular brick, valued at not more than $0.235 per 100 pounds; flat bricks of fire clay (6 by 6 by ½ inches to 48 by 30 by 9 inches); "cupola blocks," large or small; circle bricks of fire clay; stove linings and annealed furnace linings; locomotive blocks, rotary kiln blocks, and combustion chamber blocks for engines; hollow blocks, hollow shapes, gas retorts, crucible rests, spouts and runner brick.

It will be noticed that these specifications read as if they were practically identical and one offset the other, but careful reading of it shows that the admission of free brick applies to those above $16 in value for the regular brick and above certain units of value for other shapes. It contains a pretty good argument for getting a good price out of fire clay products and incidently it draws a pretty fine line of distinction between brick admitted free and brick that is taxed because of its competition with Canadian products.

Written for The Clay-Worker.

## NORTHWESTERN OHIO BRICK AND BUILDING NEWS.

BUSINESS, so far as brick concerns are interested, is practically at a standstill in Toledo at this time and predictions as to the future are largely guess work. The building business has been exceptionally heavy in Toledo during the past couple of years and the growth of this city has been perhaps greater than that of any city in the state outside of Dayton which has also been exceptionally active. This was in part due to the heavy flood which, of course, necessitated a great deal of reconstruction work. All the brick industries of Toledo are closed down and all are carrying excessively heavy stocks, there being now about 20,000,000 brick here which is as many as were ordinarily carried when Toledo had nine brick plants instead of five as at present. There are some large investment structures being planned for Toledo this spring but these will be but a drop in the bucket if the residence building which has been such a large feature of the business during the past few years continues slack.

There is little doing at present in road construction work and this makes paving brick almost as quiet as the building lines although there seems to be a better prospect for this part of the trade. Toledo is planning the paving of a large number of streets in the spring and many of these will be of brick. Prices are unquotable as they are regulated at present entirely by the law of supply and demand and there is practically no demand.

Thomas Doherty, president of the Toledo Builders' Supply Co., died recently at his home on Collingwood avenue, of Bright's disease. He had been a sufferer from this ailment for a year. He was aged 63 years. He leaves a wife, son and daughter.

Work on Sandusky's large new sewer and on the sewer disposal plant in that city will now go forward as the bonds which for several months could not be disposed of, have been sold to R. L. Day & Co., of Boston.

A. L. Dillon, of Hamilton, O., was the lowest bidder on the contract for paving a three-mile stretch of road on the Cincinnati-Hamilton pike with brick. His bid was $53,097.

The executive committee met Saturday at the Secor Hotel and made arrangements for the entertainment of the February convention of the Ohio Builders' Supply Association to be held in Toledo. Entertainment will be provided by the local committee. Sessions will be held in the Secor Hotel. About 200 members are expected to be in attendance at the three day meeting.

The members of the Builders' Exchange held an election of officers Monday, as follows: President, L. E. Fishack; vice-president, A. Kelsey; directors, W. J. Albrecht, J. G. Bullinger, P. H. Edgnan, Jacob Jacobs, N. A. Milmine and E. H. Voss.

T. O. D.

# FREE PUBLICTY SERVICE FOR OUR READERS.

A Department Inauguarated in The Clay-Worker to Assist the Busy Manufacturers in Their Local Newspaper Publicity Work and for Other Advertising Methods. The Advertisements Together With Articles Published in This Department Should Bring Splendid Results if Placed in the Proper Mediums.

## DOES IT PAY TO ADVERTISE?

WHILE YOU sit around and read the special bargains and other offers in the newspapers, displayed and paid for as advertising, or while you look through your favorite trade paper to see what's new in the way of machinery and how many different kinds of machines may be offered for any given class of work, did it ever occur to you that you might find therein an answer to the question, does it pay to advertise your own product? Whether or not it pays the brick man, for example, to advertise his product depends partly on where he advertises, partly on how he advertises and partly on the product itself.

It has been demonstrated time and again that by certain advertising one can sell even gold brick, but the sales are generally limited to one time to one party. If a man has a poor and inferior article to advertise, the gold brick class of advertising probably pays best, but if one has a really meritorious article it simply discredits the article and really handicaps its continuous sales to resort to gold brick methods in

BRICK has all the ELEMENTS of a PERFECT building material, HARDNESS, DURABILITY, IMPERVIOUSNESS to MOISTURE, CONVENIENCE in HANDLING.

INTENSE SCIENTIFIC FIRING for DURABILITY and COLORS is the invariable rule in the MANUFACTURE of BRICK nowadays.

MODERN BRICK is WATERPROOF to a high degree, NON-STAINING, INDESTRUCTIBLE, and, above all, INDIVIDUALLY ARTISTIC.

(Firm Name)

(City) (State)

# FIRE'S AWFUL HAVOC

NO NATION on earth builds as much as we do, but neither does any other nation have to build so much. Our much vaunted rapid growth and phenomenal building booms give a false impression of the real conditions. Nearly 50 per cent. of all our new buildings go simply toward filling up gaps made by fire. In the past twenty-five years we have burned up $3,500,000,000 worth of property; we have wiped 1,000,000 buildings out of existence in less than ten years. In Boston, $1,500,000 is a small yearly loss; in the average European city of that size, $150,000 would be more than the usual yearly loss. It is a disease.

Millions are spent yearly in handling the disease after it breaks out, but only hundreds of dollars in steps to prevent its outbreaks. There is no question as to the superiority of burned clay products over other building material. Why shouldn't you BUILD WITH BRICK?

(Firm Name)

(City) (State)

advertising. Advertising is said to be a science, but sometimes we are prone to think that if people would quit aiming at the idea of being scientific about it and simply be natural awhile, they might get better results. Were it practical to do so, and in so far as it is practical, one should probably advertise an article just as one would talk about it if discussing it personally with the prospective purchaser. It is a fact, however, that many a man who can talk convincingly about his stuff when a customer calls, falls short of getting this same convincing talk in his advertising. Advertising should arouse interest and bring conviction, or to state in another way, must both attract and hold attention. Freakish advertising doesn't hold or concentrate attention on merits and on that which it is desired to call attention to, and sometimes that which is convincing fails to be attractive. Probably what we need is not so much science, as a little more serious thought given to advertising in a plain and straightforward manner, to bring better results and build up a better respect for the advertised article. Next to how to advertise, or before it, possibly, comes the question of where to advertise, and that naturally depends on where you expect to market your product. If the majority of it is to be marketed locally among the mass of building people, advertise in local papers and do it both intelligently and persistently. Don't be contented with just carrying a "card," but make a feature of good advertising, and give it the same careful attention you do the factory end of your business. Where you can do so, too, it is conducive to both interest and conviction to give some figures as well as facts and explain not merely what brick costs per thousand and how many thousand it takes to build so many cubic feet of wall, but go into the matter a little more comprehensively and give some figures on the cost of erecting houses of a certain size and shape.

One of the serious handicaps to the more extensive use of brick as a building material is in the general idea clinging to the public mind, that a brick house is something so

THE FACT that clay products are the best building materials in the world is a well-established truth, so it is little wonder that a large number of the buildings and residences being erected to-day are of clay brick, terra cotta and tile. In a brick house we find the highest degree of sanitation, economy and comfort, repairs are uncommon, painting is unnecessary, and that it is absolutely fireproof, cool in summer and warm in winter, if rightly constructed, leaves little reason why burned clay should not predominate. Furthermore, there is no other building material which affords more opportunities for beautiful, artistic treatment. The idea that a brick house is a luxury and beyond the reach of the average citizen is a mistaken one. It is slightly higher in first cost than frame, but much cheaper in the long run. With the added beauty and long life, what more satisfactory residence would one care to own?

__________________
(Firm Name)

_________ (City) _________ (State)

# The Father of His Country Built With Brick

At Glasgow, Ky., there stands a BRICK residence built by George Washington in 1790 for Gen. Spotteswoode, at that time Governor of Virginia, Records show that the exterior walls of BRICK have not been remodeled or repaired in any way, and present substantially the same appearance as when built, one hundred and twenty-five years ago. Pretty good record for BRICK, don't you think?

Figure, if you please, what the paint bill alone would have been had this house been built of wood instead of BRICK. This is but one of the many savings and advantages of BRICK CONSTRUCTION.

***Build With Brick***

**Indiana Brick Club**

expensive that none but the rich can afford it. This is something of a fallacy, too, that it is up to the brick men to give facts and figures that will dispel it, and a mighty good place to do this is in your advertising in the local papers. If you will keep this properly in mind and other points of the same nature, and use your advertising space properly, your business itself should in time furnish a satisfactory answer to the question of whether or not it pays to advertise. When that which you have to sell is not by any means confined to the local trade, when your product is one of wide distribution rather than dependent on home requirements, the problem of advertising becomes more complicated. In all cases the adoption of the "Build with Brick" slogan and an effective use of same in your papers and on street car signs, telephone poles, fences along country roads and in each and every place that you can attract the eye of the prospective buyer, will bring excellent results. The advertisements appearing on the preceding pages can be used to good advantage in your local papers, especially is this true of the one on George Washington. Use this around George Washington's birthday.

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**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**

**PAVE WITH BRICK**
**THE DEPENDABLE ROADWAY**

## RIVALRY IN BUILDING MATERIAL.

THIS PROMISES TO BE one of the liveliest years on record, not only lively in the building world itself, but there will be a stronger element of boosting and rivalry between the various offerings in building materials.

Lately the lumber industry has figuratively thrown its top or hat into the ring and proposes to organize in defense of wood, which, some of the advocates of the timber industry claim has been all shot to pieces by the warfare of the substitutes of wood in various lines.

The lumber people are enterprising people and when they make up their minds to do a thing, they generally do it in a manner that is effective and impressive, and there is no question but what they will wage a pretty lively campaign of exploitation of lumber and other wood products. They are a bit unfortunate, however, in the start-off, because they have centered quite a lot of attention on the fire-proofing proposition, and incidentally are making a sort of pet feature of the shingle roof. Shingles are used for roofing more than any other one substance or material, but just as the board walk has seen its day and has been replaced with other and more durable material, as well as more satisfactory, so will shingles in time have to give way more and more to more durable materials, and the more hurrah they make about the fire-proofing of wood, the more they will hasten the replacing of the shingle roof with fire-proof material and the wooden wall with the brick wall.

It is not the purpose here at the present time to enter into a detailed discussion of the merits and demerits of the claims which are being put forth by the partisans of the lumber industry. The main object right at present is to point the fact that we are in for a lively season in the matter of rivalry in boosting building materials.

It means that the lumber people expect to be unusually active and this, in turn, is arousing to new effort the cement people, composition roofing people, the metal lath people and all the various interests of the building world. It is well to keep this in mind as a stimulating thought for the brick fraternity, because brick is destined to be the biggest thing in the building industry if the trade keeps its product before the public in the right manner.

A splendid start has already been made in exploitation by the simple means of using the "Build With Brick" posters. This work has already attracted wide attention and perhaps has helped some to stimulate the lumber people to greater activity. Anyway, the "Build With Brick" business is today the most distinctive feature in the advertising and boosting of building material. It is being referred to on all sides by the rivals of brick and some are even striving to copy after it a little and use such slogans as "Build With Lumber."

The "Build With Brick" idea holds the center of the stage, however, and all it needs to keep the center of the stage and to lead the procession and make brick the most conspicuous thing in the building world, even for modest homes, during the present year, is for the brickmaking fraternity to keep up its good work. There should be no resting on the laurels so far earned, neither should we feel that brick is already pretty well advertised and doesn't need much more boosting. We should consider that what has been done so far is only the beginning, and before the building season opens every brick manufacturer should make it his business to see that brick as a building material is properly exploited in his community by having this "Build With Brick" sign staring people in the face from all sides.

Then, of course, every brick manufacturer should be prepared to furnish all the specific information about brick construction that may be required or desired by prospective builders. He should have real information, too, not merely guesswork. One of the objects of the present movement in the lumber fraternity is to present its side of facts and figures as to the cost of construction. It is a safe bet, too, that the figures of the lumbermen will be made to show up as favorably as possible toward lumber. Therefore, it behooves the brick manufacturer to be prepared to meet this attack with positive figures of cost that he can stand behind and demonstrate. Then he must be prepared to demonstrate the value of the brick structure as compared to frame.

The Clay-Worker proposes to help out in this work by a series of articles on brick construction of various kinds and to include eventually in this some figures of comparative cost of different kinds of construction, so that every manufacturer and every dealer in brick and clay products may be equipped with the necessary information and talking points to hold up the side of brick against all comers.

It is going to be a lively year, one in which there will be claims and counter-claims and boosting and exploitation of many kinds, and incidentally all of this will, perhaps, encourage more building and make it a big year in the building world. The clayworking industry has already secured a splendid start in the game of exploitation. Let us keep and even increase this lead by persistent and progressive work from now on till the opening and all through the next building season. Brick is now in the lead, let us keep it there—let everybody boost.

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Thrift is one thing, and being a tight-wad with the purse-strings is something else again, and right now we need a loosening up of the purse-strings that industry may be well fed.

# A MODERN DRYER.

THE GREAT EDISON FIRE of a few weeks ago has apparently not stopped the wonders of modern invention. While Edison is the Wizard in the electrical and scientific world, the world of burnt clay products has an institution equally modern in its progressiveness and scientific study.

In the mooted question of brick drying after designing and marketing the Raymond radiated heat dryer, The C. W. Raymond Co. brought out their metallic radiation dryer, which, it is claimed, was a vast improvement over anything previously known.

Since their accession to the throne of exclusive manufacturers of the producer gas fired kiln, they have combined the principles contained in the gas burning of brick and the metallic radiation dryer and have brought out and are now announcing for 1915, the Raymond producer gas fired metallic radiation dryer.

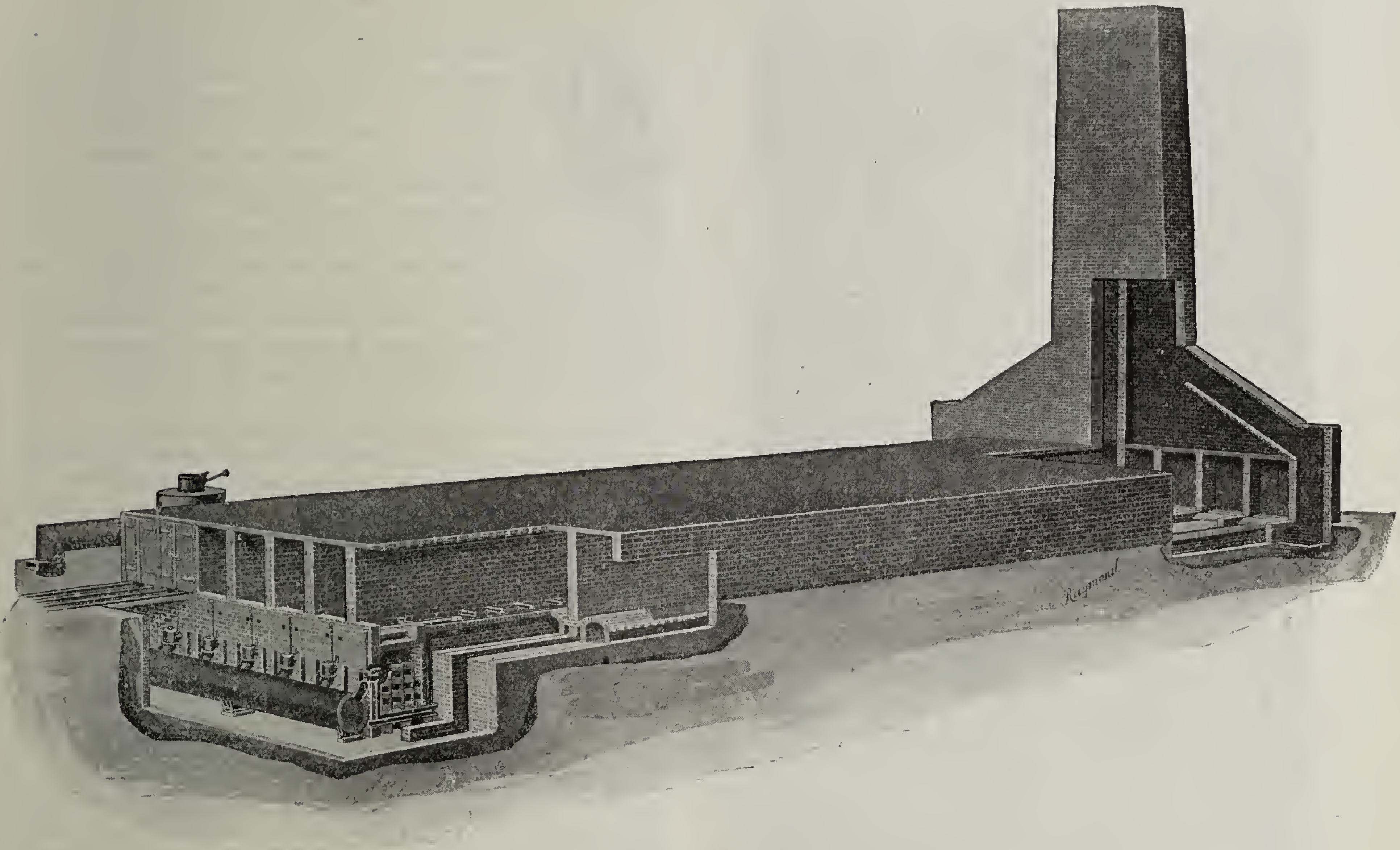
Several installations of this dryer have been made. Those that stand out most prominently are at the plants of the Sun Brick Co., Toronto, Ontario, and the Dominion Sewer Pipe Co., whose plant is located at Burlington, Ontario. The Dominion installation is the latest. An excerpt from a letter might be of interest to quote. Mr. A. F. Greaves-Walker, after examining the dryer at Burlington, says: "To show you how easily they can dry their brick in this dryer, would advise that they filled some of the tunnels from end to end with green brick and dried every brick in the tunnels, bone dry, in twenty-four hours, without a particle of loss. They have not yet gotten to the point where they can tell what the cost of drying will be, but it looks as though your statement in saving over the old system will be correct."

Experiments during the operation of the actual dryers installed show that the dryer is capable of drying 30,000 to 40,000 brick with one ton of coal. A wonderful saving.

In general construction and appearance the Raymond producer gas fired dryer is largely similar to their other types, and its suppleness in the control of both the heat and draft conditions is retained; however, it differs very greatly in the firebox, where a specially designed and patented arrangement is used to handle the producer gas, which, owing to the fact that gas and air are so readily miscible, greater ease of the control and completeness of the combustion is obtained. The combustion taking place under very nearly ideal conditions, uses the minimum amount of fuel to produce a certain amount of heat.

The producer is similar to that used in a producer gas fired kiln, although smaller and the dryer operates with an independent producer plant. If local arrangements show it to be profitable, the dryer can be operated with the kiln producers, should a producer gas fired kiln be in use. The producer plant also admits of great economy in the handling of fuel and ash, as well as the larger economy in fuel saving.

The C. W. Raymond Co., Dayton, Ohio, U. S. A., will gladly send further details to all brickmakers who are interested.



The Raymond Producer Gas Fired Metallic Radiation Dryer.

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**A Brickmaker Should be Burner Also**—The burner in any clay plant occupies a somewhat independent position. He has it in his power to burn good or bad brick. After spending a great deal of money in manufacturing the brick to the stage that they are ready for the burner, it is up to the burner to make careful burning and to produce good results. If the brickmaker himself knows how to burn his kilns, he will have a good check on his burners, and it stands to reason that better results will be produced. Anybody who goes into the clay business should learn how to burn his kilns, so that he can help out in case of necessity, and can control his burners to a great extent.—Tonind. Z. Z. No. 107, 1914.

# WELL BESTOWED HONOR COMES TO BRICK MAN.

THE NATIONAL HIGHWAYS ASSOCIATION, in effecting its organization for establishing the only plan and system of roads yet offered that is practicable and feasible, has been careful in the selection of the personnel of its officials, who are to push their objects to a successful operation.

The Council of National Advisors in this organization is made up, according to its by-laws, of "men of recognized ability and eminence in the arts, science and letters."

Spencer M. Duty, of Cleveland, Ohio, has been selected as a member of this council. That he measures up to the requirements, none who know him well will doubt.

When Spencer Duty speaks, he speaks abruptly, with pungency and force, but do not think for a moment that what he says has not been well considered. It has been and he therefore speaks with good judgment. His inclination and service to the Deckman-Duty Brick Company, of which he is president, has been particularly extended to the manufacturing of the products from the three factories owned and operated by that company. The careful consideration of every feature of business policy in the management of these plants marks their success, system, methods, results.

Possessing hereditary instincts, his father and grandfather having been brick manufacturers, Mr. Duty is a student of manufacturing processes. The benefit in this respect comes to his company in selfish interest but there is another side to Spencer Duty, namely his liberality toward the welfare of his competitors and his consideration for his patrons and the public. This has led Mr. Duty into a careful study of the details, that not only extend to the quality of brick but to their uses in the construction of streets and highways. In these efforts of Mr. Duty the manufacturing industry as a whole has been greatly benefited.

As a member of the technical investigating committee of the National Paving Brick Manufacturers Association he has rendered signal service. There is scarcely a manufacturer throughout the entire country but has within himself a testimony of good-fellowship and liberal treatment at the hands of Mr. Duty.

No matter from what distant point, whether it shall result in personal benefit or not, a delegation seeking information and advantage for the use of brick streets finds Mr. Duty ever ready and willing to lend a hand and his time in showing, demonstrating and explaining to interested inquirers the economy and satisfaction which is possible in the use of vitrified brick for paving purposes.

Sacrifice and duty on Mr. Duty's part has not been alone for selfish benefit. Public welfare gets its share.—Dependable Highways.

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Written for THE CLAY-WORKER.

## NEW YORK BUILDING SITUATION.

In TAKING ACCOUNT of the buildings erected in New York in 1914 as compared with the previous year the records show thirteen office buildings, of a total value of about $11,000,000. Fifty-eight loft buildings were erected, compared with seventy-three the previous year, at a total cost of $16,400,000.

Builders were quite as optimistic about the construction of buildings in 1914 as they were in previous years, but bankers who loan money, and forced by the cosmopolitan character of their business to watch carefully all business enterprise, foresaw difficulty early in the year, and contracted loans, with the result that all construction suffered.

Some of the office and loft building contracts may never be carried out. The new building code now under consideration will seriously hamper building operations of the old type because it will cut down the height of all structures, perhaps to not more than ten stories. What a limitation of this nature means to New York can be appreciated when it is remembered that ground space must be found for three buildings instead of one, obviously impossible in some sections of New York City.

Some builders have taken out permits in anticipation of the adoption of the new code, but it is by no means certain they will build. Without these uncertain ones, however, the relative number of operations will be larger than last year, and the outlook indicates early resumption of business.

On the West side of the city, along Broadway, operations have been delayed by the new subway which has encountered unexpected obstacles in its progress uptown and this has delayed all development of whatsoever character where those obstacles bothered. With these overcome and the subway itself well on its way the development of certain building plans may be considered certain. A number of buildings of importance are planned for different sections of Broadway, and these promise to become realistic in 1915.

Union Square, for example, has hitherto been neglected, but builders have begun in that vicinity and important improvements wait only upon the situation in the money market.

Fully $9,000,000 worth of new building are planned between Twenty-third and Forty-second streets. The proposed structures range in height from ten to twenty-one stories. Along Fifth avenue from Thirty-first to Thirty-fourth street a number of important buildings are to be erected. They will cost from $150,000 to $850,000 each.

Probably New York was the worst affected by the war of any American city, and it will take a long time to recover from the blow dealt at her commercial activity. But all its enterprises are now active and during the holiday season it got back some of its lost commercial prestige. Not all, and probably it never will; but some, and what did come was welcome and served to put some of the retarded activities on their feet.

Building, the most sensitive of all to these damaging conditions is looking better, and even the most pessimistic individuals are ready to admit that more may reasonably be expected this year than last.

Meanwhile builders are a shade uncertain what to do because the building code is not yet ready and restrictions appear likely. But always this solution of a New York building problem is possible. The builder can find plenty of sites within a reasonable distance of the metropolis across either river. And if he is forced to build on broader areas he can go where such areas are procurable at a very reasonable figure. And that is what he will do. Building will not cease. It will be transferred, and out of the confusion which now exists will come development for New Jersey, Long Island, Staten Island and Westchester which are not now suspected.

The total value of building plans filed during the year in New York was $45,433,665. Of this sum about two-thirds will be erected this year, according to the estimates made by builders. Money is already easier and the situation looks more promising.

According to information concerning conferences now in progress the superintendents of buildings in the various boroughs will be the most important officials in the city since work now divided among half a dozen bureaus will be delegated to them. The new building code will be a drastic piece of work when it is finally completed. BURTON.

## GASOLINE LOCOMOTIVES COMING INTO MORE GENERAL USE.

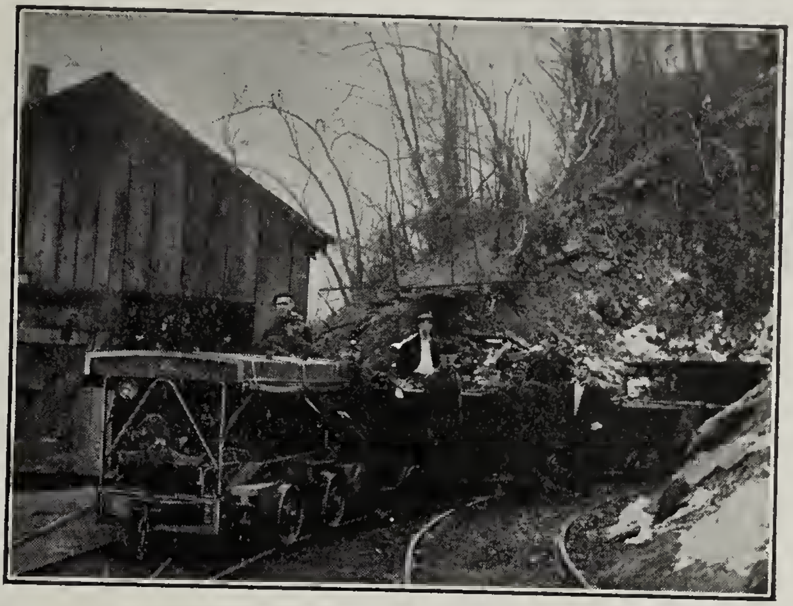
IN ADDITION to what The J. D. Fate Company term a very satisfactory business during the past year and an excellent outlook for the early part of the new year on their Premier line of Clayworking equipment, they also report a very pleasing volume of business on their line of Plymouth gasoline industrial locomotives, placed on the market during the fore part of the past year.

They state that in accordance with their ambition to always have whatever they manufacture as highly improved as possible, they have developed in this locomotive what experienced users of locomotives say is the finest equipment of the kind they have ever seen. The Plymouths are already in use on some of the largest engineering works on this continent, where they are giving excellent satisfaction. They are also giving just as satisfactory service in clay plants, both small and large, where they have replaced winding drums, horses and men, effecting marked savings and wonderfully increasing the efficiency of the haulage end of the business.

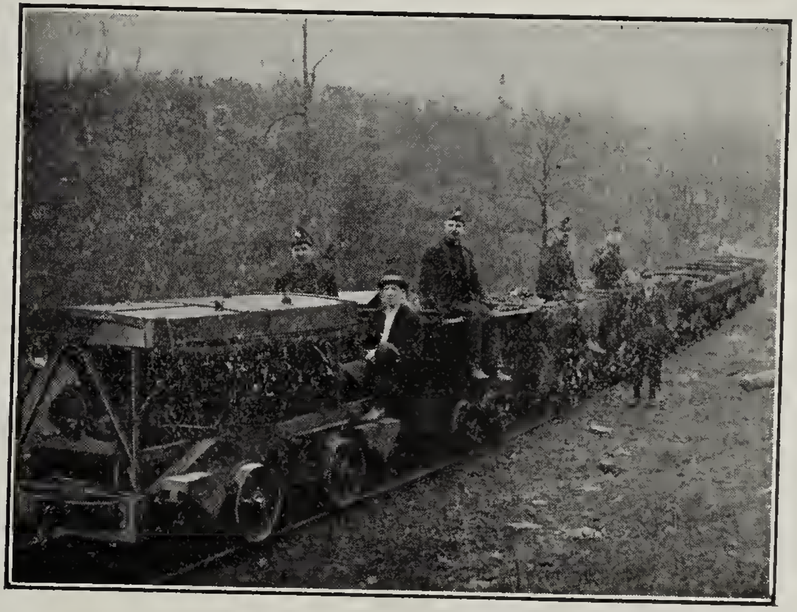
They are built as light as possible so as not to introduce unnecessary track troubles, but at the same time amply heavy to perform the work for which they are designed, and are furnished with abundant power. On a recent test of a locomotive built for standard gage track, and weighing only about three tons, it was able to handle quite readily two large box cars, weighing about forty tons, on a 1 per cent. grade.

They are built in any gauge, from 20-inch to standard, either with or without cab, equipped with gas or electric lights if desired. There is just about as much fascination in operating one of them as there is with an automobile, and the regular equipment comprises features found in the high-class autos, such as the well-known Continental 4-cylinder motor, Schebler carburetor, Bosch high tension magneto, Hyatt roller bearings, New Departure ball bearings, and a thermo-syphon cooling system, thus doing away with radiator troubles.

They report among recent shipments of these locomotives, the following: Dominion Sewer Pipe Co., at Watertown, Ont.; S. N. Johnson, Laredo, Tex. (clay plant); U. S. Drainage & Irrigation Co., Queenswater, Long Island, 2; Lincoln Clay Products Co., Lincoln, Cal.; Foley Bros. Welch, Stewart & Faquier, Halifax, Nova Scotia, 2; Southern Connellsville Coke Co., Uniontown, Pa.; Alliance Clay Product Co., Alliance, Ohio; Honolulu Iron Works, Honolulu, Hawaii; Interboro Rapid Transit Co., New York City, and American Gypsum Co., Akron, N. Y.



View 1.



View 2.

View 3.

The illustration shows one of the 3-ton locomotives in different stages of work at the Southern Connellsville Coke Co., Cheat Haven, Pa. The first view shows the locomotive emerging from the mouth of a tunnel coal mine with a train of ten cars, each weighing, with its load, three tons. The second view shows it ascending a grade on the way to the tipple, and the third at the tipple.

These locomotives are made in a separate factory, so as not to interfere with the manufacture of their clayworking machinery, which, on account of new equipment installed, they say they are now better able to furnish than ever before.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

THIS IS NATURALLY the dull season with brick manufacturers and jobbers, the "in between" period when only a light business is expected. Manufacturers all over the state are making good use of the lull in business to overhaul their plants and install new equipment, in order to be in readiness for the busy season expected later in the season. Jobbers are looking over the field and getting in touch with much prospective business.

Most concerns have completed their annual inventories and the figures which have been disclosed show that the total volume of business secured was satisfactory, despite the business depression in many lines of industry. While the amount of building carried on in most sections of Wisconsin was less than in 1913, it would seem that there was an increased demand for brick, which partly offset the decline in building operations. Brick again played an important part in the paving work carried on in Wisconsin cities and sales of paving brick were larger than during the previous year. Jobbers say that several cities are planning extensive paving work, even at this early date. Most brick men paid more attention to the drainage tile proposition during 1914, and, as a result, sales in this line showed a decided increase. Many large drainage projects, notably the draining of the great Horicon marsh at Horicon, Wis., were started last year and brick men are beginning to learn that this is a most fertile field for business.

It goes without saying that members of the Wisconsin Clay Manufacturers' Association will carry on the "Build With Brick" campaign which worked out so successfully during the past year. Members of the association paid more attention to general publicity work during the past year, each manufacturer advertising as much as possible his particular line and calling attention to the uses to which brick can be put. The results are being shown in the increasing demand for brick which is being experienced by manufacturers all over Wisconsin.

Figures prepared by W. D. Harper, Milwaukee building inspector, show that there was a decided falling off in the building investment in this city during the year just closed. Building operations amounted to only $9,882,085, as compared with $13,590,084 in 1913. During the month of December there were 132 permits issued for structures to cost $393,410, as compared with 176 permits and a building investment of $867,468 during the corresponding month in 1913. Building Inspector Harper is confident that there will be decided activity in Milwaukee building circles during the coming season, due to the fact that so much building, originally planned for the past season, was carried over until spring, a natural result of the business depression. Not only large projects, but a vast amount of small building, was postponed, giving assurance of plenty of activity next spring. Brick men are taking an optimistic view of the situation and are confident of meeting with a good business within the near future.

Brick played an important part in the paving work carried on in Milwaukee during the past year, according to the annual report of Superintendent Blodgett, of the street construction and repair department, who says that 564,784 square yards of paving were laid during the past season as follows: Asphalt, 205,197 yards; brick, 109,922 yards; bituminous macadam, 43,165 yards, sandstone, 31,193 yards; granite block, 34,249 yards; creosote block, 38,030 yards; concrete, 3,017 yards.

The Wisconsin state highway commission has completed its allotment of state road funds for construction in 1915 and has notified the various county boards of the amount available for each county. Inasmuch as the state highway appropriation for next year amounts to $1,250,000, every unit of government in the state will receive the full state aid petitioned for 1915.

Joseph A. Fricke, manager of the yards of the Brillion Brick & Tile Company, at Brillion, Wis., has resigned and has moved with his family to a farm near Manitowoc, Wis. His successor has not been announced as yet.

The Burlington Brick & Tile Company, of Burlington, Wis., closed its plant about December 15, after one of the most successful seasons in its history. The plant was operated full capacity throughout the year and the output exceeded all previous records. More tile was turned out than ever before. Plans are under way for re-opening the plant soon and a busy year is anticipated.

The Vesper Brick & Tile Company, incorporated a few months ago with a capital stock of $25,000, met with such a successful season that the concern is now making extensive improvements to its plant, in order to increase the output. Manager Murgantroyd says that considerable new equipment is being installed and that a modern new kiln, with a capacity of 90,000 brick per week, is being erected. In the spring the company will erect a new office building and lay a new switch track to its plant.

THE CLAY-WORKER.

Messrs. Wreford, Baird and Randall at Entrance of Hupprich Pottery Co.'s Plant.

It is reported from Appleton, Wis., that J. W. Hamilton, representing the United States Perfection Lime Brick Company of Chicago, has purchased 110 acres of land between Appleton and Hortonville, where a plant, with a capacity of 12,000,000 sand brick per year, will be erected. Mr. Hamilton and A. C. Weis, who invented the process followed by the company in the manufacture of its brick, were in Appleton, Wis., recently, completing final plans for the proposed plant. Mr. Weis said that the investment would involve from $85,000 to $100,000, that at least thirty men would be employed and that it was hoped to have the plant in operation about April 1. Appleton will be the headquarters of the company, it is said.

A. BADGER.

An enterprising real estate man is responsible for the advice that every auto owner should have a farm, either small or large, for health and recration. The trouble with his argument is that it may prove hard for the average man to maintain an auto on a small farm.

# DETROIT'S FLOWER POT FACTORY.

THE HUPPRICH POTTERY CO., A. Hupprich, proprietor, was started by Mr. Hupprich almost forty years ago in a smal lshop on Otis street, Detroit. At that time and for many years all flower pots, vases and fancy ware were made by hand or on the old-fashioned turners' wheels. Later there came into use the jigger with plaster molds, which was a vast improvement over hand turning. About three years ago he purchased an automatic molding machine made by the Baird Machine & Mfg. Co., which enabled him to more than treble his output. As a result his old quarters were entirely too small, and about a year and a half ago he purchased some land near the city limits of Michigan avenue, adjacent to the brickyards, and built a modern pottery, installing more new machinery, so that he is now able to take care of a considerable increase in business, which is bound to come on account of his ability to make prompt delivery as well as to furnish a flower pot that is second to none in both quality and finish. His present daily output is approximately 20,000 pots per day and additional kilns will be erected in the spring which will enable him to double this present output. The layout of the plant was well thought out. The clay being delivered direct from the bank to the soak or store room at the one end of which is the clay crusher and pug mill. After going through the mill it passes directly on to the cutting table, where the proper size balls are made for the molding machines, into which they are fed by the operator.

The Baird Automatic Molding Machine in Operation.

Alongside of the molding machines are the drying racks and at the farther end is the kiln and warehouse, so that from the time the clay leaves the bank it makes steady progress toward the finished product and handling is reduced to a minimum.

## NEWARK, N. J., POTTERY SHOW.

Sometime during February the Newark, N. J., museum will give a pottery show from February 1 to March 14. The object is to get together as much New Jersey pottery as possible and the museum has appealed to owners to loan their possessions so the collection can be made representative of New Jersey pottery manufactories.

Most of the potteries have been located at or near Trenton, but one was built at Elizabeth in 1816 and one at Jersey City in 1829. Near South Amboy can be seen the remains of an old kiln, preserved through complete vitrification. This is supposed to be a relic of the earliest pottery made on the continent, and the Dutch are believed to have erected it for the purpose of burning their stew pans and pots.

Probably the first man to make white pottery on the continent was Dr. Daniel Cose, of London, one of the proprietors and afterward governor of New Jersey. He did not come to America, but he caused a pottery to be erected at Burlington as early as 1685.

An effort is being made by the museum to interest as many people as possible in this affair, which promises to be one of the most important of the year.

## ANNUAL CONVENTION OF THE CANADIAN CLAY PRODUCTS ASSOCIATION.

The clayworkers of Canada will again gather in annual convention at Toronto, January 26, 27 and 28. An interesting program has been prepared, not the least important feature of which is a series of social entertainments in which the wives and daughters of the members and guests will participate. Any brickmakers from the States who can arrange to be present will be thrice welcome. The officers of the association and those associated with them in the work are past masters in the art of welcoming and entertaining delegates and visitors. The sessions will be held in King Edward Hotel as will also the chief social functions. For complete program or any further information our readers should address the secretary, Gordon C. Keith, 32 Colborne St., Toronto. In a recent communication, Mr. Keith, who is also editor of the Canadian Clay-Worker, states that there will be a large delegation of Canadian clayworkers at the N. B. M. A. convention at Detroit in February.

## CEMENT FALLS OFF.

A preliminary report of the U. S. Geological Survey on the cement production in the United States for 1914, shows a total of approximately 88,514,000 barrels, as compared with 92,097,131 barrels in 1913. This is a decrease of about 3,583,000 barrels, or nearly 4 per cent.

The decrease seems to have been the heaviest in California or the west coast district, where the total for this year is approximately 12 per cent. below last year. Next, in loss of volume, comes the Lehigh district, the heaviest producing district in the country, with a loss of 9 per cent. The Illinois and northwestern Indiana district showed a slight decrease. Increases are shown in production and shipments of New York and also from the Michigan and the northeastern Indiana district, the Iowa and Missouri district, the Maryland and Virginia district and the Rocky Mountain district.

Cement, so far as the building trade is concerned, seems to have reached what might be termed its maximum consumption; that is, it has found the extent of its uses, and development in this direction henceforth will depend materially upon the increase in population and the development of building operations.

The big chance for the cement industry in the future for what might be called extensive new development is perhaps to be found in the good roads movement, in the making of foundations for streets and roads. Cement enters there and the ideal road foundation, as well as the ideal street base on which to pave with brick, is one made of concrete, and if there is very extensive development of new work along this line it will give relief to the congestion of the cement industry and increase materially the volume of consumption.

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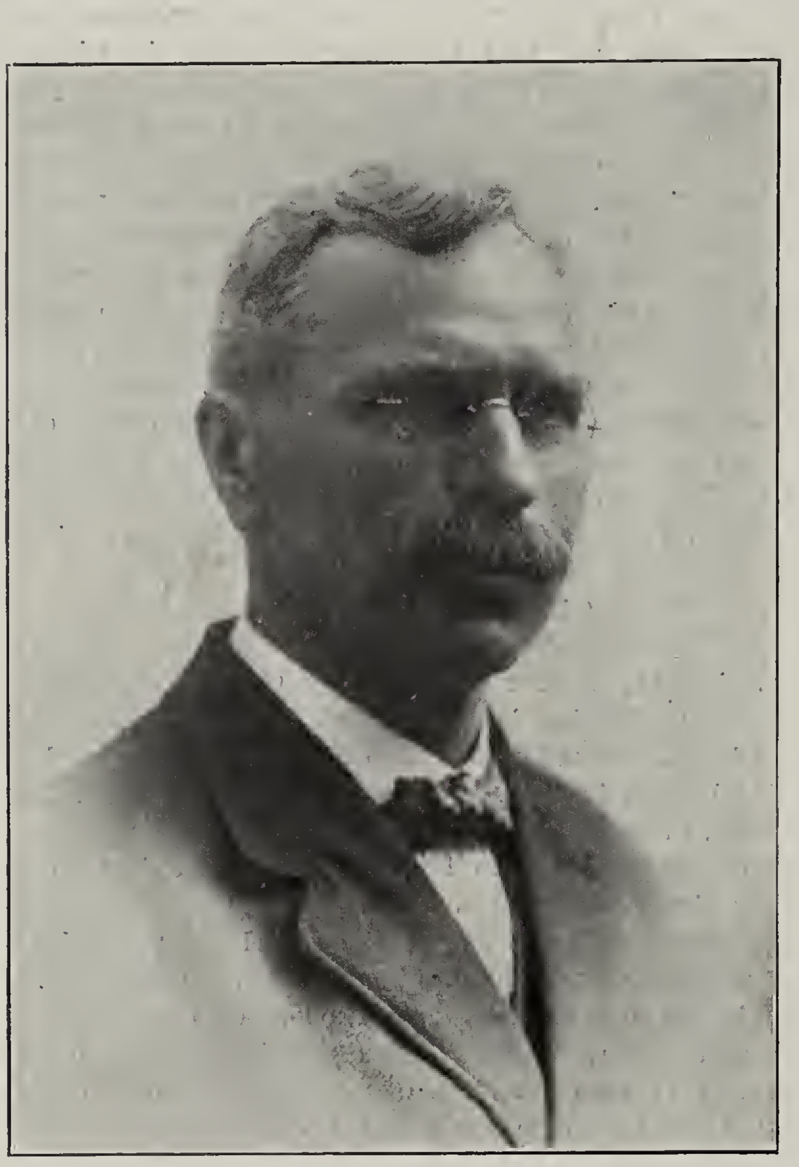
If it were always easy to look pleasant, there would not be much virtue in doing it.

## A PROMINENT BRICKMAKER OF CINCINNATI, WM. MITCHELL, DIES OF HEART FAILURE.

WM. MITCHELL, a prominent brick manufacturer of Cincinnati, died December 15, 1914, at the age of 54. Death came suddenly at the yards of The Mitchell Brick Co., at Delhi, Ohio, just as he stepped out of the office at about 7:45 a. m. that morning after conferring with his sons, Edwin L. and William, Jr., in regard to business matters. It was thought he had just slipped on the snow, but when his sons reached him he had breathed his last. He had been in perfect health apparently a day prior to his death, but complained on the night of the 14th of pains in his chest. He had been a sufferer of heart disease for some time although attending to his work every day.

Funeral services were held Saturday, December 19 at 11:30 a. m. at his late residence on Chelsea place, Delphi, interment at Aurora, the town of his birth.

Mr. Mitchell is survived by his father George W. Mitchell, of Lawrenceburg, Ind., pioneer brick manufacturer of Cincinnati, Ohio, and Aurora, Ind., who is 85 years old. Others are the widow, a sister, Mrs. C. M. Beinkamp, of Lawrenceburg, Ind., and four children, Florence Louise, George E., a New York architect; Edwin L., manager of the brick company, and Wm., Jr., also connected with the plants at Delphi and Lawrenceburg.


William Mitchell.

Mr. Mitchell had been in the brick business for the past 35 or 40 years acting as secretary and treasurer of the Mitchell Brick Co. for the 20 years past prior to 1912, and then president; he was a member of The Builders and Traders Exchange of Cincinnati, and was connected with other building organizations in Cincinnati, and was well known in Hamilton county, Ohio, and Dearborn county, Indiana, and his death was a shock to a host of friends and business associates. He was also a Knight Templar and a member of the United Commercial Travelers of America. He was an ardent member of The National Brick Manufacturers Association of America and regularly attended the conventions; though seldom heard on the floor of the convention he was one of the wise counsellors in the private conferences, from which he will be missed by the older members.

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Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

THE YEAR 1915 starts off with a good promise for business. While the winter always tends to hold down immediate construction, there is a great deal being done in the way of preliminary preparation. Since the regional bank has gotten well started, and money rates have eased off, there is a marked difference in the sentiment which is prevailing. Loans are rather easier to make, and preparations for building construction are increasing proportionately. In this, the brick business will have its full share. There is a quiet but steady progress toward brick, and while it is slow enough to make the impatient ones in the brick business feel that little progress is being made, yet it is to be discerned by the student of events. The demand for brick is growing, and it is certain that the brick trade will come into its own in time.

Prospects for spring building are much improved, and it seems likely that there will be an early season demand which will call for all the brick on hand with many of the yards in the Northwest. Several severe fires this winter have turned attention in smaller towns to the value of brick for building. The campaign of the Clay-Worker to "Build with Brick," and the efforts of numerous brick manufacturers to augment the agitation in their own communities, is having its effect. Much more could be done by co-operation with the local weekly papers of the Northwest, in securing the insertion of occasional articles upon the worth of brick. Some brickmakers are doing this, but many more could do so, if they would undertake it. This subject has been threshed out at various conventions, but without much avail, except in individual cases. However, like all movements, it takes time to get under way.

The building inspector of St. Paul has prepared a new ordinance outlining a new fireproof district for the city, which greatly extends the old fireproof limits. Buildings not fireproof are limited to three stories within the district.

During the past year, the prisoners at the city workhouse in Minneapolis made 3,500,000 brick, which were sold at from $5.50 to $6. This work was done during the summer. The prisoners are now working on cement work.

A bulletin issued by the University of Minnesota upon clays and shales of the state, tells of the development of brick and fireproofing manufacture in and around Minneapolis. This is a report of work and investigations which have been under way for two years past by Professor F. F. Grout and Professor Edgar R. Soper, of the department of geology, in conjunction with the United States Geological Survey. Every county in the state is reported upon. The report speaks of the hollow tile and fireproofing plant of the Northwestern Fireproofing Company, at Fridley, Minn., near Minneapolis, as having been developed into a very successful business. The sawdust available from the Minneapolis sawmills has been used for mixing with clay, resulting in a lighter product than would otherwise be the case. The company has a stockpile of sawdust in store, sufficient to last for many years, while its clay bank is equally assured as to supply for years. The report mentions that some of the clays available near Minneapolis are suitable for making vitrified clay wares. Favorable mention is made of the plant at Coon Creek as producing a very desirable product.

In a recent interview in Minneapolis, Dean Babcock, of the North Dakota School of Mines, spoke very glowingly of the promise in store for the state as a result of developing its lignite industries and its high grade clay industries jointly. Pottery clay of high value is available in the state, and the dean anticipates the development of pottery industries using these clays.

The Chicago, Milwaukee & St. Paul. Ry. contemplates erecting a suburban station on Twenty-ninth street, Minneapolis, of brick, to cost perhaps $30,000. The company has work under way lowering its tracks along this street, and is building artistic bridges over its tracks.

McElroy & Kinports, architects, of Minneapolis, have been engaged to design the proposed high school for Excelsior, Minn., for which bonds have just been voted. The structure will cost about $50,000.

Kirby T. Snyder, architect, has been engaged as architect for the proposed high school at Lamberton, Minn., which is to cost about $50,000. The plans will be out for figures about March 1.

The Hennepin Avenue Methodist Episcopal church, of Minneapolis, is now constructing an imposing church edifice on Lowry Hill. The institution contemplates erecting an office building in the downtown district, after the church is completed, to have an auditorium and other hall facilities. The latter will cost about $100,000.

The city of Minneapolis is advancing the preliminaries as rapidly as possible for the proposed municipal union depot, which is to absorb Great Northern station and extend it about three times it present size. There will be a public hearing upon the subject on February 1.

The St. Paul Union Depot Company has announced plans for the construction of a complete union station, with enlarged terminals, to cost from $12,000,000 to $15,000,000 and to require from four to five years in building.

A. H. Stem, the St. Paul architect, has been engaged as architect for the St. Paul Athletic Club building which is to be erected at the corner of Fourth street and Cedar. It is to be a building of about ten stories, and is to cost $500,000. The plans will not be out for two or three months.

Alban & Lockhart, architects, of St. Paul, have been engaged as architects for the high school to be erected at Glenwood, Minn. It will be of fireproof construction, costing probably $60,000.

J. W. Butler & Brother Company, of St. Paul, were the successful architects for the addition to the Dale street exchange of the Northwestern Telephone Exchange Company in St. Paul.

The James H. Brown Company, Lumber Exchange, Minneapolis, has been awarded the general contract for the erection of the C. E. Phelps building at 919-921 Nicollet avenue, Minneapolis, on plans by Tyrie & Chapman, architects, of Minneapolis. It will be of brick construction and fireproof. Cost about $20,000.

T. WINN.

## A GOOD NEW YEAR'S RESOLUTION.

### Bob Up With A Cheerful Grin.

It's a good old world—when it's good to you—
And a hard old world when it's bad;
And there's many a fight in the long dark night
You must fight out alone, my lad.
But whether you lose the lot you chose,
Or whether the fray you win,
Be brave and strong the whole day long—
Bob up with a cheerful grin.

"There's a many a slip 'twixt the cup and the lip"
And many a man "falls down";
And where one wins and success begins,
Another meets fortune's frown.
But courage, bold, gets a strangle-hold
To never again give in;
So whatever betide, with a bold, brave stride,
Bob up with a cheerful grin.

## HOLLOW BUILDING TILE MANUFACTURERS ORGANIZE.

At a preliminary meeting held in Buffalo, N. Y., recently, a number of representative manufacturers of hollow clay building tile formed a national association for the purpose of promoting the use of hollow tile as a building material. It was determined to open an office in Cleveland, Ohio, which will be the headquarters of the association. The following officers were elected: President, J. A. Maahs, general manager of the Pennsylvania Fireproofing Company at Erie, Pa.; vice-president, W. C. Denison, president of the Ohio Clay Company, Cleveland; treasurer, R. E. Whitacre, president of the Whitacre Fireproofing Company, Waynsburg, Ohio; secretary, Charles T. Harris, late of the Fiske Brick Co., Ltd., New York. An executive committee was selected, composed of the above-named officers and R. W. Allison, of the National Fireproofing Company, Pittsburg, and L. B. Camp, of the L. B. Camp Company, Akron, Ohio. The association has made a wise move at the beginning of its work in securing the services of Mr. Harris, who has a wide acquaintance among the clayworkers and architects of the country and is qualified to speak with authority on the brick and tile business and especially the commercial side. The organization will hold its first regular convention at Hotel La Salle, Chicago, January 19, in which all interested are invited to participate.

Charles T. Harris.

There is a certain distinction between the vocational and the trade school. The one includes professions as well as trades, while the other is strictly for the skilled trades. Let us not lose sight of the fact that it is skilled workers we need more than anything else in the present-day schooling.

# BRICK AND BRICKMAKING MACHINERY IN THE SUNNY SOUTH.

FOR over twenty-five years, J. C. Steele & Sons, of Statesville, N. C., have been building brick machinery and brick yard equipment.

The business was started by J. C. Steele, when the eldest one of his four sons was old enough to be interested. At that time brick machinery was of the crudest kind, so that they have developed along with the industry—each one of the sons, C. M., H. O., A. P., and F. F. Steele, taking a hand when they were old enough. Each one devoting his entire time and ability studying the various problems of the brickmakers all over the country, and with this thorough knowledge and combined effort, developing machinery which has produced results fully appreciated by men of experience.

The problems of the clayworkers are so varied that only the widest experience and knowledge can insure success, except by costly experience, and the Steeles are always ready to help.

Factory of J. C. Steele & Co., Statesville, N. C.

It is the policy of this firm to accept no orders for equipment until they are convinced that the material to be used can be worked successfully, and they are prepared to make tests under actual working and burning conditions.

They make a full line of machinery for stiff mud brick, also for hollow ware. Improvements are constantly being made as experience dictates. Their extensive works are especially equipped for turning out brick machinery. Most of their workmen have grown up with the business, all taking pride in the records of the output.

Special grades of iron are used, worked out by long experience, to give the great strength and hardness to withstand the strains and wear on this class of machinery.

They give very conscientious attention to their line of repair parts, and have very complete records, so that shipments are prompt, and there is seldom any mistake. This point is thoroughly appreciated by their customers.

They have built their machines direct geared for large as well as small sizes, from the start. The machine shown in the illustration gives their idea of gear proportions.

Their business last year up to the time the war started, was the best they ever had, and the year as a whole was most satisfactory.

## WISCONSIN CLAY MANUFACTURERS' ASSOCIATION.

Samuel Weidman, secretary of the Wisconsin Clay Manufacturers' Association, has issued the following letter to members of the association:

The next annual meeting of the Wisconsin Clay Manufacturers' Association will be held in Milwaukee at the St. Charles Hotel, February 4 and 5, 1915. Live up-to-date topics will be on the program and the interest in the convention will be greatly increased by a large attendance and a full discussion of the subjects presented. All of the brick and tile manufacturers in the state should be represented at the meeting. The subjects of drying and burning of clay products, the accounting and bookkeeping for small brick yards, and the movement for the increased sale of brick and tile will be among the various topics on the program. The final program will be mailed about January 20. In the meantime every member should plan for attending the annual meeting and for renewing acquaintances with their fellow manufacturers.

## Early Training.

Johnny Jones, the office boy, had been detected in a lie. It was not one of the ordinary prevarications of the everyday world, and, moreover, to make the crime more grievous, he had persisted in adhering to his original mendacious statement.

"Do you know, my lad," asked a fatherly clerk, in a kindly fashion, "what becomes of young lads who trifle with the truth?"

"Aye," was the assured reply; "bosses send them out as traveling men when they grow up."

# FOREIGN SCRAPINGS

**In Memoriam Jacob Buhrer.** Jacob Buhrer was one of the best known clayworks engineer in Continental Europe. He was the inventor of the Buhrer kiln and dryer and the editor of the Tonwaren fabrikant, a clay journal devoted to his interests. He was 88 years of age, and died at Konstanz, Germany.

**Swedish Standard Size Brick**—There has been some discussion lately to have the standard size of brick changed. The size which was adopted by the Swedish Technical Societies was 250x120x65 millimeter (2 9/16″x4¾″x9⅞″). The movement on foot now is to change the length of the brick to 12 inches. The question is now before the combined brickmakers for further decision and action.—Tegel No. 8, 1914.

**The Laying of Brick and Mason's Methods**—In a study of the mechanical movements in order to determine the efficiency of a workingman, and in this particular instance a brick mason, Mr. J. Amar has found that 80 pounds is the limit for a strong man to carry brick all day long, while from 50 to 62 pounds is the steady weight for average man. In laying the brick up in the wall, it has been found that the brick mason should always have the brick at such a height that the mason needs not stoop down to pick up his brick. The height of the wall above the platform should not be more than 65 centimeters (26 inches). The trowel which he should use should be of such a shape that it will hold mortar enough for 21 brick. He should handle all the brick on top and not at the bottom as shown in the cut. In studying the different movements and in assisting the improvements of the same it was found that the number of movements of laying brick could be reduced from 18 to 13, so that the saving in time of laying brick would be quite a large item.—Le Mois Scientifique, Febr., 1914.

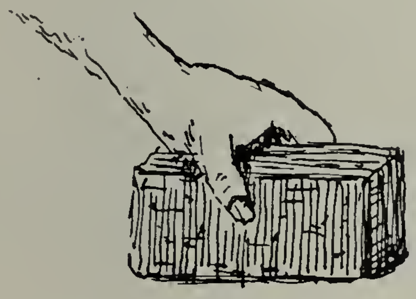


Fig A

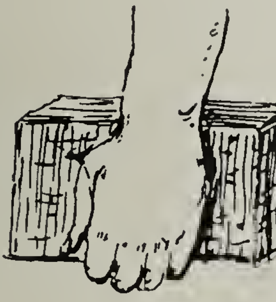
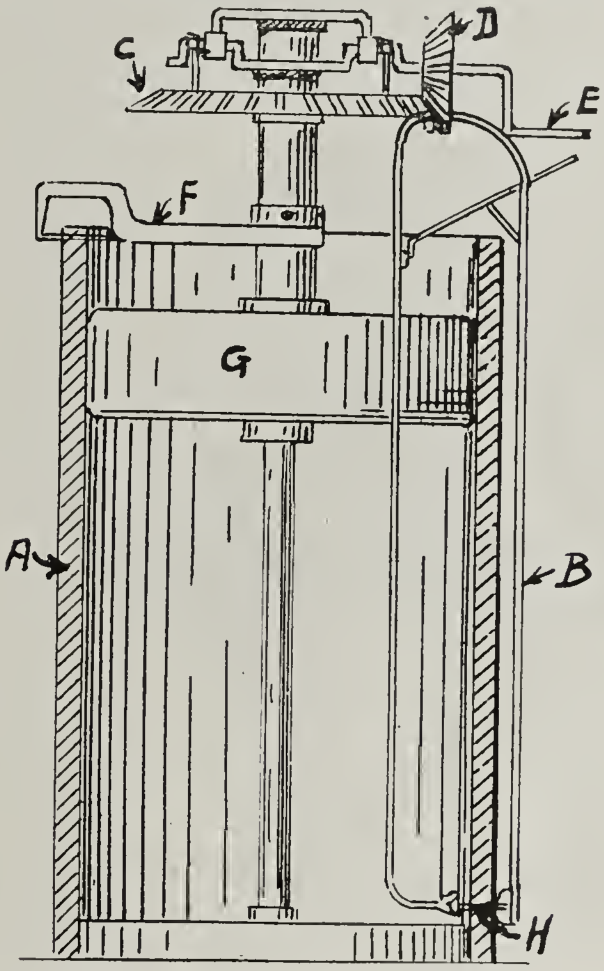


Fig B

**Foreign Clayworking Journals Memorialize Employes at the Front**—All publications received from belligerent nations give much space to patriotic purposes. They publish long lists of the dead and wounded and also those decorated with the different crosses of merit. The German papers specialize under the heading: "The following fellow clayworkers died 'Den HELDENTOT' (the death of Honor) for the Fatherland." Many well known clayworkers are to be found in these lists.—Editor F. S.

**The Purifying of Producer Gas Before Using**—In the use of producer gas direct from the producer it has been found that there are many drawbacks, which in many cases produce failure of the applied system. Max von Reiboldt has found that the gas from the producer will greatly improve if the same is cleaned before being used. For this purpose he advises the installation of a washing apparatus, called "Scrubber." The gas which comes from this washing apparatus is cleaner and it has a higher heat value. It is easier to regulate and has a more constant pressure. These scrubbers are easy to build, they take very little room, and must be so installed that they can be easily cleaned. They do not cost anything to operate and the profits to be derived from the tar which is saved, will more than pay for their installation.—Keramische Rundschau No. 39, 1914.

**Apparatus for Cutting and Trimming of Draintile**—In making large draintile, it has been found quite troublesome to cut these tiles evenly, as they will warp out of shape and get crooked edges. In overcoming this trouble Mr. Jens K. Jensen has invented a cutter which operates successfully. The cutter is patented under German Patent No. 277698. In the cut shown herewith A is the draintile, B is the cutter which trims the bottom of the tile which is fastened to the gear C, which is operated by a small mitregear D and the handle E. The top part of the tile is trimmed by the cutter F and the wheel G is used to keep the tile straight. The needle for trimming the bottom of the tile H is easily removable.—Deut. Topf & Z. Z. No. 81, 1914.



Apparatus for Trimming Drain Tile.

**Danish Brickmaking in 1913**—The total amount of brick made in Denmark in 1913 was 532 million brick, which was 38 million more than in 1912. The stock on hand in the different yards on December 31, 1913, was 176 million brick. There were 376 brick yards in operation during the year which was six more than last year. In roofing tiles the manufacturing increases considerable, in 1911 it amounted to 8,481,000 pieces, while in 1913 it amounted to 11,352,000 pieces. In draintile the total production for 1913 was 17,764,000 pieces. The prices obtained were about the same as last year.—Lerindustrien No. 21, 1914.

**Salting of Sewerpipes**—The outside of sewerpipes is salt-glazed, while the inside is dipped with a brown slip glaze. When the kiln has been burnt to the right heat, the salt is thrown into the fire boxes. It will volatilize the chlorine and the remaining sodium will deposit itself on the clayware. From two to four shovels of salt will be necessary for every firebox according to the size of the kiln. In order to give the sewerpipe a good glossy appearance, the draft of the kiln should be reduced about one-half before salting, so that the kiln will work strongly reducing. Slow cooling is also necessary for good salt glazed sewerpipe.—Tonwaarenfabrikant No. 9, 1914.

## NEW JERSEY CLAYWORKERS HOLD AN INTERESTING CONVENTION.

THE BRICK, TILE and pottery workers of New Jersey met in annual convention in New Brunswick, N. J., at Rutger's College, December 28 and 29. There were one hundred or more present, who gave strict attention to the proceedings and were well repaid for the time and trouble in attending, for there were a number of very able papers presented. The faithful ex-president of the N. B. M. A. presided and his experience in association work stood him well in hand in directing the deliberations of the association. He was very ably assisted by Secretary Parmelee, whose personal knowledge of New Jersey clays and New Jersey clayworkers, acquired in a long term of service as dean of the Department of Ceramics of the State College of New Jersey, enables him to anticipate and meet the needs of the clay craft in a practical way. There were no special social features, the delegates devoting themselves to the work mapped out in the program, which was given in full in a previous issue of The Clay-Worker. The papers pertaining to brickmaking will be published later on. At the final session the officers who had served so well the last year were re-elected, and it was unanimously voted to invite the National Brick Manufacturers' Association and its allied organizations to hold its 1916 convention in Atlantic City. A vote of thanks was tendered to Prof. Bleininger and others who had contributed formal papers. The day following the convention, President Bloomfield and the editor of The Clay-Worker were autoed to West Orange by Mr. Abel Hansen and viewed the wreck of the Edison plant, a story of which will be found in another column.

Chas. A. Bloomfield.

## SHE NEVER CAME BACK.

He (reading paper)—Here's a note about an accident at White's house. The servant girl put some gunpowder in the fire and she was blown through the roof.

She (sympathetically)—Poor Mrs. White has so much trouble with her girls! That makes the fourth that's left her without giving notice.

Written for The Clay-Worker.

## PACIFIC COAST NEWS.

BUILDING CONSTRUCTION for the month of December, 1914, shows a fair record, considering the status of the times. Altogether, there were permits issued and contracts let to the amount of $1,690,426 within the city of San Francisco. Of this, $902,120 was for private construction; $295,646 for Panama-Pacific Exposition work; $280,332 for municipal building; $93,540 for street and sewer work; $17,480 for federal government work in the city, and $101,308 for railroad construction. Of the private construction, $416,157 was for brick and concrete construction; $383,904 for frame construction, and $102,059 for additions and alterations. Compared with last year, the total is about one million dollars less, the figures for December, 1913, being $2,534,068. Altogether, the record for the year 1914 shows a total of $28,102,250.

Most of the other coast cities show a similar falling off as compared with the month of December, 1913, and for the year as a whole, when compared with previous years. Portland, Ore., and Seattle, Wash., however, show an unexpected jump in the value of the permits issued in December, due, apparently, to the taking out of a few large permits before the close of the year. Advices from the north show that, in the main, the general quietness felt elsewhere prevails in that section also. Collections are reported better all along the line money is easier, and at least a partial resumption of building activity is predicted for the early months of 1915.

The California Brick Company has removed its San Francisco offices from 632 to 913 Phelan building.

The Stockton Fire & Enamel Brick Company reports that its line of fire brick is taking well with the foundry trade. Some of the leading foundrymen and steel manufacturers regard the California product as as good as the foreign article. The brick is also in demand from the smelters. Among these, the Shell Company has taken a lot of fire brick for its oil pumping plants in this state.

The Pacific Porcelain Ware Company and the Pacific Sanitary Manufacturing Company, of Richmond, Cal., which recently opened joint offices on New Montgomery street, near Market in this city, are now getting their display set up. Everything will be in readiness before the opening of the Panama-Pacific Exposition.

The Pratt Building Material Company, of this city, which a few weeks ago bought out the stock and office fittings of the Golden Gate Brick Company, is now advertising the stock of pressed brick, fire brick, common brick and tile at one-half price to close out the stock.

The San Francisco board of public works has asked the board of supervisors to set aside money for the paving of Powell street, between Sutter and Bush, with "hillside" brick. This portion of Powell street is very steep.

E. M. Prescott, of the Fresno Brick & Tile Company, of Fresno, Cal., has made an offer to the city trustees of Fresno to take over and dispose of the city garbage for a term of years.

The Los Angeles Brick Company, of Los Angeles, Cal., has won a suit against the city of Los Angeles to cancel a $5,000 street assessment levied against the property of the company on account of a change in the grade of East Seventh street.

The Unit Brick & Tile Company, of Santa Barbara, has increased the display of its goods at its State street offices. The company reports an increased sale of ornamental tile and single ornamental pieces.

The Northwest Brick & Tile Company has been organized by T. P. Jones, of Boville, Idaho; J. A. Harsh, of Deary, Idaho, and F. C. McGowan, of Deary. The company will take over and operate a brick plant at Deary, near which are valuable clay beds. The company has an authorized capital stock of $50,000.

The Shope Brick Company, Portland, Ore., through its contracting department, has taken contracts for a number of costly residences in that city in which the Shope line of brick and clay products will be used. A $15,000 contract for cream-shaded, water-proof Shope brick and other materials has just been closed for a residence at 8 Floral avenue.

Frank Craycroft, president of the Craycroft-Herrold Brick Company, of Fresno, Cal., and his uncle, T. B. Craycroft, also connected with the same company, were shot and seriously wounded on December 11, by W. Y. Johnson, a brick contractor of the same city, with whom the brick company had had trouble in the collection of a debt. Mr. Johnson later turned his pistol on himself with fatal effect. T. B. Craycroft's wound proved to be less dangerous than that of Frank Craycroft and recovery was rapid, notwithstanding his age. Frank Craycroft is now believed to be out of danger, though still in a serious condition.

At a meeting of the directors of the Atlas Paving Brick Company, of San Francisco, on December 28, an assessment of five cents per share was levied on the capital stock of the company. The company has a plant at Hollister and Griffith streets and offices at 201 California street.

Exporters and importers interested in the South Sea islands are making inquiries here for brick for shipment to the French town of Papeete, Island of Tahiti, which was recently destroyed by a German bombardment. Brick men believe that inquiries from Mexican cities on the Pacific coast for building brick may come in a little later.

Joseph P. Duffy, of Stockton, Cal., one of the officials of the International Bricklayers' Union, brought back with him from a union conference at Indianapolis, Ind., a report that the International Union was considering the establishment of a brickmaking plant at Stockton or some similarly located point in California. Since the settlement of the labor troubles at Stockton, nothing further has been heard of the move.

The Pontiac Brick & Tile Company, of Seattle, Wash., has filed an involuntary petition in bankruptcy.

The Ademand Manufacturing Company, which was organized a few weeks ago at Sacramento, Cal., is preparing to manufacture brick and other clay products and to do a general business in building materials, as well as to make an earthenware specialty. The company has a capital stock of $150,000, the officials of the company being: J. B. Brown, of Berkeley, Cal., and Charles King, C. E. Carlson and B. Langridge, of Sacramento.

A report from Corvallis, Ore., states that a movement is under way there to bring the clay products manufacturers of Oregon together at a conference to be held in Corvallis in February.

Doyle Bros., who have the contract for the proposed new sewer system at Tempe, Ariz., will begin work early in the present year.

N. Clark & Sons, brick manufacturers of San Francisco, have secured a contract to supply the matt glazed brick and terra cotta for the new Christian Science church on Haight street, near Central avenue, San Francisco.

San Francisco, Cal. SUNSET.

## A SATISFACTORY YEAR FOR THE FATE COMPANY.

The past year has been a most satisfactory one for the business of the J. D. Fate Company, Plymouth, Ohio. The factory has been operated continuously filling their many orders. During the latter weeks of the year and the first of 1915, they shipped their Special Premier hollow ware machines, together with cutting tables and dies, to the Cuyahoga Shale Brick & Tile Company, Cleveland, Ohio; Johnston Brothers Clay Works, Clay Works, Iowa; Troy Fireproofing Company, Troy, N. Y.; Baker Clay Company, Grand Ledge, Mich.; McRoy Clay Works, Brazil, Ind. (a second Premier machine), and the Decatur Brick Company, Decatur, Ill. They also filled orders for a Hummer machine for both brick and tile for J. A. Duke, Banks, Wash., and an Imperial outfit for the Farmers' Fertilizer Co., Columbus, Ohio. Many inquiries and satisfactory letters of recommendation from all users have been received on their locomotives. The locomotives have been shipped to widely different sections of the country, namely, Halifax, Nova Scotia, Texas, Long Island, Tennessee and even to Honolulu.

## A NEW POTTERY MACHINE.

For the past five or six years the Baird Machine and Manufacturing Company, of Detroit, have been manufacturing several sizes of pottery molding machines, for making flower pots, etc., and although they are able to make even the smallest sizes on their present machines. There has been a demand for a machine to make all sizes under 3 inches only, and during the past year they have had this machine most thoroughly tried out under the most severe conditions, so that now they are so confident of its success that they have no hesitation in giving the purchaser an unusually strong guarantee against defect, etc. In designing this machine they have left out all freak attachments and have a simple and durable machine, one that will work day in and day out and give satisfactory service. They have, however, embodied in it the essential and good features of their former machines, and in addition have included a few valuable improvements that make it a necessity in the up-to-date pottery.

W. J. Baird.

Further details and description are given in a circular, which will be sent to all interested.

The simplest way to influence people to use better brick for face work is to show them something better, for the better things shown alongside others will soon win favor for themselves.

# CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

### Appreciates the Compliment.

Dear Friend Randall:

The full page ad, and Irish Moroney's letter in the December Clay-Worker duly noted.

To be called to the front to serve his countrymen in any way that will ameliorate their hardships, is a patriotic duty that no man, however modest, should hesitate to fulfill.

Such unearned prominence, however, reminds me of the southern darkey, who was approached on the street by a white gentleman holding out a five dollar bill, with the inquiry: "Rastus, have you change for a five?" Bowing profusely, Rastus replied: "No, sah, boss, I haven't got the change, but I thanks you fo' the compliment jest the same."

The splendid suggestion for reducing time and labor in dictation is very timely, as the end of the big war will surely bring many a new clayworker to this country from Przemysl, Czernowitz, Biezhetzk and other points, which will call forth even greater effort than No. 8.

Wishing you the compliments of the season, I am,

Sincerely,

Evansville, Ind. H. C. KLEYMEYER.

### An Arkansas Brickman Breaks Out in Verse.

Editor The Clay-Worker:

If Father Noah were living today, he'd live in a house of hard burned clay, he'd **"Build with Brick"** with lots of room, and the house would stand till the "Crack O' Doom." He'd miss the expense of paint and repairs, and a thousand other worries and cares. As the floods would pass without a mark, he'd stick to his house and forget the ark. The passing years would soften its lines, while it grew in value and beauty. He'd advise his sons to **"Build with Brick,"** he'd show them 'twas their plain duty.

Why build a house with wood to decay? Why keep on building for ever? Just **"Build with Brick"** and feel secure, you'll prove to the world you're clever. In five years' time you'll recall this rhyme, if it happens you've **"Built with Brick."** Your neighbor who didn't will wish that he had—he'll look at his house and "kick."

Now, meet the New Year firmly resolved, that in building to wisdom you'll stick, that you'll save your money, your time and your nerves, that in future you'll **"Build with Brick."**

With compliments of the season, we remain,

Yours truly,

ARKANSAS BRICK & MFG. CO.,

W. W. Dickinson, Pres.

Composed by Guy Dickinson, Our Poet "Low-rate."

Little Rock, Ark.

### Commend Brick Boosting Campaign.

Editor The Clay-Worker:

Dear Sir—We wish to express our admiration for the very vigorous campaign that is being carried on by the various brick organizations, as well as your very excellent publication and feel very confident that the interests of the clay products manufacturers will be enhanced very materially thereby.

We have noted with considerable interest the campaign which has been carried on to popularize brick for all building and paving purposes, and feel sure that it already has done a great deal of good. We also note the proposed convention of various brick organizations to be held in Detroit in February, and wish to thank you for your offer to provide accommodations for our representative at that time.

Wishing you success, we are,

MATHEWS GRAVITY CARRIER CO.,

Yours very truly,

By A. F. N. Thomas, Sales Dept.

Ellwood City, Pa.

### Likes Match Box Holder, Even Though Not a Smoker.

Friend Randall:

I want to thank you for favoring me with one of those artistic clay match trays, that you represented on the cover of the November Clay-Worker. I am glad to have this, even though I cannot make as good use of it as a regular smoker could.

To me the most interesting thing about it is that a man with the technical knowledge and a little artistic sense and skill can start in business for himself with very little other capital. While, in the line of brick manufacture, you could not think of starting with less than $100,000 or more, which means that in this line most of us, if we stay in the business, must continue as employe of a corporation.

With all good wishes for the New Year, I remain,

Cordially yours,

Shawnee, Ohio. W. D. RICHARDSON.

### A New Cat Story.

Friend Randall:

Here is a cat story, which I think is good enough for The Clay-Worker:

D. C. Paul, superintendent of C. P. Mayer Brick Works, and who has a mania for large cats, always keeps a supply of good sized Toms around the brickworks.

On Wednesday last, which was during the zero weather, one of these Tom cats crawled in under the floor of the kiln, where the hot sand, from the brick burned prior to that time, made it comfortable for him.

The employes filled the kiln and walled up the doorways. The gas was lighted about 2 a. m., Thursday, for water smoking. On Thursday evening, about fifteen hours after the kiln was set fire, the cat was noticed on one of the chimneys. The employes procured a ladder and took down the cat, which was blinded with soot and ashes.

The flues in the stack are 13x13, and it is a puzzle how the cat was able to support itself by crawling up the interior of the brick stack, twenty-two feet high. From the appearance of his paws, he tried it several times before he succeeded. It goes without saying that this was a Mayer cat.

However, he is restored to his usual health and ready for another fight. Yours very truly,

Bridgeville, Pa. C. P. MAYER, President.

### Good Brick Needed in Cuba.

Editor The Clay-Worker:

I have watched with interest your "Build with Brick" campaign and desire to contribute my mite towards the same.

One of the greatest difficulties that we have to meet in Cuba is the lack of good brick, which has made necessary, up to the present, the plastering on the outside as well as on the inside of all brick walls, notwithstanding the fact that brick commands a very good price in Cuba. While brick are on the free list, it was not possible to import American-made bricks on account of the high cost of handling and freight; but last week was inaugurated a new ferry boat system between Key West and Havana which will allow American manufacturers to load cars at factory and unload them in any part of Cuba, saving all expense of handling and considerably in freight.

I am not acquainted with the actual cost of brick in the United States, but will say that no face brick is being actually used in Cuba, a very inferior grade of salmon brick 27x13x7 centimeters is now used and costs at present $12.00 United States currency per thousand, delivered at the works. This price, however, is very low, due to the dearth in building caused by the low price of sugar during the last two years, but normally the price ranges between $14.00 and $16.00, and on account of the very favorable price of sugar, due to the European war, it is expected that there will be a boom in building during the next two or three years.

I will be glad to give any additional information that any manufacturers may desire and trust that this new means of transportation may put us in a position to specify first class brick in future constructions.

Yours very truly,
Havana, Cuba. OCTAVIUS C. SMITH.

### Iowa State College Offers Help to Clayworkers.

Editor The Clay-Worker:

We note from time to time that you have inquiries from clay products manufacturers in Iowa in regard to manufacturing difficulties, and desire to advise you that the Department of Ceramic Engineering, in conjunction with the ceramic engineer of the engineering experiment station, of the Iowa State College, is prepared to help the clay manufacturers of the state in solving technical problems. This is done either by correspondence, or by making trips to the clayworking plants when necessary. No charge is made for this work, except that for necessary traveling expenses. We would be pleased to have you put us in touch with anyone making such inquiries.

Thanking you for your courtesies you may extend to us, I am,

Yours very truly,
HOMER F. STALEY,
Dept. Geology and Mining Engineering.

### Architect Makes Personal Selection of Brick.

Editor Clay-Worker:

We have just closed an order for face brick for the new Cotton Belt depot at Fort Worth. A. W. Black, the architect, visited the plant and personally selected the brick desired.

The Cotton Belt depot in which these brick will be used is going to be the finest of its kind in the state of Texas. Brick were submitted by various companies all over the United States for this work, and selection was made after putting them through the most rigid tests, and the visit of Mr. Black was merely to ascertain that we were able to take care of his requirements promptly and that the entire shipment would be just as the samples submitted.

Selections made by individual owners and building committees frequently are made in ignorance, and the result in finished work all over the country speaks all too eloquently of the lack of judgment that has been exercised.

Architects and builders coming into Texas from the North are generally dubious of the ability of a Texas brick concern to take care of "Big Business." Mr. Black expressed considerable surprise to see such a large and modern plant manufacturing high-grade face brick exclusively, and we feel that our friends in the business will rejoice with us over this —another victory for Acme brick.

R. S. ROOT,
Very truly yours,
Fort Worth, Tex. President Acme Pressed Brick Co.

### CONVENTION OF IOWA CLAY PRODUCTS MANUFACTURERS ASSOCIATION.

THE IOWA CLAY people broke away from their usual custom of holding their convention at Des Moines, this year, and met at the State College, Ames, holding their convention in connection with a modified Clayworkers Institute, conducted by the Ceramic department of the college.

There were in the neighborhood of 75 clay products manufacturers present at the convention and a total attendance of about ninety.

All seemed to enjoy themselves and were delighted with the beauty and grandeur of the college property and the hearty hospitality of the college people.

The program was followed out practically as indicated in the last issue of the Clay-Worker, only one or two numbers failing to respond to the call. All subjects covered in the program were freely discussed and without doubt much benefit was derived by those who were present.

It is always more or less of a question as to what is accomplished at conventions. Generally speaking, it is mostly the establishment of a friendly or brotherly spirit, which is inclined to admit that the beach is strewn with bright pebbles. The Iowa people started something, for the second time, in the general publicity line. The president will appoint a committee to decide upon the plan and to act at once in putting the idea into effect. The president will also name a committee to decide upon an uniform cost system and make same available for use by all the members of the association, without cost to them outside of the cost of the forms necessary to use in the system to be adopted.

The principal address of the convention occurred on Tuesday evening. The evening session was particularly enjoyable. It opened by an address of welcome, delivered by Hon. R. A. Pierson, president of the college, which was, of course, good and well received. Hon. J. L. Stevens, of Boone, a graduate of the college, responded for the clay manufacturers.

Mr. F. W. Darling, of the Clay Products Co., Chicago, then delivered an address, which he termed a "round table talk" on the Marketing of Clayware. This address was without doubt the principal feature of the convention and was generally voted the best talk and one more replete in good sound business points, than any other address ever presented before the association in convention.

The same officers serving last year were elected to serve during the year 1915. The board is made up as follows: B. C. Keeler, Mason City, president; Wm. Goodwin, Des Moines, vice president; George Schnurr, Kalo, treasurer; C. B. Platt, Van Meter, secretary.

The secretary reported payment of dues for 1914 amounting to $430.00 and disbursements of $593.84.

C. B. PLATT, Secretary.

### GLAD TIDINGS FROM CANTON.

In a recent letter The Bonnot Co., Canton, Ohio, writes: "It is our judgment that the outlook justifies a hope for better conditions in the near future. We, of course, are not entirely satisfied with the past year but everything considered have little or nothing to complain of. Our brick machinery department showed a gain over the previous year, which under the circumstances, is all that we could hope for."

### THE DIFFERENCE.

Teacher—What is the difference between "while" and "time"?

Student—A married man says that he is going out for a while, but he knows he is going out for a time.

# OFFICIAL ANNOUNCEMENT.

## THE TWENTY-NINTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION TO BE HELD AT DETROIT, MICH., FEB. 15-20, 1915.

### The American Ceramic Society, the National Paving Brick Manufacturers' Association, the National Clay Machinery Association and Other Auxiliary Organizations Will Hold Separate Sessions During the Week.

The Twenty-ninth Annual Convention of the National Brick Manufacturers' Association will be held at Detroit, Mich., February 15 to 20, 1915, a cordial invitation having been received from the brickmakers of that city, who have formed a local association, the aims and purposes of which are to encourage and promote the use of brick and other clay products by all proper means. To enable them to do this effectively, they have employed an experienced publicist and have opened an office in the Dime Savings Bank Building, where the officers of the association meet at frequent intervals and from which they will issue bulletins and other printed matter, setting forth the superior qualities of brick as a building material. This is the modern idea of promoting industrial interests, which is well worthy of emulation by the entire craft.

Detroit is a modern city in the best sense of that term. Perhaps in no other community is the spirit of progress more predominant than in the Michigan metropolis. For this reason and the added fact that Detroit is one of the most prosperous cities in the nation, it is meet and proper that the brickmakers of the land should gather there in response to the cordial invitation from her local manufacturers who have been actively interested in the national association from its first meeting twenty-nine years ago. It will be the second N. B. M. A. meeting in Detroit, the convention having been held there in 1900.

### No Reduced Railroad Rates.

The custom of granting reduced railroad rates to conventions has been abandoned by American railroads generally for the reason, railroad officials state, that the prevailing passenger rates are so low that no appreciable reduction is admissible. Those coming from beyond state lines can use their local mileage, which will be practically the same rate as heretofore made under the certificate plan, and will offer the added advantage of admitting stop-overs at any point, or variable routes either going or returning. The latter is of decided advantage to those who may want to visit clay plants en route, or to extend their trip to points beyond the convention city.

### Hotel Headquarters.

Detroit is so centrally located that it may be reached quickly and comfortably by a very large majority of the members of the association, hence it is anticipated that there will be a large attendance, all of whom will find unexcelled accommodations at the new Hotel Statler, which will be headquarters during the convention.

The new Statler Hotel is a beautiful brick structure, containing 800 guest rooms, each with private bath. Considering the accommodations and service, the prevailing rate at the Statler will be reasonable. It has 400 rooms equipped with shower bath, toilet and running ice water. For these the rate will be $1.50 to $2.00 per person, according to location. The other 400 rooms are equipped with both shower and tub bath and the rate for these rooms are $2.50 to $6.00 per day per person. Those wanting parlors for entertainment purposes will be accommodated with facilities seldom found anywhere, at home or abroad. Those desiring to make reservations in advance are requested to address Hotel Statler, Detroit, stating character of accommodations desired, number in party, and date of intended arrival.

### No Public Exhibition of Machinery.

There will be no public display of machinery, etc., as the manufacturers have themselves expressed a preference for private displays in their own rooms at the Statler. However, there will be an exhibition room for the display of specimen brick, trade literature, etc., in a room adjoining the convention hall, where those having private displays may announce the location of their rooms, etc., through placards or bulletins.

### Entertainment of Ladies.

A special local committee has been appointed to look after the comfort and entertainment of the visiting ladies. The latter are requested to register on arrival with the assistant secretary, so they may be given program of entertainment and souvenirs, tickets to theater parties, etc., etc.

### A Night of Good Roads.

Tuesday evening there will be an informal reception and musical entertainment followed by an illustrated lecture on "The Importance of Minor Details in the Construction of Brick Paved Roadways," by Professor Frederic N. Menefee, of the Michigan State University, Ann Arbor, Mich., and an address on "Good Roads and How to Get Them," by Jesse Taylor, editor of Better Roads, Jamestown, Ohio. The latter function will be under the auspices of the National Paving Brick Manufacturers' Association, and any and every one interested in this all important subject is cordially invited to participate.

### A Reception and Smoker.

Wednesday evening the delegates to the convention and those accompanying them will be the guests of the local committee on entertainment at an informal smoker in the banquet hall of the Statler. The chief feature of entertainment will be musical in character, during which the members will have an opportunity of renewing old acquaintances and extending the glad hand to new members.

### The Annual Banquet.

The annual banquet, or association dinner, will occur Thursday evening at 7:30 o'clock in the beautiful banquet hall of the Statler Hotel. It will be preceded by an informal reception on the mezzanine floor beginning at 6:30 p. m. Following the rule which has prevailed for several years, it will be a subscription banquet under the direction of the N. B. M. A. executive committee, assisted by the local committee. The Honorable A. J. Groesbeck, of Michigan, will serve as toastmaster, and a number of eloquent speakers will respond to appropriate toasts. The ladies will grace the occasion, as usual, and full evening dress will be in order, though by no means necessary.

### A Trip to the Brick Plants.

Friday there will be a trip to the brick plants, a special train for that purpose being furnished by the local committee. One of the great automobile plants will be visited, and as these represent the highest type of modern industrial equipment and as Detroit is the chief center of this great industry, it should prove exceedingly interesting.

### Convention Sessions.

As in former years, convention week will be divided by the N. B. M. A. and affiliated bodies, including the American Ceramic Society, the National Paving Brick Manufacturers'

Association and the Clay Machinery Manufacturers' Association. Any other kindred associations desiring to hold meetings will be afforded facilities for doing so.

### Souvenir Badge and Number Button.

An appropriate souvenir badge and number button will be presented to each visitor with the compliments of the Detroit executive committee. The badges and buttons will be distributed by the secretary of the N. B. M. A. at his headquarters on the mezzanine floor of the Statler Hotel, where visitors are requested to call and register on arrival.

All sessions of the national convention are open to the public. Those who are interested directly or indirectly in clay work of any character or the use of clay products of any sort are invited to join the association and participate in the proceedings of the convention. Members and their families or friends who may accompany them will be expected to participate in all the entertainment and proceedings.

### Rules of Procedure.

All formal resolutions shall be presented in writing.

At the close of each essay or address an opportunity will be afforded for a full discussion of the subject under consideration.

No papers or essays not included in the regular program will be heard unless previously submitted to and approved by the executive committee.

Papers and addresses delivered during the convention become the property of the association, and, in accordance with the rules of the association, may not properly be given out for publication except by or through the secretary.

The proceedings of the convention will be copyrighted to prevent piracy, but the greatest publicity will be given all the convention papers and discussions at the proper time, after the report is complete, not before, when copies of any and all papers and discussions may be had free of charge on application to the secretary.

### Program.

The following formal papers will be presented during the various sessions, interspersed with informal discussion of such features of the business as the members may desire to consider.

The convention will be opened with prayer by the Rev. Dr. W. E. Sayres, and his Honor, Mayor Oscar B. Marx, will extend a formal welcome on behalf of the city of Detroit.

"Fire Prevention"—Floyd E. Waite, Cleveland, Ohio.

"The Modern Idea"—Wm. J. Bowen, El Paso, Tex.

"The Testing of Large Brick Piers" (Illustrated)—J. H. Griffiths, Pittsburgh, Pa.

"Build with Brick"—John B. Rose, New York, N. Y.

"Simplified Brickyard Accounting"—A. C. Pritchard, Indianapolis, Ind.

"Kiln Expansion and Bracing" (Illustrated)—Carl B. Harrop, Columbus, Ohio.

"Moderate Cost Brick Architecture" (Illustrated)—Robert Spencer, Jr., Chicago, Ill.

"Producer Gas; Some of Its Advantages and Disadvantages as Applied to Continuous and Periodic Kilns"—James P. Williams, St. Louis, Mo.

"The Survival of the Fittest in Architecture"—F. W. Fitzpatrick, Washington, D. C.

"Problems in Lamination"—Prof. R. T. Stull, Urbana, Ill.

"Accurate Versus Inaccurate Methods of Burning Brick"—J. M. Hoskins, Terre Haute, Ind.

"Progress in the Education of Clayworkers"—Prof. Edward Orton, Columbus, Ohio.

"Taking Soundings"—Warren Griffis, Baltimore, Md.

"Some Things Southern Brick Manufacturers Desire"—J. M. Jenkins, Montgomery, Ala.

### Auxiliary Associations.

The National Paving Brick Manufacturers' Association will hold its sessions Monday and Tuesday in the convention hall, Hotel Statler. For program and further particulars, address Will P. Blair, secretary, Engineers Building, Cleveland, Ohio.

The American Ceramic Society will meet Monday and Tuesday and Wednesday forenoon in Hotel Tuller, which is just across the street from the Statler Hotel. For program and information as to membership, etc., address Edward Orton, Jr., secretary, Columbus, Ohio.

The National Clay Machinery Association will hold its formal sessions Monday and Tuesday in the convention hall annex, Hotel Statler. For further particulars, address R. C. Bennett, Wellington, Ohio.

Those desiring further information as to requisite of membership in N. B. M. A., formal program, etc., are requested to communicate with the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE.
Eben Rodgers, President.
Theo. A. Randall, Secretary.

## CONVENTION DATES.

The Canadian National Clay Products Association, will hold its next annual convention in Toronto, January 26, 27 and 28. Headquarters will be King Edward Hotel. See announcement, page 645, this issue.

The Wisconsin Clay Manufacturers Association will meet in Milwaukee on February 4 and 5. The headquarters will be at either the Republican House or St. Charles Hotel. An interesting program is being arranged by the Secretary, Samuel Weidman, which will be published in our January number.

The Illinois Clay Manufacturers Association will meet at Springfield, Ill., February 8, 9 and 10. The headquarters will be the new Leland Hotel. For information regarding program, etc., write A. E. Huckins, Urbana, Ill., secretary.

## ILLINOIS CLAYWORKERS TO MEET AT SPRINGFIELD, ILL., IN ANNUAL CONVENTION FEB. 8, 9 AND 10.

A busy and jolly time is anticipated during the convention of Illinois Clayworkers, which is again to be held at Springfield on the dates mentioned. Secretary Huckins has prepared a most interesting program for the occasion.

### Monday Morning, Feb. 8.

Registration and getting acquainted.

### Monday Afternoon, Feb. 8, 1:15 O'clock.

Welcome Address..........................Gov. Edward F. Dunne
Response..............................F. W. DeWolfe, Urbana, Ill.
President's Address......................D. C. Haeger, Aurora, Ill.
1. Our Fire Waste........Walter H. Bennett, State Fire Marshall, Springfield, Ill.
2. Creating Demand................Warren Ittner, Bellville, Ill.
3. Workings Compensation Law and Possible Legislation ......................Adrian F. Sherman, Kansas City, Mo.
4. Build With Brick............J. E. Randall, Indianapolis, Ind.

### Tuesday Morning, Feb. 9, 9:00 O'clock.

5. Cost Accounting.....................J. E. Buckley, Aledo, Ill.
6. What Should Our Net Gain Be?.............B. H. Richards, Edwardsville, Ill.
7. Keeping Down Cost...........Douglas Stevens, Danville, Ill.
8. Progress Ceramic Department, University of Illinois

### Tuesday Afternoon, Feb. 9, 1:15 O'clock.

9. Reciprocal Insurance..............P. B. Eckel, St. Louis, Mo. ......................................R. T. Stull, Urbana, Ill.
10. Central Station Electricity vs. Private Plant Electricity ..................................J. F. Jones, St. Louis, Mo.
11. Problems on Electrician of Clay Plant...........J. W. Robb, Clinton, Ind.
12. Problems in Manufacture of Brick and Hollow Ware ........................................Eb. Rogers, Alton, Ill.

Annual Banquet at 6:30 P. M. New Leland Hotel.

### Wednesday Morning, Feb. 10, 9:00 O'Clock.

13. Experiments to Prevent Efflorescence.........A. E. Williams, Urbana, Ill.
14. Reaching the Farmer.......Frederic W. Donance, Chicago, Ill.
15. Some Neglected Opportunities in Illinois..........R. T. Stull, Urbana, Ill.
16. Silo Facts.......................A. P. Grout, Winchester, Ill.
17. Manufacture of Silo Block......A. E. Williams, Urbana, Ill.

### Wednesday Afternoon, Feb. 10, 1:15 O'clock.

Business Session.
After which a visit will be made to a local factory.

Written for The Clay-Worker.

## THE CHICAGO SITUATION.

MASKED BEHIND a clever paper organization, presenting here and there the names of reputable and public-spirited individuals and neighborhood leagues, there is a remarkable movement on foot aimed at the efforts of the fire, building and health authorities of Chicago, to make the fire limits of Chicago co-extensive with the corporate limits of the "Windy" municipality. The lumber interests are suspected.

"Look out for the 'Brick Trust,'" is the campaign slogan of those who are fighting the movement for a safer Chicago. Yet it is most significant that all the money and all the organized effort appears conspicuously to be on the other side. If a "Brick Trust" were in the movement to extend the fire limits, as is asserted, one would expect to see indications of power on that side of the question. As it is, the whole city has been flooded with literature, containing arguments against extension of the limits, arguments in favor of the alleged safety and harmlessness of frame construction, references to pamphlets published and ready for free distribution at the offices of the Lumbermen's Association in the Stock Exchange building, and cards addressed to Hon. Thomas D. Nash, chairman building committee, city hall, and needing only to be signed and mailed.

To the average citizen this looked as though the various improvement associations named on the letter heads, not only were going at things in an exceedingly practical way, but that they singly and collectively had found more money to spend for printing, addressing and postage in one week, than they had in any five years previously.

There have been a number of hearings before the city council committee on the proposed fire extension ordinance, at which the opponents of the measure have indulged in various prejudicial arguments, and said nasty things about those who urged that in the future Chicago should develop like a city rather than like a country town. Things began to come to a head at a meeting held in the council rooms on January 8, and the newspapers began to see daylight through the mask-defense of the opposition.

On the following day, Mr. Parke Brown, of the Chicago Tribune's staff, led off a story under his own name, with the following statement:

"Behind the most active opposition to the proposed extension of the fire limits—the lines within which frame building construction is prohibited—is the hand of the lumber interests," and declared that, at the meeting on the preceding afternoon, it had developed that the chief campaign against the measure is being made by lumber men under the "borrowed" names of six improvement, taxpayers' and business men's associations.

"While the hearings avowedly were to give an opportunity for protest by the workingman who wants to build his own home, there was not a single lot owner in the affected territory answering this description among the speakers. The labor unions having to do with woodworking were on hand, be-badged and vociferous—but were not given a full opportunity to express themselves on the floor. Efforts were made to confine speaking privileges to property owners, and most of those who appeared were of the "large" sort, and favored the ordinance.

"The lumbermen did not appear officially anywhere in the program. The closest approach was the request of A. B. Cone, associate editor of the American Lumbermen, to present statistics he had been three weeks gathering. He was told to wait until the general question of fire prevention is taken up at the close of the hearings. Attention was first called to the possibility that the lumber interests had been active by the appearance of two kinds of badges in the packed gallery. One was that of the Southwest Side Affiliated Improvement Clubs, and the other bore the protest of 'Union Labor.' They were identical as to size, shape and type. The wording and ink-coloring alone were different. The union number of the shop was the same.

"Then it was found that a flood of printed postcard protests—bearing space line for signatures and addresses—had been received for the committee during the day. There were several hundreds of them, and they were of two types, the wording of one being much more vigorous than the other. After the hearing it was disclosed that one set had been mailed out with the letters from the Southwest Side Affiliated Improvement Clubs."

A little inquiry on the part of the Tribune writer began to disclose the cloven hoof of the lumber interests behind the warp and woof of fake popular protest against the falsely alleged activities of the brick people. Telephone inquiries brought strange and inconsistent replies. The lumber alibi had not been carefully prepared in advance.

"Israel S. Morris said one thing," according to the investigator. "Attorney Leonard C. Reid said another. Secretary J. A. Dupont said another. None of them knew, except roughly, the contents of the letters, the manner in which they were mailed, the expense of the campaign or the extent to which it had been carried.

"From Attorney Reid finally came a statement that the lumbermen had 'taken up the campaign begun by the organization.' He said that under the letter head of the affiliated improvement clubs the 'lumbermen' had printed a four-page circular attacking the fire limit ordinance and had sent them out in large numbers accompanied by the protest postcards of the second type. One of these circulars was obtained and on it appeared the apparent endorsement not only of the Southwest Side Affiliated Improvement Clubs, but of five other organizations on the West and North Sides. From officials of these organizations came a statement that their names had been **'loaned' upon the request of lumbermen**, and on being interviewed none of them knew anything about the matter."

Attorney Reid said after an extended interview that there was an understanding between some of the officers of the affiliated clubs and the lumbermen, and **the lumbermen were authorized to use the organization's letter heads, but the movement originated with the clubs themselves,** but he did not know what representative of the lumbermen established the understanding, or how it was established.

An extract from the four-page circular, before referred to and sent to nearly every registered voter in the whole city—about 600,000—reads as follows:

"We are advised that the Lumbermen's Association, with offices at 809 Stock Exchange building, Chicago, have published a booklet dealing with the facts of the matter in detail, and we suggest that you get a copy of that booklet, which, we understand, they will be glad to give gratis, to anyone asking for it, and get the complete facts."

With this circular, in addition to the postcard, went a reproduction of the newspaper accounts of the Edison "fireproof" plant fire, with marginal notes in heavy black script, calling attention to the alleged failures of concrete construction. Copies of the same reproduction went with the letters sent out by the Southside Affiliated Improvement Clubs. Attorney Reid was quoted as saying that he thought they had been furnished by the lumbermen.

Two other hearings are to be held by the committee, and the crusade of the lumber interests is expected to prove a boomerang most beneficial to the future welfare of Chicago from the point of view both of sightliness and safety.

The general building situation is showing marked improvement. Building figures for December were 5 per cent. ahead of December, 1913, and January, 1915, promises to outdo January of 1914. Money is easier, and public confidence is decidedly on the up-trend.

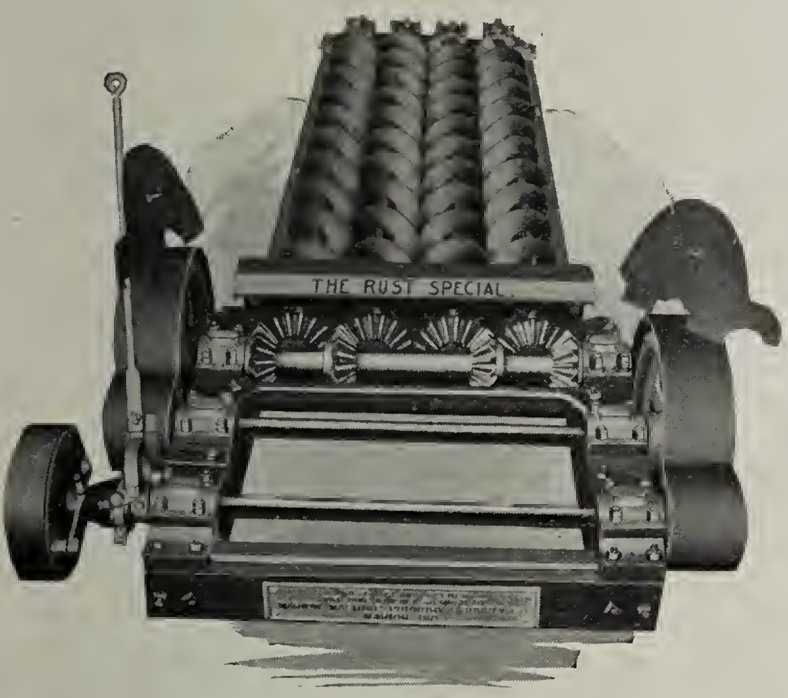
The crusade against alleged grafting among business agents of the building material unions has just borne fruit in the indictment in the Federal Court of three business agents—Michael Artery, Michael Galvin and Charles W. Fry—on charges of obstructing interstate commerce.

Large apartments, factories and warehouses, together with one and two family dwellings, make up the bulk of the building being undertaken just now.

Chicago brick and clay products dealers are beginning to think of Detroit and the annual convention of the National Brick Manufacturers' Association, and will be there in February in large force. SCRIP.

## EFFICIENCY.

THE ABOVE heading is the title of an attractive and instructive catalogue issued by the Marion Machine, Foundry & Supply Co., Marion, Ind. It has to do chiefly with efficiency in the power plant, and we commend it to those of our readers who desire information along that line, and also in regard to clay grinders and feeders. The Rust clay feeder is one of their specialties. As will be seen by turning to their ads on pages 120 and 121 of this issue, they also offer the trade an improved form of grate bar, which is proving very satisfactory to users. They have recently added some important improvements to the Rust clay feeder and mixer, which are fully set forth in Efficiency, a copy of which they will gladly mail to any reader of the Clay-Worker requesting same. The company has two large factories in Marion, one devoted exclusively to the manufacture of high-grade gray iron, brass, bronze and aluminum castings. In the other, of which we present a miniature view, they manufacture clayworking machinery, oil well machinery, steam specialties, etc., etc. They solicit correspondence from clayworkers desiring to improve the efficiency of their power plants.



The New "Rust Special" Clay Feeder and Mixer.

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The Bannons, who are identified with the Louisville Brick Co. and the Bannon Sewer Pipe Co., Louisville, Ky., report a pretty good year in brick, sewer pipe and hollow tile, of which they are prominent manufacturers. They put out a new line of face brick during the year which is taking well, and which they expect to push energetically this year. The new line is a salt glazed brick, with a glaze pretty much the same as that put on sewer pipe. It makes an attractive face which seems to be taking well, both for its appearance and for the fact that it holds its own for all time, and is an easy face to clean off when dirty.

Written for The Clay-Worker.

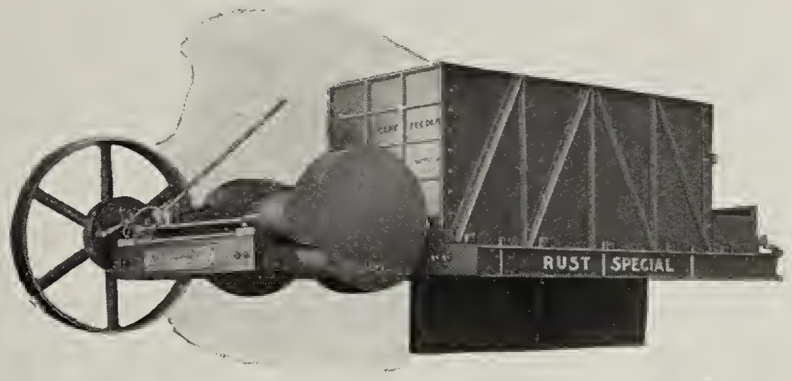
## LOUISVILLE BRICK NEWS.

NATURALLY A GOOD PART of the attention and activities of the brick manufacturers and dealers in Louisville has of late been centered on matters of inventory and casting up the results of last year's work. As a rule, it has been fairly satisfactory, for, notwithstanding that it was a year of slow business in the first half and of devastating war in Europe in the last half, the year, as a whole, proved a good one in the building trade of Louisville.

One of the biggest and most conspicuously located of the face brick displays is that of R. B. Taylor, which is in a store building on Fourth avenue, between Main and Market, where the thousands of people walking up and down Fourth avenue during the day cannot help but observe it, even from the sidewalk outside. Mr. Tyler has had an active year, with fairly satisfactory results, and expects good business the coming season.

Leo Parsons, of the Union Cement and Lime Co., who handles the Hy-Tex line of the Hydraulic Press Brick Co., in Louisville, set up during the year one of the most artistic displays ever shown here. He secured room for this display adjoining the Engineers and Architects Club, on the fourteenth floor of the Starks building, where it is convenient to the architects and where he has an uptown office in addition to their main office down on Main street.

Clay Machinery Plant of The Marion Machine, Foundry & Supply Co.



The "Rust Special," Showing Drop Bottom.

The Tyler Building Supply Co., Tyler building, is a successor to the old firm of Owen Tyler, and Isaac Tyler, the active selling end of this institution, has been identified with the brick trade here for a number of years and is well known all over the territory, as is W. J. Watkins, a dealer who makes his headquarters at the Builders' Exchange, in the Realty building.

T. Bishop, of the Southern Brick & Tile Co., is taking up the handling of outside face brick along with their own brick and tile. Speaking of the manufacturing end of the business, Mr. Bishop says that while, of course, this is not the busy season for moving out brick, they have been making brick right along to accumulate a stock against the spring needs, and they are having a very active call for drain tile. Indeed, it looks like it is going to be an unusually busy spring in the drain tile branch of the business. COLONEL.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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|---|---|
| One copy, one year (in advance) | $ 2.00 |
| One copy, one year (if not paid in advance) | 2.50 |
| Six copies, " " | 10.00 |
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Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LXIII. JANUARY, 1915. No. 1

## CURRENT COMMENT.

1915 looks good.

* * *

It was 1914 that was the hoo-doo.

* * *

The new year starts off fine. May it keep getting better.

* * *

If you have a problem, bring it up to Detroit and get the answer to it.

* * *

There will be a "night of good roads" as well as a lot of other good things at Detroit.

* * *

Don't make it so you will have to look back to the Detroit meeting as a lost opportunity—Go!

* * *

D is for Detroit—also for Doings, of which there will be a lot during the week of February 15-20.

* * *

One resolution we hope you made and intend to keep, is to be with the clans at Detroit for the N. B. M. A.

* * *

The suburban commuter now has an increased passenger rate added to his other troubles, and that without much excuse.

* * *

Last year we had old Efficiency and Safety First as industrial pets, and now the question is, what will be the name of the favorite fads of this year?

* * *

Now that the railroads have been allowed that five per cent. freight increase and a passenger rate increase to top it off, we hope they will give us some of the prosperity they have promised, and also a little better service here and there.

The way to be a real "brick" is to go to that big Detroit meeting.

* * *

Talk peace and prosperity, and then keep pushing the good work along.

* * *

The building outlook is rosy, and the order of the season is "boost your building material."

* * *

The machinery men make the wheels, so they are entitled to room in the prosperity wagon.

* * *

The stamp tax has helped swell our internal revenue, and likewise the average citizen's bump of indignation.

* * *

The brick dealer is a growing factor in the trade and gives promise of great importance as a booster of clay products.

* * *

The production of coal fell off 60,000,000 tons last year, which, of itself, is some coal pile, but even with this loss the total coal production amounted to 510,000,000 tons.

* * *

The lumber folks are trying to inaugurate a "Build with Lumber" campaign, but the "Build With Brick" slogan got there first and will likely stay the longest—and do the most good.

* * *

Let old General Moratorium be dethroned, and put in jail, or something, that we may have a season of paying and being paid. It's money in circulation that does the work, so let 'er roll.

* * *

If the people who lay brick in the walls would give as much time and effort to the matter of efficiency and cost reduction as the people who make the brick, it would be practical to make the brick home cheapest in first cost as well as the best and cheapest in the end.

## THE YEAR IN CLAY PRODUCTS.

The year 1914 has been a good year in clay products. This is said advisedly after a careful review of the trade in all the various lines and measuring up the result with other years and with other industries. The clayworking industry has been peculiarly fortunate during the year in one respect, and that is by being almost exclusively a domestic industry and not directly dependent for its welfare on the export trade. There are very few other lines of equal magnitude and wide distribution but what depend in a measure for their prosperity on the export trade and when this is hampered they suffer in consequence.

Lumber, for example, has an export trade that has run as high as 100 million dollars in a year and naturally during the latter part of this year that trade suffered because the export branch of it was figuratively shot all to pieces. The same thing is true of furniture, of agricultural machinery, typewriters, cash registers, sewing machines and many other manufactured products of this country.

The brick and clay products industry has some export trade and is gradually developing more, especially in pottery and special clay wares, but so far the total of this export trade is insignificant as compared to the total domestic trade, consequently the only setback received by the clay-working industry as a result of the war was that which came indirectly through the temporary financial depression that made people hesitate about building.

There was not as much building during the year as we have had some years, the shortage being mainly among the undertakings in the way of big business buildings. While these fell short, however, there was wonderful progress made in home building and in the use of brick in the more modest structures. The home builders kept at it all the year, even through the period of financial depression, and this not only helped make business and proved to be the best part of business of this country, but at the same time these home builders have turned more than ever to brick and other clay products for their work.

## BUILD WITH BRICK.

One of the brightest spots in the year's work in clay products is to be found in the progress made by brick and tile in the building of homes. This progress has been noticeable enough to furnish plenty of evidence that the active boosting of clay products, and the use of the "Build With Brick" slogan has brought results. The best part of it too is in the fact that the results are just beginning and that the coming year bids fair to see this growth of the popularity of brick continue and spread out to a much larger extent than ever before.

It is this, this growth in favor of brick for the modest building, that makes the brightest spot in the clay-working industry for the year. It is not the only spot of progress nor the only good thing to be found by any means. There is not a year in the history of the industry in which more progress has been made in developing the interest in face brick and stimulating interest in architectural beauty. The year really marks the beginning of a new era in the face brick industry in which face brick as a distinctive product has gained much headway and established itself on a new plane.

It has been a great year in paving brick, too; indeed it has been a pretty good year all around with the brick industry because of its being almost exclusively a home industry suffering less during the temporary depression than any other industry of equal magnitude. And the best feature of all is that the end of the year found the prospects brighter than ever and not only every indication of prosperity and extensive building during the next season, but with brick and clay products so conspicuously in the mind of the building public that there will evidently be a much greater percentage of it used than heretofore. So the new year ought to be both a happy one and a busy one for the clay-working industry.

## STANDARDIZING COST KEEPING.

Standardizing in cost accounting is almost as essential as standardization in the size and quality of products, but in some respects the reasons for it differ. In cost accounting standardization works toward economy and greater efficiency, just as it helps in other industries in this way. There is, however, yet another end, a more important one, to be gained by what is termed uniform cost accounting, by all the people in a given industry.

This point was brought out clearly during the past summer in a talk made by Dr. Copeland, of Harvard University, on uniform accounting in merchandising. His talk was to a gathering of merchants, but the logic applies just the same to a manufacturing institution. The point made by Dr. Copeland was that any good cost accounting system will show a man where he stands, but it takes a specialized system, uniform in every particular business, to show a man where he ought to stand.

To find out your total cost of doing business is one thing, to find out the cost of the different stages of the process, and how that cost is divided, is another thing, and to find out how your cost compares to a standard or to what it ought to be, is something else and something that the uniform cost accounting leads to.

The important point brought out by Dr. Copeland, in his discussion of this subject, was that through a great number of people in different parts of the country keeping their accounts in a uniform system and through gathering the statistics of these accounts and comparing them, we arrive at averages which furnish guide posts or sign boards that may enable one to know where he should be in the matter of cost. There will be a maximum cost and a minimum cost, and the average cost, and among these one can find out about where his own costs stand and from this obtain a good idea as to whether or not his cost is what it ought to be, and from this shape his affairs to improve conditions where necessary.

To illustrate more specifically, with a uniform cost accounting system in the brick business every man keeping the same system of accounts, there is a chance to compare, say the kiln cost of all the industries in the country, and from this each man can find out whether his cost is what it ought to be or not, which is the first step toward correcting costs that are not right. It is in this way that a man finds out where he ought to stand.

## THE ADVANTAGES OF A UNIFORM SYSTEM.

Standardizing cost accounting means uniforming it with your neighbor and with every other man in the industry insofar as practical, each having the same subdivisions of accounts and keeping them in practically the same form so that they will be valuable for comparison one with the other. There are many divisions and subdivisions. There is the raw material account, the shipping cost, quarrying and transportation and mill cost and kiln cost, which may be subdivided into burning cost and in kiln handling cost. Then comes the selling cost, and mixed in with all this is the division and subdivision of the overhead cost. Where one man divides these things up one way and another man another there is very little gain in the way of information from comparing cost. Each man finds out where he is at, what it has cost him to make his product, but he has no light on the subject of what it ought to cost him in the different steps of the process.

Take the matter of cost and cost division, for example. Let us go back for a minute to the census reports on the clay-working industry, and on that part of the industry devoted to the making of brick and tile, the census report divided the cost off as follows:

| | |
|---|---|
| Raw material | 31.3 per cent. |
| Wages | 49 per cent. |
| Salaries | 7.2 per cent. |
| Machinery, advertising, repairs of building, machinery, insurance, other sundries | 12.5 per cent. |
| Total | 100 per cent |

In general, this set of figures is indefinite and uncertain. The only points about it which appear really certain are that not enough allowance was made for advertising and selling costs, and for the repair and up-keep of machinery. The machinery item alone should run from 5 to 10 per cent., and certainly there should be some money spent in advertising and in selling.

This set of figures from the census report is of itself a splendid argument in favor of the brick fraternity adopting some standard uniform method of cost keeping. It is worth the trouble if for nothing else than to gain more specific information as to the divisions and subdivisions of the items that enter into the cost of clay products.

Once a uniform or standard cost system is adopted by the majority of those in the business then it becomes a simple matter to gather and tabulate information of the industry on the subject of cost and from this tabulation to arrive at averages from which every man in the industry can determine where he stands as compared to the averages of the industry as a whole. He will not only know where he stands as to total cost, but he can see what items have cost more or less and where he should direct his energies if there is need to reform some part of his cost.

There is no better time than the beginning of a new season to put into operation a standard or unform system of this kind and we certainly hope the clayworking industry will be able to get together on this before the busy time of the present year and enough of them will take up with some uniform method of cost keeping to make it practical at the end of the year to tabulate figures from which we may know, not only what it costs and where we stand, but from which each individual may be able to determine also just where he ought to stand.

### BUY IT NOW.

The best slogan that business men have promulgated for some months past is "Buy It Now." If it is observed generally, it will stimulate business of all kinds. If clayworkers will act on the suggestion, and buy their machinery appliances NOW and get ready for a busy season they will profit thereby, and doubly so if they will follow it up with The Clay-Worker's own slogan BUILD WITH BRICK and put up our attractive posters in conspicuous places where they will catch the eye of prospective builders. Get them to thinking of brick and then demonstrate that brick is the cheapest in the long run, as well as the best building material, and the market may be increased many fold. "BUILD WITH BRICK" and "BUY 'EM NOW."

### A NOVEL SOUVENIR.

We are indebted to E. L. Cook, State Farm, Mass., for an unusual souvenir in the form of a perpetual blotter. The blotting element is an absorbent clay material in a metal holder on which is printed Mr. Cook's address and trade mark with the added inscription: "When you Build, Build with Brick, and Use Diamond C Building Brick."

### AMERICAN CLAY ON THE FIRING LINE.

The American Clay Machinery Company, with their characteristic enterprise, has come to the forefront in furnishing supplies for the warring nations across the water, having recently received a request for estimates on a trenching machine for the French army.

### A USEFUL SOUVENIR.

A clothes brush from a clayworker to the Clay-Worker is a very appropriate gift, for on our trips through clay plants we find such articles at times a very necessary piece of property. This most acceptable gift was presented to us by S. B. Dobbs, the face brick man at Philadelphia, Pa.

### COULDN'T WAIT.

Little Jasper Senter learned from the minister's sermon one Sunday that man was made of clay, so after returning from church he resolved to make him a man after his own fashion. The work proceeded in the clay bank back of the garden until his mother called Jasper to luncheon. He had completed all of the man save one leg.

That afternoon Jasper and his mother, while walking along the street, met a man with one leg, walking with crutches. Jasper accosted him and grabbed his coat.

"See here!" he said. "I thought I told you to stay there in the yard until I put that other leg on you."—Judge.

### INCIDENTAL CASE.

Dr. Rubetinker was a qualified M. D., but, settling in a cattle country and finding the demand strong, he had added veterinary work to his other practice.

"Nothing serious," announced the doctor, after examining a valuable bull which he had been summoned post-haste to treat. "Give him one of these powders in a quart of bran mash three times a day."

The rancher heaved a sigh of relief. "Wait," he said, as the M. D., V. S., was about to leave. "I reckon, as long as you're here, you might as well have a look at the old woman. She's been ailin' for a month or two."

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**"GETTING THE MOST FOR A DOLLAR"**
has been given as a definition of good engineering such as is done by
**The Richardson-Lovejoy Engineering Company.**
[See page 119.]

### FIXING THE BLAME.

He found his own front porch with wonderful accuracy, navigated the steps with precision, and discovered the keyhole by instinct. Once in the dimly-lighted hall, there was an ominous silence followed by a tremendous crash.

"Why, what has happened, Henry?" came a voice from above.

"It's all right, Mary; but I'll—I'll learn those goldfish to snap at me!"

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

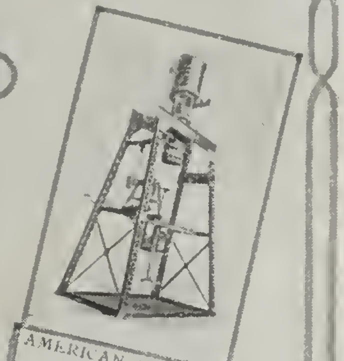
AMERICAN No. 292 REPRESS

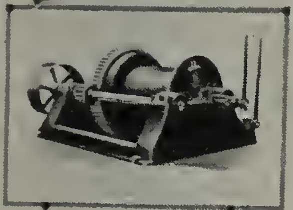
THE
HOME OF THE

"BUILT RIGHT"
"RUN RIGHT"
LINE

AMERICAN CLAY MCH. CO.
PLANT WILLOUGHBY

AMERICAN CLAY MCH. CO.
PLANT BUCYRUS


AMERICAN SEWER PIPE PRESS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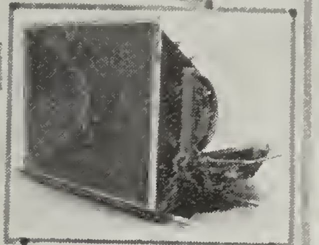
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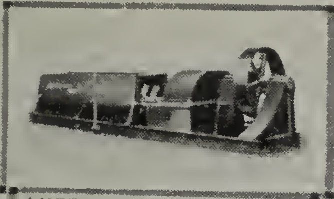
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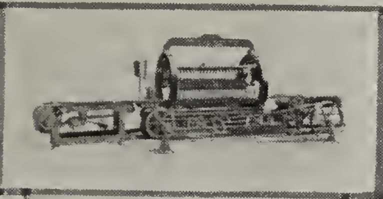
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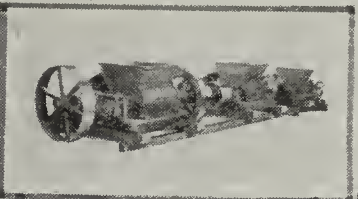
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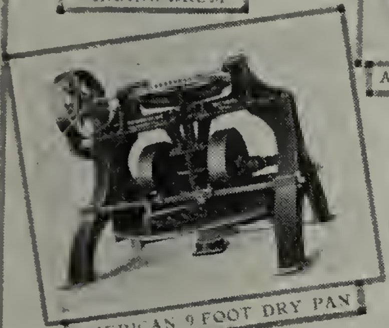
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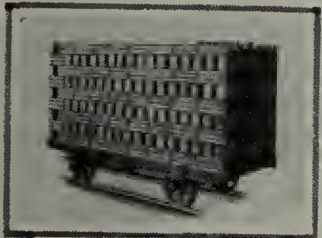
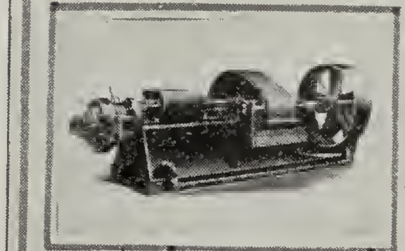
HAIGH CONTINUOUS KILN

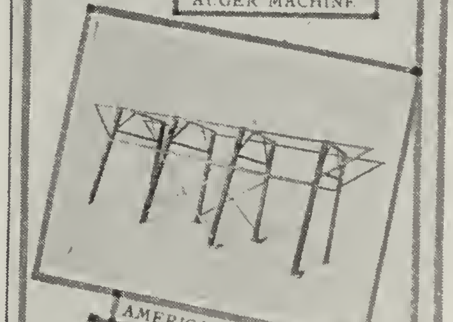
AMERICAN No. 233 AUGER MACHINE

AMERICAN WASTE HEAT DRYER


AMERICAN DRYER CAR


AMERICAN No. 290 AUGER MACHINE

AMERICAN STEAM SHOVEL


AMERICAN STEEL FRAME FOR PUG MILL

# CAN'T FILL BRICK ORDERS

Road conventions are being enthusiastically attended. The country is "good roads hungry" from coast to coast.

People are going to have good roads, not only this year, but next year and for years to come.

We brick advocates know that "Brick Roads" are the "Best Roads." The American Clay Machinery Company and the brick organs and organizations are spending a lot of time, energy and money to have "Brick Roads" adopted everywhere as the Standard of Excellence.

As a result there is a great demand for paving brick. Orders in 1914 could not be filled and in 1915 the supply will be away short of the demand.

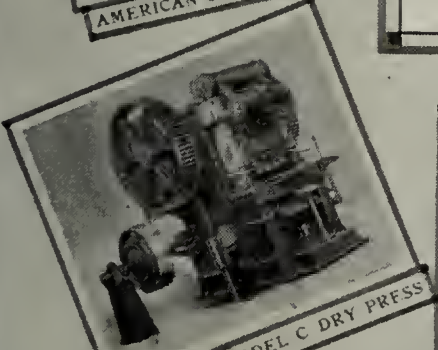
If a customer cannot get brick when he wants them he is going to be disappointed and will get over wanting them and there is danger of his becoming an advocate and enthusiast for some other material.

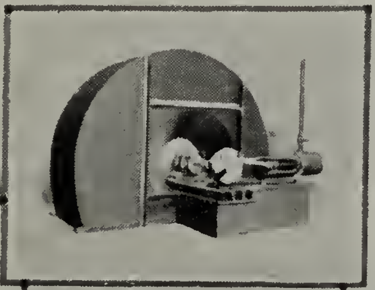
Why not supply all wants and avoid disappointments.

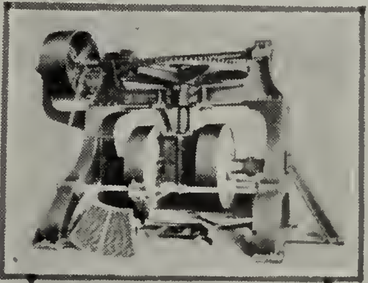
It is possible that your output can be materially increased at small expense. We have several machines that mean greater production without increased cost. Some of our machines will really do more at less cost. In some cases we have increased the output and saved the cost of the improvement in a single season. Possibly we can do this for you. The main point is that more pavers are needed and we can help you to supply them if you want the orders.

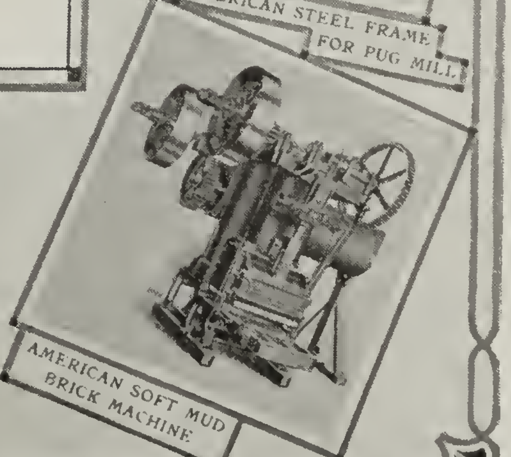
We build every machine and appliance needed by Clayworkers. Large and small orders solicited.

**The American Clay Machinery Co.**
**Bucyrus, Ohio**

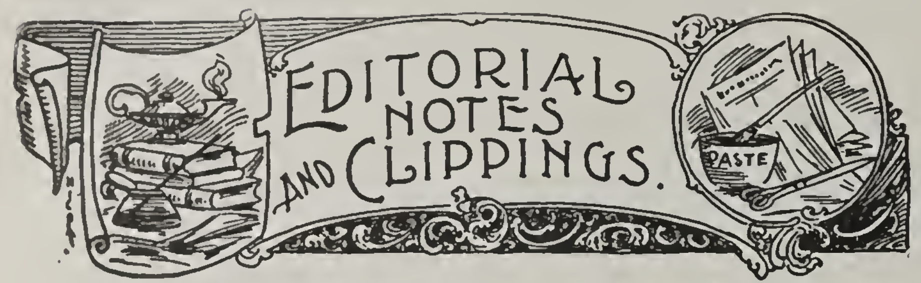

AMERICAN MODEL C DRY PRESS


AMERICAN WASTE HEAT FAN


AMERICAN No. 57 DRY PAN


AMERICAN SOFT MUD BRICK MACHINE

We Build Every Machine and Appliance Needed in the Clay Trade.



# EDITORIAL NOTES AND CLIPPINGS.

The McDonald Coal & Brick Company, Detroit, Mich., has increased its capital stock from $75,000 to $100,000.

Five employes were badly injured when a band on one of the kilns at the Evans Clay Company, Uhrichsville, Ohio, gave way.

The plant of the California Brick Company at Niles, Ohio, was slightly damaged by fire recently which started from a break in the oil pipe.

I. W. Taylor, of Toledo, Wash., is interested in a company which is to erect a new brickmaking plant at Eatonsville, that state. The product of the concern will be paving brick.

Strait & Richards, Inc., is the name of a concern recently incorporated at Irvington, N. J., by Winfield S. Strait, Mary E. Strait and Victor I. Richards, all of Newark, N. J. The company is capitalized at $50,000.

Gilbert L. Watson, W. W. VanWinkle, Thomas S. Savage, E. L. Davidson and others have filed articles of incorporation for the Parkersburg Shale Brick Company, Parkersburg, W. Va. The capital stock is given as $50,000.

The Cleveland Hydraulic Press Brick Company, Cleveland, Ohio, is making a number of improvements in its plant at Ironspot, Ohio. New kilns are being built and new equipment is being installed. The work will not be completed before early spring.

The Carlinville Clay Company has filed articles of incorporation at Carlinville, Ill. The company has been in operation a number of years, and decided at a recent meeting of the owners to incorporate for $20,000. The company reports a very satisfactory trade the past year.

The tile factory that will be built at Birmingham, Ala., by Maj. W. F. Tebbetts, of Mobile, will be located near Vanderbilt, where Maj. Tebbets, for his company, has purchased ten acres of land from the Dr. Charles Drennen estate. They will manufacture ornamental roofing and flooring tile.

P. O. Duclos, formerly of Little Falls, Minn., has leased the brick plant of J. N. Brown at Bozeman, Mont. He will rebuild the plant, making a number of improvements and adding new equipment, and expects to have the plant ready for operation in the spring. Mr. Duclos is an experienced brickmaker.

The Murphysboro Paving Brick Company, Murphysboro, Ill., reports business as exceedingly good. The plant is running full time and will continue to do so all winter. Among the contracts on the books of the company at present is one from the United States government for paving brick for use in the Panama Canal Zone.

The Red River Valley Brick Company, owning plants at Grand Forks, N. D., and Winnipeg, Manitoba, held its annual meeting January 11, at which time the following officers were elected for the coming year: President, A. I. Hunter, Grand Forks; vice-president, W. P. Alsip, Winnipeg; treasurer, James Dinnie, Winnipeg, and secretary, J. R. Poupore.

According to local papers, the indications are that the clay plants near Brazil, Ind., will have a busy year. The plants that have closed for repairs are hastening the work, so that they can resume operations, as they are receiving many rush orders. The Hydraulic Pressed Brick Company's plant may not close this season. The Brazil Hollow Brick and Tile Company is doing a big business in the manufacture of vitrified brick silos, and have orders that will keep the plant in operation for many months.

A 6 per cent. dividend on all common stock and 7 per cent. on preferred stock was authorized by the directors of the Logan Clay Products Company at the yearly meeting of the company, making a 12 per cent. dividend paid on 1914 business. The plant has been closed down for a short time for repairs, but will be started again before the close of the month. The officers of the company are Jacob Pfeiffer, of Akron, Ohio, president; Wm. Pfeiffer, of Akron, Ohio, vice-president; James L. Martin, of Logan, Ohio, secretary, and M. J. Cole, of Logan, Ohio, treasurer.

The Dais Brick Company, Athens, Ohio, is a new company organized to erect a large brick plant. Benjamin Dais is one of the principal members.

The Macon County Brick Company, Oglethorpe, Ga., has been incorporated, with a capital stock of $100,000, by J. H. Oxford, J. M. Cobb, J. T. Lee and T. H. Rains.

John H. Cavendar, for many years with the American Refractories Company, Chicago, has resigned to become vice-president and director of the Chicago Retort & Fire Brick Company, Chicago.

The Northwest Brick & Tile Company has been incorporated and will erect a plant at Deary, Idaho. The incorporators are T. P. Jones, of Bevill, and J. A. Harsh and F. C. McGowan, of Deary. The company is capitalized at $50,000.

The plant of the Columbia Fire Brick Company, near Strasburg, Ohio, was destroyed by fire January 9, entailing a loss of about $40,000. The loss is partly covered by insurance. Henry A. Wise, of Canton, is president of the company. The plant will probably be rebuilt at once.

Two thousand bales of straw, valued at $700, were destroyed in a spectacular fire at the plant of the Laclede-Christy Clay Products Company, 4600 South Kingshighway, St. Louis, January 4. The straw had been piled in the open, but the flames threatened near-by structures.

The Towle Brick Company, of Cleveland, Ohio, was robbed of $600, which was being held in one of the office desks as a part of the pay roll. The man in charge of the office was called out to the plant for some purpose and during his absence the desk was broken open and the money taken.

The Twin City Brick Company of St. Paul, Minn., entertained its sales managers and traveling salesmen in St. Paul the first week in the year. One of the features of the meeting was a banquet, at which W. Siwart Smit presided as toastmaster, and during which speeches were made by representatives from various sections of the country.

At the annual meeting of the stockholders of the Waynesboro Brick & Tile Co., Waynesboro, Pa., the reports of the officers showed a very profitable season in 1914, with good prospects for the year to come. The old officers were re-elected, as follows: President, B. R. Sumner; vice-president, A. T. Hess; secretary, S. D. Hockman; treasurer, J. E. Beck.

The American Sewer Pipe Company is constructing a three-story addition to its plant at Lisbon, Ohio, which, when completed, will make the plant one of the biggest operated by the company. The new addition will be used largely for drying room. New machinery will be installed within the next few weeks. The new addition is constructed of building blocks manufactured by the company and so is fireproof throughout.

The report that was made to the stockholders of the Crawfordsville Shale Brick Company, Crawfordsville, Ind., at the annual meeting of the company, showed the affairs of the concern to be in a very prosperous condition. Last year's business was very satisfactory, showing an increase over that of former years, and the prospect is very good for the coming season. The following officers were elected: J. S. Herron, president; C. L. Goodbar, vice-president; G. B. Luckett, secretary-treasurer.

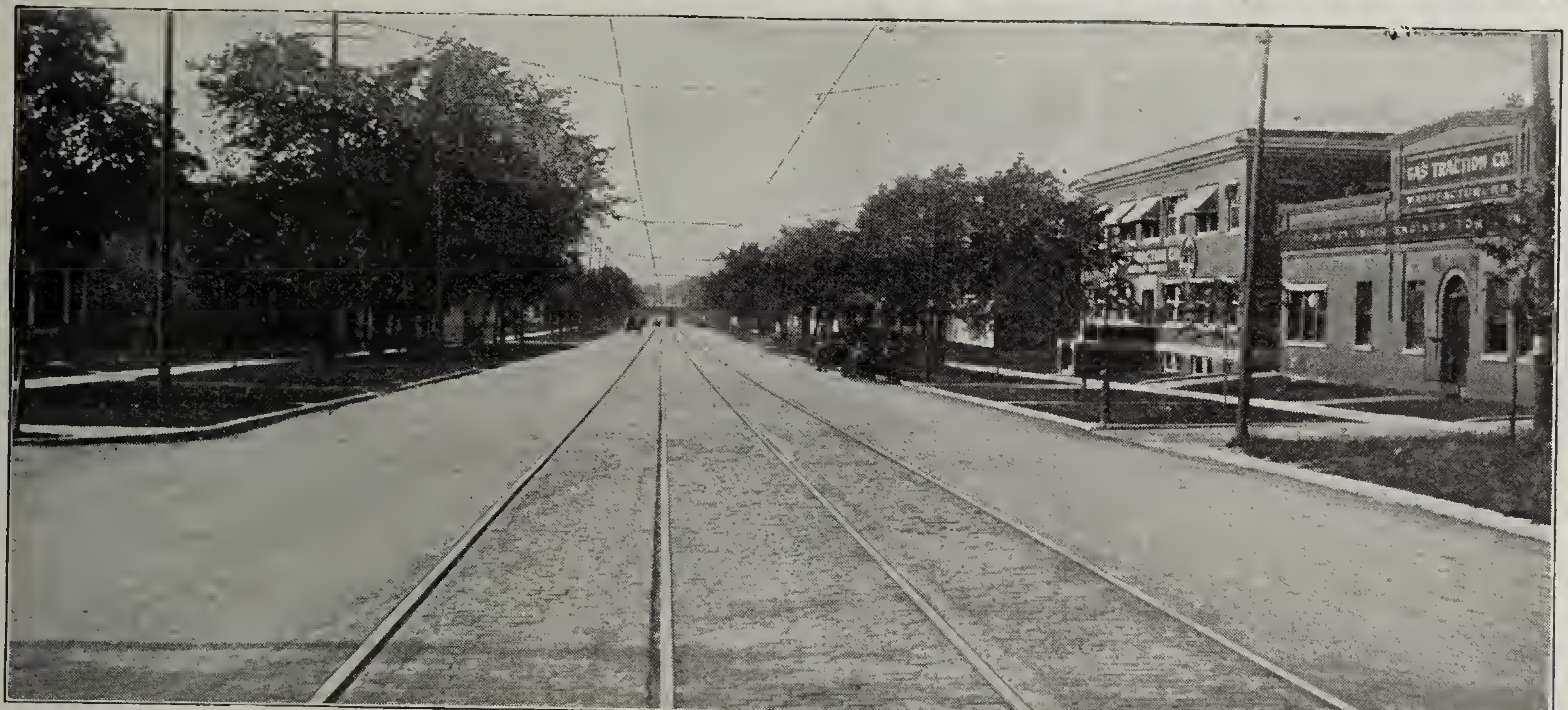
The Municipal Shale Brick Co., Martinsburg, W. Va., will be incorporated with $250,000 capital stock for manufacturing building bricks, vitrified fireproofing, vitrified paving blocks, etc. Baltimore and Pennsylvania manufacturers will organize this enterprise, and A. B. Noll, of Martinsburg, is now in charge. It is planned to erect low-priced buildings at first and then for the company to manufacture its own materials for construction according to the original plans, steel and fireproofing throughout. Electric power will be used.

John T. Hummert was re-elected secretary and manager of the Gem City Press Brick Company, Quincy, Ill., at the annual meeting of the company, January 11. Ezra Best is president, Fred Wilms vice-president and W. S. Warfield treasurer. The officers reported to the stockholders that 1914 had been a profitable year, but that the fall season trade was not up to the average, with the result that the company found itself with considerable stock on hand. This, though, has an advantage, as the company will now be able to promptly fill spring orders—more promptly than would be possible were

(Continued on page 98.)

TRADE B MARK

Barrett's PAVING PITCH



University Avenue, S. E., Minneapolis, Minn. Creosoted Blocks filled with Barrett's Paving Pitch.

A Million Yards Pitch Filled

MINNEAPOLIS has been using creosoted wood pavements ever since 1902, and now has 1,000,000 square yards of it; in fact, this city is now probably the largest user of wood block pavements in the country. In all this enormous area the filler for joints is Barrett's Paving Pitch.

Mr. Ellis R. Dutton, the Assistant City Engineer, writes on February 28th, 1914: "We have used Barrett's Paving Pitch for filler for creosoted wood blocks ever since we have constructed this class of paving (i. e. since 1902) and we have found this material to be the most satisfactory in every way that we have used. We have tried different kinds of fillers, but the Paving Pitch seems to meet the requirements for which a filler is used better than any other kind, and we have been entirely satisfied with its use."

The expansion problem in wood block paving is ordinarily even more vexatious than in brick. Pitch makes "every joint an expansion joint," and thus supplies the necessary element of elasticity in the pavement.

Climatic changes set up no stress in a pitch-filled pavement. The curbs, manholes and crossings are never pushed out of position on a hot day; each block expands by itself, without affecting its neighbors. Being wholly waterproof, Barrett's Paving Pitch has additional value when used with wood block paving, because it protects the blocks from water at the sides and base.

*Illustrated booklets free on request.*

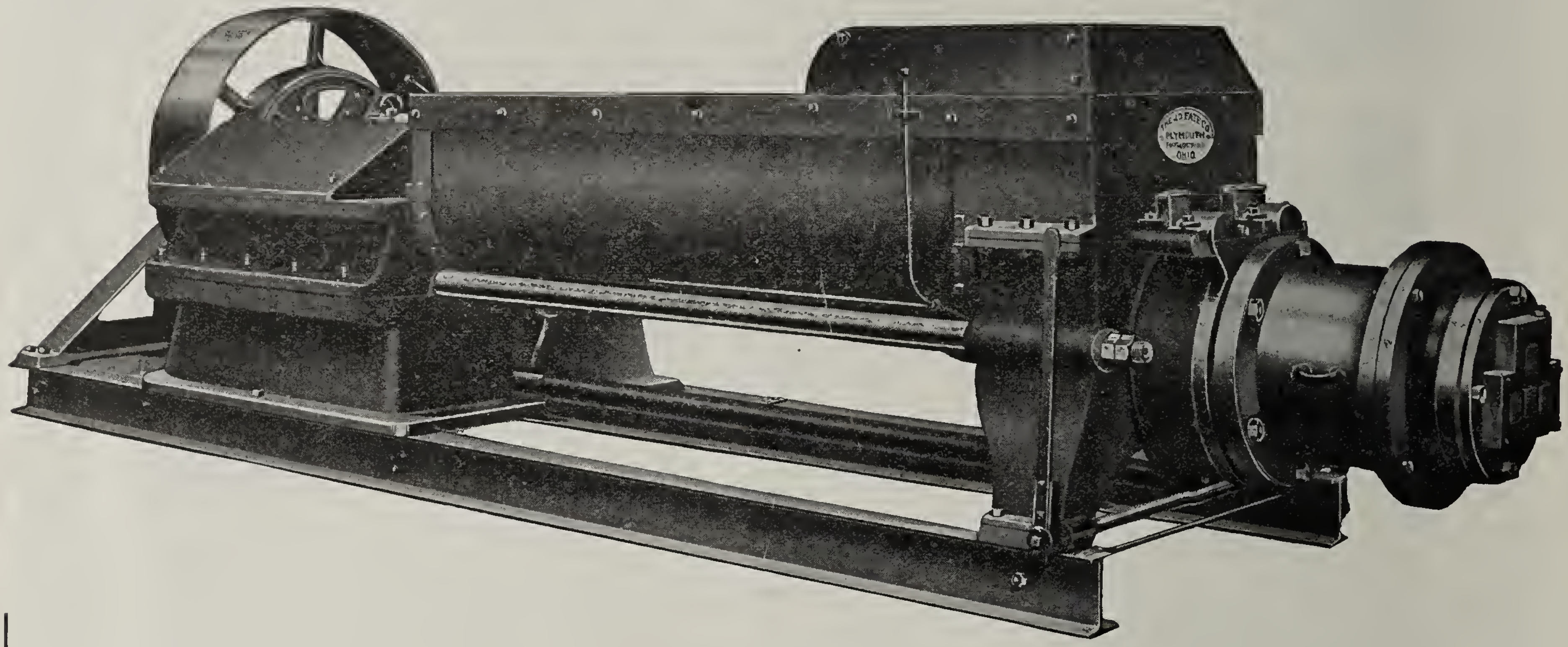
BARRETT MANUFACTURING COMPANY

New York Pittsburgh · Chicago Detroit · Philadelphia Birmingham · Boston Kansas City · St. Louis Minneapolis · Cleveland Salt Lake City · Cincinnati Seattle

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

*These factors enter into the product of the House of Fate.*



SPECIAL PREMIER HOLLOW WARE MACHINE

*The Special Premier has met some very Formidable Foes in the way of Stubborn Working Clays and Fought vs. Great Odds, since it Championed the Cause of the Clayworker in his attempt to produce Merchantable Hollow Ware at a living Profit. However, it still stands today as the "Premier" of Hollow Ware Machines and ever ready to continue its Campaign for the Relief of the Distracted Clayworker.*

It is a splendidly built Machine, embodying the mechanical principles and ideas necessary in a successful machine, one that will produce a Good Capacity of Good Ware. That is what it has done where others have failed.

Our entire line of Clayworking Equipment is in keeping with the Special Premier. It is to Your Interest to write us if you contemplate purchasing anything new.

## The J. D. Fate Company

**Plymouth, Ohio**

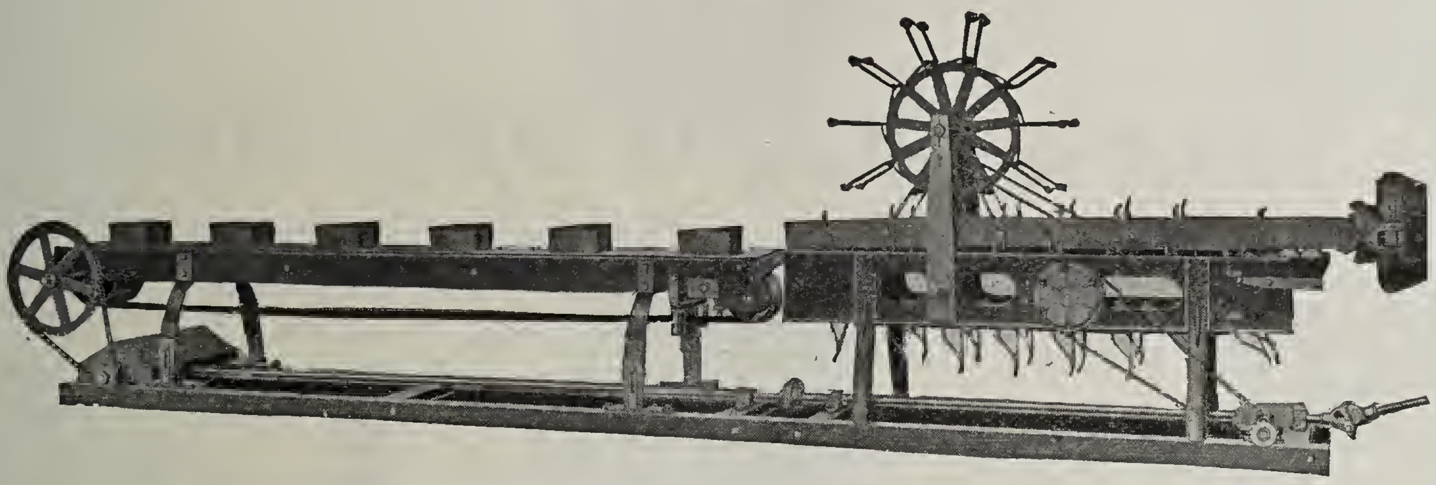
Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

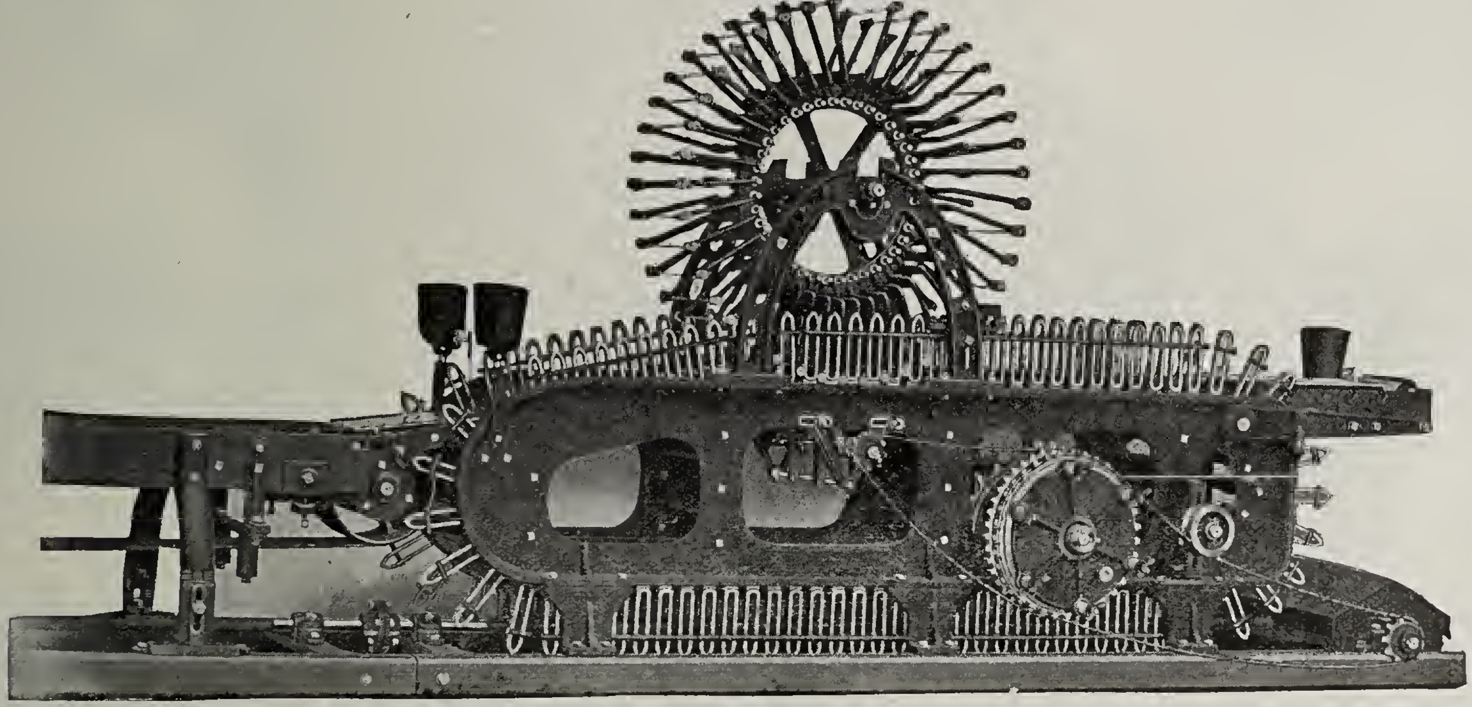
THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



AUTOMATIC END CUT BRICK TABLE WITH BELT DELIVERY.

The only successful Table so far built for cutting Hollow Brick or Haverstraws. It is also nicely adapted to cutting End Cut Tapestry or Mat Face Brick.



AUTOMATIC SIDE CUT BRICK TABLE.

This table is becoming more and better known as the most successful and economical Table to operate for Side Cut Brick. The Capacity is limited only by that of the Brick Machine and is quickly regulated to meet that.

We manufacture Automatic Cutting Tables for most any purpose desired.

Write us your needs.

## The J. D. Fate Company

**Plymouth, Ohio**

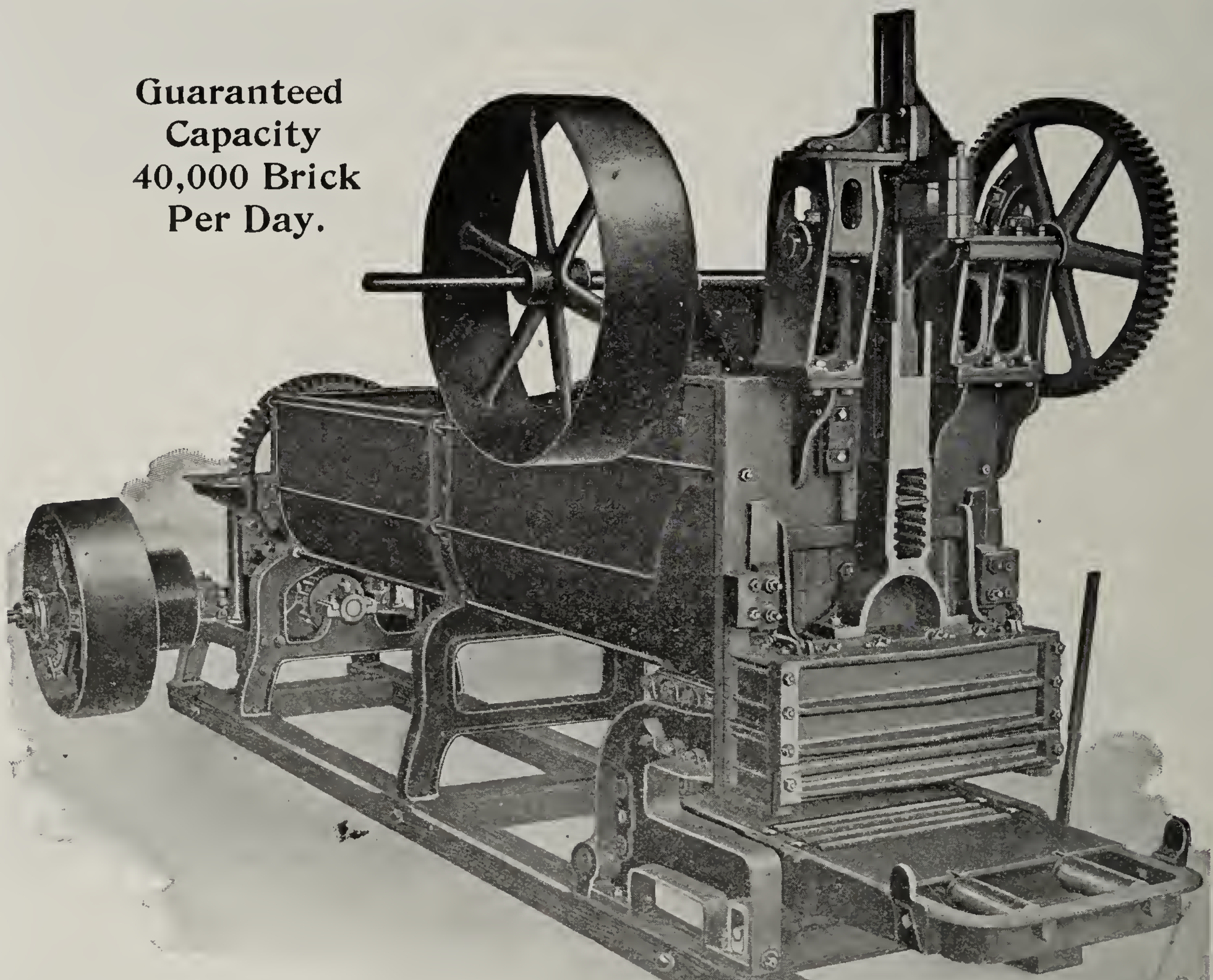
Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent

See pages 142 and 143 for other ads.

# C. & A. POTTS & CO.

## POTTS
## SELF-STRIKING SOFT MUD
## and
## FIRE BRICK MACHINE

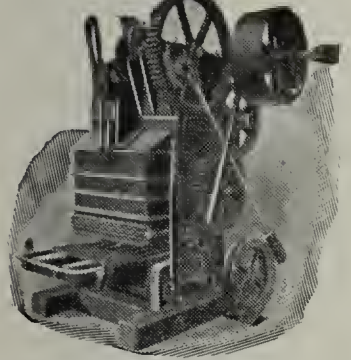
Guaranteed
Capacity
40,000 Brick
Per Day.

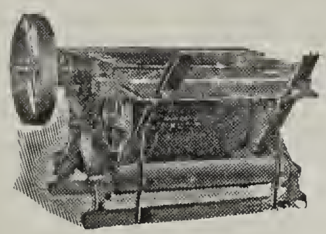


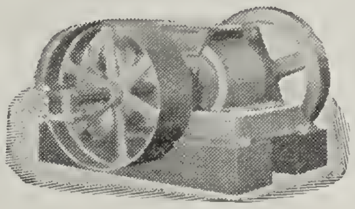
Simple, strong and durable.
Self-striking, never fails, and is always on the job.
No working parts under machine or in the clay.

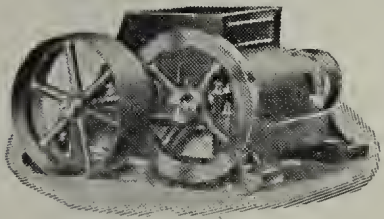
*WRITE US AT ONCE AND SAVE MONEY.*

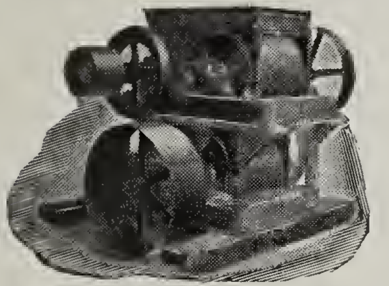
**Start the New Year Right and purchase machinery from us and you will always be Satisfied, as all machinery manufacturcd by us (C. & A. Potts & Co.) is guaranteed.**

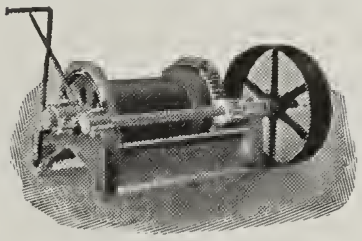

Vertical Brick Machine

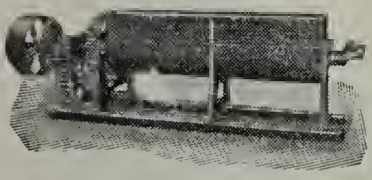

Style "A" Mould Sander

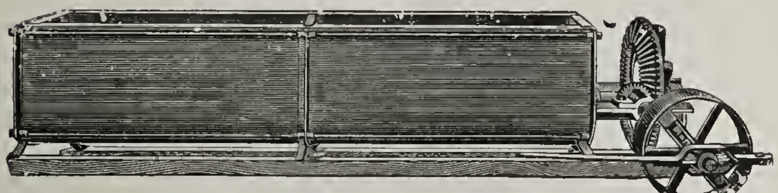

Style "P" Roller-Crusher

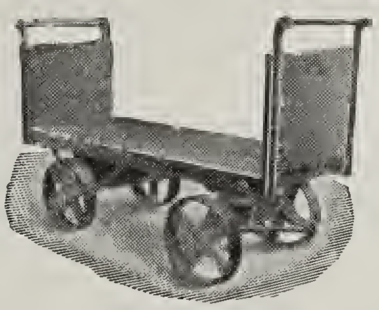

Style "A" and "P" Disintegrator

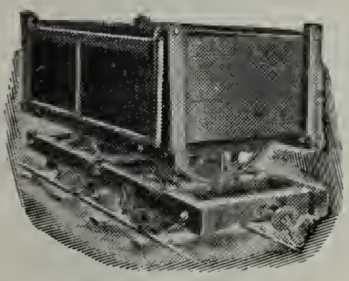

Style "P" Compound Disintegrator and Crusher

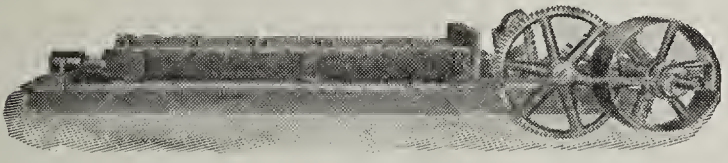

Style "B" Winding Drum

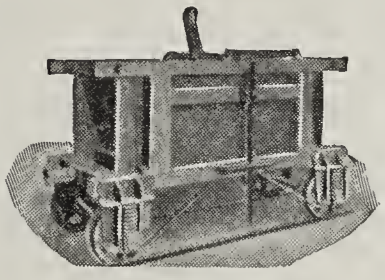

Double Geared Pug Mill

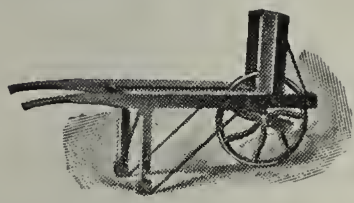

Single Geared Pug Mill

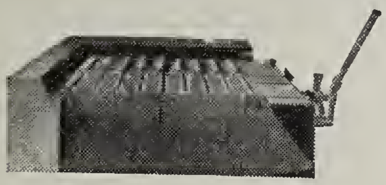

Mule Truck

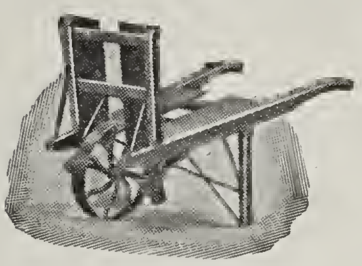

Side Dump Car

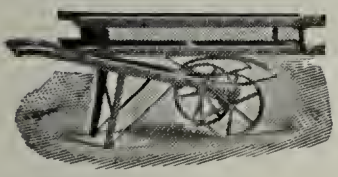

Feeder or Granulator

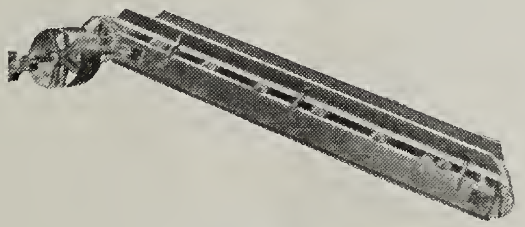

Bottom Dump Car

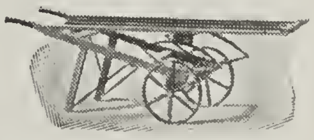

No. 6 Barrow


The Potts Rocker
Grate
For any size fire box
on boiler or kilns


No. 2 Barrow


Double Deck Truck


Clay Elevator.


Single Deck Truck

# C. & A. POTTS & CO.

## INDIANAPOLIS, IND

**Write us for Prices.**

**If it's to be Had We Have It.**

## EDITORIAL NOTES AND CLIPPINGS—Continued.

the yards out of stock and new brick had to be made. The new year opens with fine prospects for good business.

J. L. Cameron and John Floyd, of Grove City, Pa., have purchased P. A. Shannon's interest in the Empire Brick and Tile Works at Keisters, Pa.

The plant of the Bloomsburg Brick Company at Bloomsburg, Pa., which was destroyed by fire early in September, was started up again January 14.

The Waverly Brick & Coal Company, Kansas City, Mo., has increased its capital stock from $300,000 to $600,000 for the purpose of adding equipment, etc.

A municipal brickyard is now under consideration at Kalamazoo, Mich. Alderman Verburg is responsible for a resolution which passed the council authorizing the expenditure of a sum sufficient to build a brickmaking plant.

S. R. Reck is erecting a brick-making plant at Rapid City, S. D., where he will manufacture vitrified paving brick. He expects to have the plant ready for operation about the middle of February.

Lee Lovin, manager of the Tennessee Brick & Tile Company, Dyersburg, Tenn., died suddenly December 29, while on his way to the plant. He was forty-six years old and is survived by his wife.

Fire caused a $7,000 loss at the plant of the Decatur Brick & Tile Company, Decatur, Ala. The engine room, boiler room and dryer were practically destroyed. The burned portion will be rebuilt at once.

The American Brick & Tile Company's plant at Mason City, Iowa, has been purchased by F. A. Keeler of the Mason City Brick & Tile Company. The two plants will in all probability be consolidated.

Rutherford & Co. is the name of a concern incorporated at Hamburg, S. C., to manufacture brick and tile. J. A. Johnston is president and W. H. Burnside secretary-treasurer of the company, which is capitalized at $60,000.

The Mars Brick & Tile Company, Mars, Pa., write that 1914 was a very successful year, as they had all the business they could possibly take care of, and, in fact, built two additional down-draft kilns and made a number of improvements to help them handle their increased business.

Samuel Reed, for many years director of the Scioto Fire Brick Co., Portsmouth, Ohio, retired at the annual meeting, and Arthur M. Turner, son of Charles W. Turner, president of the company, was elected to fill the vacancy, and later at the directors' meeting he was elected secretary and general manager..

The Taplin-Rice-Clerkin Company, Akron, Ohio, recently shipped clay-working equipment, including sewer pipe presses, dry and wet pans, etc., to the Lehigh Sewer Pipe & Tile Company, Plymouth Clay Products Company, Fort Dodge, Iowa, and the Uhrichsville Clay Products Company, Uhrichsville, Ohio.

A. C. Ochs, proprietor of the Ochs Brick & Tile Company, Springfield, Minn., advises us that they are rebuilding their plant, putting in new machinery, building additional kilns, and installing electric motors. This will virtually make a new plant with a capacity of 125,000 brick per day. Mr. Ochs writes that he expects to be at the Detroit convention, where he hopes to talk to the various machinery men in regard to his needs.

O. W. Dunlap, manager of the Dunlap Manufacturing Company, Bloomington, Ill., manufacturers of the Perfect clay screen, writes that business seems to be improving, that they received more orders during the first two weeks of 1915 than in six months previous, and their repair orders would indicate that the brick men are getting ready for a good year. He also says that there is an improvement in their other lines of business, which would indicate a general improvement in all trades.

A. J. Kautz, manager of the Elgin-Butler Brick & Tile Company, Butler, Texas, writes that, while the last three months of 1914 did not look quite so good to them as usual, they kept their plant running full capacity turning out their celebrated Elgin-Butler face brick, and still their stock of brick is not quite so large as they would like to have it, as they prefer to keep 5,000,000 to 10,000,000 on hand, and their steady demand is such they can never get more than about 2,000,000 on hand. They have a very complete plant, with a capacity of 50,000 face brick per day, 30,000 stiff mud brick and 20,000 fire brick.

## THE 1915 CALENDAR SHOWER.

The last few days of the old year and the first few of the new brought a shower of calendars to the Clay-Worker Sanctum Sanctorium. It wasn't a heavy shower and it didn't last long, but it was sufficient to brighten our walls with a varied assortment of pictures of exceeding beauty.

The first came through a snow storm in fine shape and now occupies a prominent place under our office clock, where the stenographers and visitors can conveniently observe same. It was from the Deckman-Duty Company, of Cleveland, Ohio, manufacturers of repressed and wire-cut lug Medal Paving Block. It is indeed a dandy, covering about 12 square feet of space. The calendar pad is large and decidedly useful, for each leaf contains the current, past and succeeding months. The illustration is styled "In the Highlands of Argyle," and shows a beautiful landscape with cattle drinking in the cool waters of the highlands.

A calendar which impresses us deeply is that of the Standard Brick Company, Mayfield, Ky. A happy family is seen sitting around a brick fire place. It is truly a home, sweet home. Below is our slogan, "Build with Brick." Home, sweet home, is certainly not complete unless it is built for safety and protection to the children.

Another calendar using the "Build with Brick" slogan prominently is that of the Clippert & Spaulding Company, Lansing, Mich. The slogan appears in large red letters across the middle of the reading matter, which contains good arguments for using brick. Views of the factory, owners, the product they manufacture and structures made of their ware are shown. It is certainly an attractive calendar.

The shower brought us some "Wild Roses," that being the title of a beautiful calendar of the Suffolk Clay Company (Inc.), Suffolk, Va.

The Columbus Brick & Terra Cotta Company, Columbus, Ohio, manufacturers of high-grade face brick, especially the Astrakhan line, favored us with a calendar bearing the picture of a beautiful Indian girl. Probably Ben Fisher had a finger in the pie when this calendar was selected.

The Roessler-Hasslacher Chemical Company of New York City mailed us an artistic calendar showing a Grecian maiden near a peach tree filling her vase with water from a fountain.

"The Conway Castle, North Wales," is the title of a most inviting scene on a calendar from the Tuttle Brick Company, Middletown, Conn. We would like to pay this beautiful place a visit and lounge about for a considerable time.

The A. C. Ochs Brick & Tile Company, Springfield, Minn., sent us a most useful calendar, each leaf covering a week, with spaces for daily memoranda.

Our old bachelor friend, H. A. Wheeler, consulting mining engineer, St. Louis, Mo., has an artistic temperament; at least we should judge so from the delightful Mid-summer Afterglow shown on his 1915 calendar.

We take this means of thanking our friends for these most acceptable souvenirs.

## DID THEY DO IT?

Perhaps no other nation in the world, save the inventive Germans, would have thought of building a statue of brick. In the little city of Vegesack, near Bremen, and in the district of the German clay fields, the citizens have erected such a statue to one of their number who won fame as an African explorer. The monument is of brick, 30 feet in height, including the pedestal. The architect molded the figures of a man and camel out of a solid mass of clay, which was burned in a great kiln and then sawn into brick-sized blocks.—Exchange.

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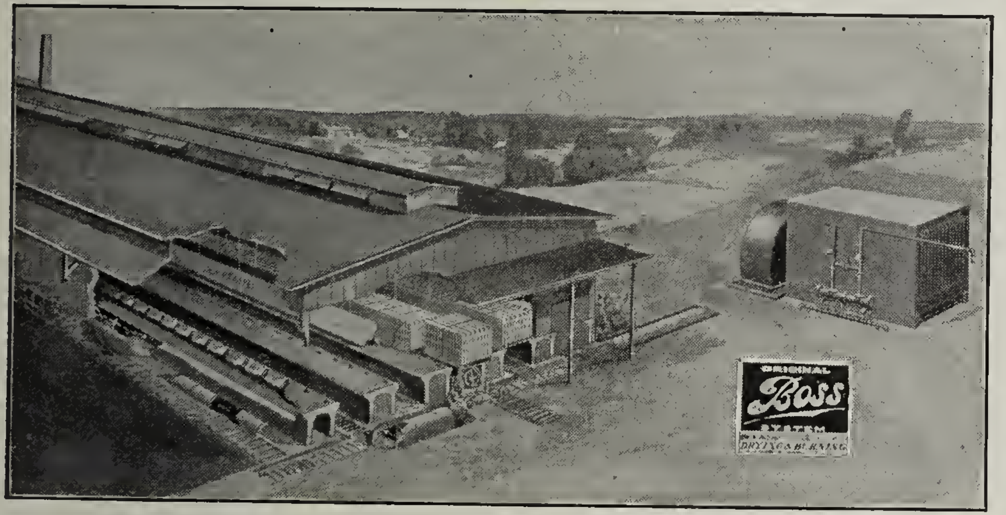

The Boss Ten-Hour Unit-Control Exhaust Steam Dryer.

**Mr. Brickmaker:**

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

**NO CLAY TOO TENDER.**

Ask us to show you how we do it.

**JOHN C. BOSS COMPANY**
**Elkhart, Indiana**

**WEBB WIRES WEAR WELL**

**WRAPPED** **TWISTED SOLDERED**

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

**The WEBB WIRE WORKS, New Brunswick, N. J.**

# Classified Advertisements

**FOR SALE, WANTED, ETC.**

**Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.**

## FOR SALE

FOR SALE.

Some tile factory equipment. Address,

THOMPSON BROS.,
12 tf d Rolfe, Iowa.

FOR SALE.

Wellington Sand Dryer, new. Never been used. Price, $30.00.

CLAY PRODUCTS CORP.,
1 2 c Hampton, Va.

FOR SALE.

A complete equipment for small tile plant. Will be sold cheap.

M. C. DAWSON,
1 1 cm Rushville, Ind.

FOR SALE.

Down delivery attachment for Fate machine to make large sizes of tile. Scarcely used and a bargain.

CARLINVILLE CLAY CO.,
12 3 c Carlinville, Ill.

FOR SALE.

One American Clay Machinery Co.'s special giant auger brick machine, used for making fire proofing. In workable condition. Address

BOX 1—J. A. R.,
1 tf d Care Clay-Worker.

FOR SALE.

Wire-cut brick plant, 40,000 capacity. Steam dryer; machinery practically new; plant in operation during season just closed. Write for further particulars. FOND DU LAC BRICK CO.,
11 3 c Fond du Lac, Wis.

WANTED.

Position as Superintendent or Manager of a face brick plant or stiff mud plant or both plants in one. No proposition too large to handle. My past records will prove me as a reliable and successful man of twenty-two years' experience. Age 38 and married. With well established firm might be interested with the company in a small way.

BOX 9—GEORGE,
9 1 cm Care Clay-Worker.

FOR SALE.

One 150-h. p. Houston, Stanwood & Gamble steam engine, good as new. Large fly wheel, extra driving pulley, extra long shaft. Will sell cheap.

JOHN C. BOSS CO.,
1 1 d Elkhart, Ind.

FOR SALE.

One Stevenson, 9 foot dry pan, latest model, used but little, with all new equipment and guaranteed equal to new. Price $600.00 to quick buyer. Address

J. S. MILLER,
1 1 dm Bolivar, Pa.

FOR SALE AT A GREAT BARGAIN.

Brick and tile plant, oldest in a town of 20,000. One of the best cities in Iowa. Plant is in good running order and will be sold cheap. Good reason for selling. Address

BOX 1—J. H. A.,
1 1 c Care Clay-Worker.

FOR SALE.
AN INTERESTING OFFER.

Death and affliction have opened an opportunity to acquire the best brick proposition located in Cincinnati territory. Two plants, combining ten million capacity annually, that have never failed to produce dividends for years, besides paying well for management. One or both plants can be had. So look sharp, as this will prove a valuable message to some one. Address

BOX 54,
Builders & Traders Exchange.
1 1 d Cincinnati, Ohio.

FOR SALE AT ATTRACTIVE PRICES

One Blake No. 3 Jaw, 19x9 inch crusher (Allis Chalmers make) used in experimental work only six weeks.

One Stevenson 8-foot iron frame clayworking pan used in experimental work only six weeks; also one link belt chain drive and sprocket.

Four 100-h. p. 6-inch Atlas Tubular boilers with forty-foot stacks, 30 inches diameter each.

Eight industrial cars 24-inch gauge, one ton capacity; side dumps, used only one year.

One 7-foot Stine coal mine fan.

One switching locomotive tender tank.

Forty-eight cast iron gates with frames for stone or coal bins, openings 18½x18½ inches, weight 890 pounds each.

THE COLUMBUS IRON & STEEL
COMPANY,
1 2 cm Columbus, O.

FOR SALE.

125-h.p. boiler, 100-h.p. engine, 2 brick machines, pulleys and shafting, all in good condition. Address,

J. P. VOGAN,
12 4 d Franklin, Pa.

FOR SALE CHEAP.

Martin style "A" machine complete with pug mill, crusher, Wellington sander, hoist, 200 ft. of cable and 4 Atlas side-dump cars, 36 inch gage, all in good condition.

GEO. H. CLIPPERT & BRO. BRICK
CO., Detroit, Mich.

FOR SALE—SHALE SITE.

I have an unlimited quantity of high grade shale in hills, on railroad in Jackson Co., Ind. Will sell property or contract to deliver in carload lots. Will send analysis and samples on application. A. J. NAVIN,
58 Baldwin Blk.,
1 3 cm Indianapolis, Ind.

FOR SALE.

One Frost 8-foot dry pan, one Freese brick machine, one Freese rotating automatic cutting table with measuring table, 24 feet of off-bearing belt. We will sell this machinery in units at about one-fourth of the original cost or will make an especially attractive offer on the whole lot. We are replacing this machinery with similar machines of the same make of larger capacity, and it has been used until now making 45,000 shale brick per day.

STREATOR BRICK CO.,
12-1c Streator, Ill.

**FOR SALE.**

**The Ashaway National Bank will sell a controlling interest in the capital stock of the Ashaway Clay Co. for a nominal sum. The plant was built in 1907 and cost about $70,000. On account of a lack of experience and capital, it has never run all told a full year. The company has just been reorganized with a capital of $35,000 and no debt. It is a thoroughly modern and up-to-date plant with new equipment throughout, consisting of Freeze intermediate size brick machine, capacity up to 60,000 brick per day, disintegrater for preparing the clay, Corliss engine with high pressure boilers, waste heat dryer, direct connecting fan and steam coils for auxiliary heater, 25 chamber Haigh continuous kiln with stack 135 feet in height. The equipment for handling clay from the bank consists of tramway and cars with elevated track at plant and winding drum to hoist cars. There is a switch into the plant with depressed track for loading. Address**

**FRANK HILL,**
**1 3 cm Ashaway, R. I.**

# Classified Advertisements—Continued.

## WANTED, ETC.

WANTED.

Experienced superintendent for sand mold brick plant in Wisconsin. Address,

BOX 12—EX,
12 3 d Care Clay-Worker.

WANTED.

By an experienced clayworker position as manager face, paving brick or tile plant. Satisfactory reference. Address

BOX 1—H.,
1 1 cm Care Clay-Worker.

WANTED.

First-class salesman, also to manage sales department for an established manufacturer of roofing tile. State salary expected. Address

BOX 10—D,
12 d Care Clay-Worker.

WANTED.

Traction engine, Case preferred, must be in good condition and cheap. Also two side dump clay wagons, capacity seven tons each. Address

BOX 1—J. L. P.,
1 2 d Care Clay-Worker.

WANTED—POSITION.

Clayworking Manager, excellent reputation, well trained in technical and business details of all ceramic industries, seeks position with brick, tile, terra cotta or pottery company.

10 tf d F. E., care Clay-Worker.

WANTED.

Position as superintendent. Thoroughly experienced in the making, burning and selling of brick, drain tile and hollow ware. Am employed but desire change. Will start with reasonable salary. Good references. Address

BOX 1—Iowa,
1 3 cm Care Clay-Worker.

OPEN FOR ENGAGEMENT.

Technical engineer, with 21 years of experience in clayworking; several years' American practice. Efficiency expert and fuel economist; constructor and operator of continuous and other kilns. Have solved most difficult problems in stiff mud and dry press process, and am especially prepared to remodel plants or equip same for a new line of manufacture. Am energetic and ambitious, always sober, and familiar with machinery and all details of manufacture. Let me prove it. Highest references. Address

BOX 11—PERMANENT,
Care Clay-Worker.

WANTED.

Position as superintendent or head burner of brick plant making any line of brick. Address

BOX 1—Mo.,
1 1 c Care Clay-Worker.

WANTED.

Position as superintendent or burner on building brick plant. Am thorough in all branches.

M. C. WILLIAMS,
701 N. Gibson St.,
1 1 cm Princeton, Ind.

WANTED.

Position by a first class engineer and machinist, capable of superintending a yard as well as filling an engineer's position. Address

BOX 1—G. A. R.,
1 1 c Care Clay-Worker.

WANTED.

Position as manager or superintendent. Experienced in dry press, stiff mud, face, paving, fire brick, hollow ware. Can get best results, flashed and oriental effects. References. Address,

BOX 12—EDWARD,
12 2 c Care Clay-Worker.

POSITION WANTED.

Successful superintendent desires change. Salary or royalty basis. Thoroughly conversant with all classes of kilns and machinery. Would contract to burn in good sized yard, salary or thousand. Guarantee results.

Apply SUCCESS.
1 1 d Care Clay-Worker.

WANTED POSITION.

As superintendent or manager of brick plants, any process. Have twenty years of practical experience making and burning brick, tile and hollow ware. Understand all kinds of kilns, fuels and machinery and operating of same. Am A No. 1 burner and good handler of men. Would consider taking an interest in good plant. Best references. Address

BOX 1—Ohio,
1 1 cm Care Clay-Worker.

**E. SCHMATOLLA**
**Consulting, Designing & Constructing**
**Engineer and Patent Attorney**
**To the Manufacturers of**
**Brick, Lime, Magnesia, Silica & Ceramic Wares.**

POSITION WANTED.

Young, energetic, all around brickmaker, educated, 36 years of age, with long and varied experience in the brickmaking line. Have built and put in operation several brick plants in Belgium, Holland, Germany, France and Roumania. I have own patent on continuous kiln (in U. S. and Canada) for the burning of fire, face and paving brick, which will give 50 per cent. saving in fuel compared with the best square down draft kiln and give better results.

My system is easily adjusted to batteries of square down draft kilns and will make same continuous. Am looking for a position as foreman, head burner or burner, where there is chance for promotion. Address

BOX 1—A. W. W.,
1 1 dm Care Clay-Worker.

(Continued on next page.)

**PATENTS**
**WILLIAM N. MOORE**
**Patent Attorney**
**Loan and Trust Building**
**WASHINGTON, D. C.**

The first important step is to learn whether you can obtain a patent. Please send sketch of your invention with $5.00, and I will examine the patent records and inform you whether you are entitled to a patent, the cost and manner of procedure.

PERSONAL ATTENTION
ESTABLISHED 25 YEARS

Mention The Clay-Worker
When Writing to Advertisers.

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**"THE VOLKMAR KILNS," METUCHEN, N. J.**

Owing to the death of the founder of the Kilns, Mr. Charles Volkmar, whose artistic work in tile and ceramics is so well known, the Kilns and property are For Sale.

Whoever is interested please consult with Mr. Smythe, of Spencer, Ordway & Weirum, 27 William St., New York City.

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*A man's mail will reach him where no mortal can.*

**Mailing Lists** 99% Guaranteed

covering all classes of business, professions, trades or individuals. Send for our complete catalogue showing national count on 7,000 classifications.

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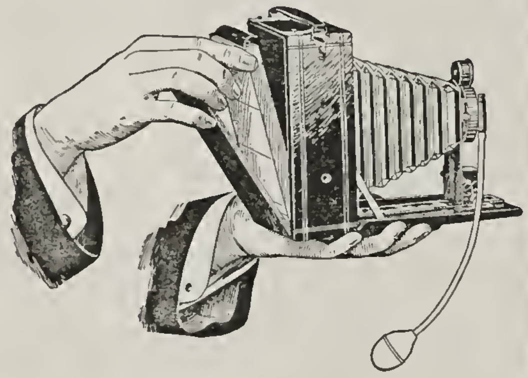
**Open back—drop in pack—close back—that's all you do to load a**



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The smallest, the lightest, the easiest to load and operate of all cameras—and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it today.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

**Rochester Optical Division**
Eastman Kodak Co., Rochester, N. Y.

## MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**

MINERS AND GRINDERS.

## FOR SALE.

Fine Fire Brick Property and Plant at Half Price.

Opportunity knocks at every man's door once. If you want to own a fine Fire Brick Plant making high grade fire brick and flashed face brick, here is YOUR opportunity.

For reasons good and sufficient when all the facts are known, this fine property is offered at less than half its real present value, and it will greatly increase in value as the property is further developed.

The property embraces 900 acres of fire clay, with necessary equipment for mining same. It has many desirable features, including a 30-inch vein of coal of good quality, and good railroad facilities, one line running through the center of the tract.

The clay plant consists of a three-story factory and an equipment of machinery for making fire brick and face brick which will be described in detail to anyone who is interested. There is also on the premises a two-room office building and a boarding house with accommodations for twenty men.

An analysis of the fire clay shows that it is equal to the famous St. Louis Cheltenham fire clay.

The title is clear and it is in every way a most desirable proposition. For analysis of clay and other particulars, address

OPPORTUNITY,
Care The Clay-Worker.

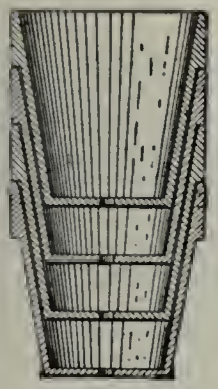
## LIST OF NEW AND SECOND-HAND CLAY MACHINERY REPAIRED AND READY FOR OPERATION.

| | |
|---|---|
| 1 | Second-hand Type "A" Rust Clay Feeder and Mixer. |
| 1 | 100,000 Capacity Eli Brick Machine, New. |
| 1 | New 20,000 Capacity Brick Machine. |
| 1 | New 30,000 Capacity Medium Size Brick and Tile Machine. |
| 1 | New 25,000 Capacity Michigan Disintegrator. |
| 1 | New 50,000 Michigan Disintegrator. |
| 3 | New Wood Frame Self-Contained Friction Winding Drums. |
| 1 | New Horizontal Pug Mill. |
| 2 | New Side-Cut Cutting Tables. |
| 1 | New 100,000 Capacity Horizontal Pug Mill. |
| 400 | New Brick and Tile Barrows. |
| 10 | New Spring Trucks complete. |
| 1 | New Bechtel's Automatic Side-Cut Brick Cutter. |
| 2 | Bechtel's End-Cut Brick Cutters. |
| 1 | Ross-Keller Four-Mould Dry Press Brick Machine. |
| 1 | Penfield Six-Mould Dry Press Brick Machine. |
| 1 | 150-H.P. Single Cylinder Non-Condensing Double Slide Valve Steam Engine. |
| 1 | 16x24 Stroke Single Cylinder Atlas Steam Engine. |
| 1 | C. & A. Potts Soft Mud Brick Machine. |
| 50 | Iron-Clad Dryer Cars. |
| 1 | Raymond Automatic Cutter. |
| 1 | Hummer, Jr., Fate Brick and Tile Machine. |
| 1 | Arbuckle Horizontal Pug Mill. |

The above machinery is offered subject to prior sale at reduced prices.

**MARION MACHINE, FOUNDRY & SUPPLY CO.**
**Box 156 Marion, Indiana**

Mention THE CLAY-WORKER
When writing to Advertisers,
Mention THE CLAY-WORKER



**Make Money**

WITH THE ONLY SUCCESSFUL

**Flower Pot Machine**

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

**The Rockwood Mfg. Co.,**

**1801 English Ave.** **INDIANAPOLIS, IND.**

**The Department of Clayworking and Ceramics**

Established by the Legislature in 1902 at the

**New Jersey State College,**

RUTGERS COLLEGE,

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D. D.

**New Books Which Are Being Offered To the Trade:**

HOLLOW TILE HOUSE, by Fred'k Squires, Price, $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

CEMENT, CONCRETE & BRICK, by A. B. Searle, Price, $3.00.

A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

SOLD BY

T. A. RANDALL & CO. (Inc.) Indianapolis, Ind.

**Anchor Brand Colors**

For Mortar Cement and Brick.

**BROWN, BLACK, RED AND BUFF.**

Strongest and Most Durable.

Manufactured by

**C. K. WILLIAMS & CO.**

EASTON, PA., U. S. A.

**Correspondence solicited.**

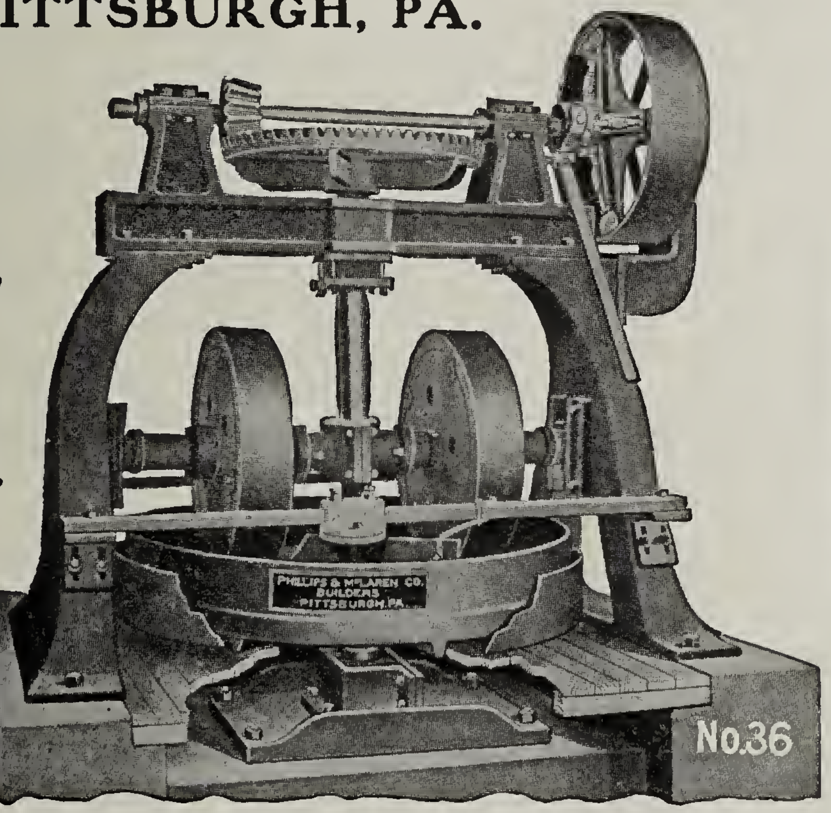
**PHILLIPS & McLAREN CO.**

**PITTSBURGH, PA.**

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
**Stephen Girard Bldg.**
Philadelphia, Pa.



PHILLIPS & McLAREN CO.
BUILDERS
PITTSBURGH, PA.
No.36

**Chattanooga Paint Co.,**

Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brickmakers' Use.**

**ECLIPSE MORTAR COLORS,**

**Red, Brown, Buff, Black.**

YOU HAVE KNOWN FOR YEARS THAT

**RICKETSON'S MORTAR COLORS**

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

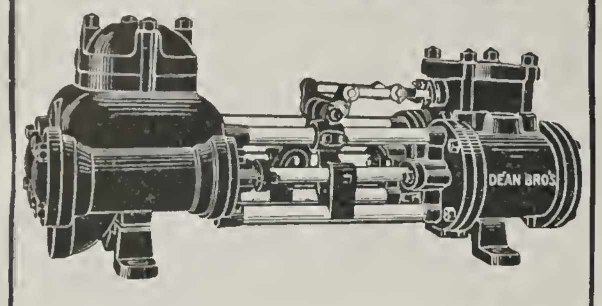
**Why Not Insist on Having Them?**

They are the acknowledged best for all uses---Mortar, Brick, Cement, Concrete and Stone.

**Red, Brown, Buff, Purple and Black.**

**RICKETSON MINERAL PAINT WORKS**
MILWAUKEE, WIS.

**$2.00** *THE CLAY-WORKER* *ONE YEAR (IN ADVANCE)* **$2.00**



DURABLE DUPLEX PUMP.

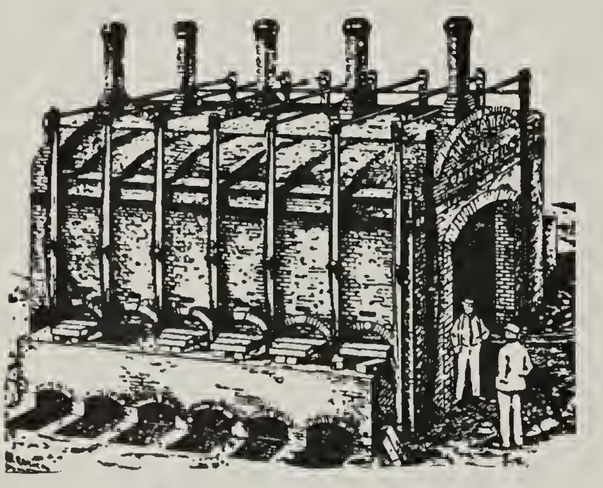
PUMPS FOR ALL SERVICES
AND ALL PRESSURES.

JET AND SURFACE CONDENSERS

Send for Catalogues.

DEAN BROS. STEAM PUMP WORKS.
INDIANAPOLIS.

NOT IN THE PUMP TRUST.



The Yates Patent Down-Draft Kiln
Also Continuous Down-Draft.

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

ALFRED YATES,
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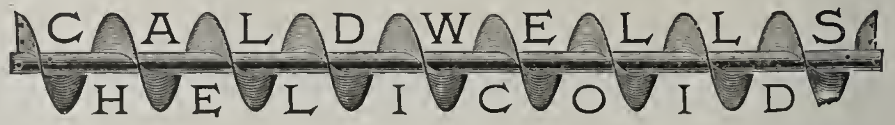

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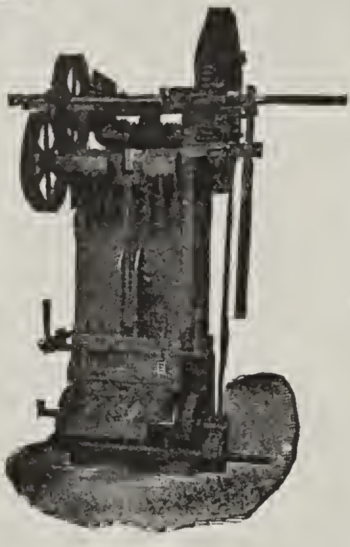

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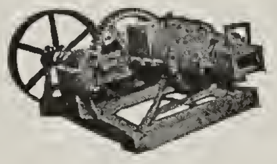

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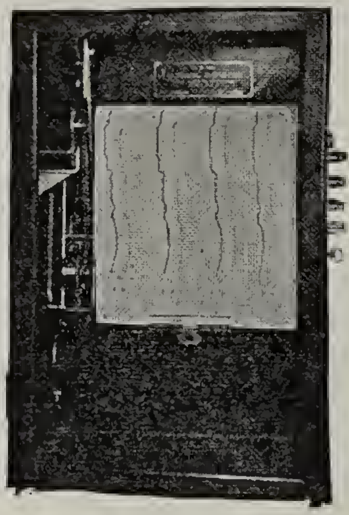

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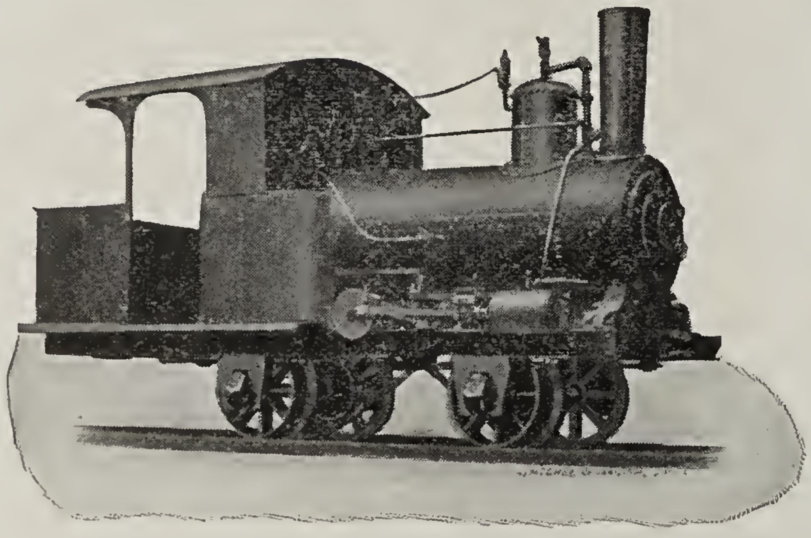

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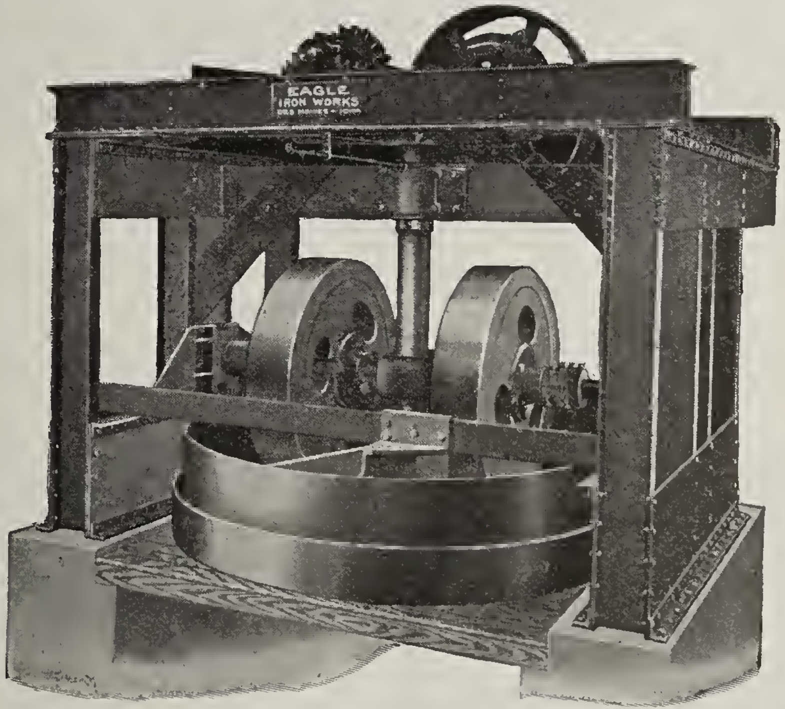

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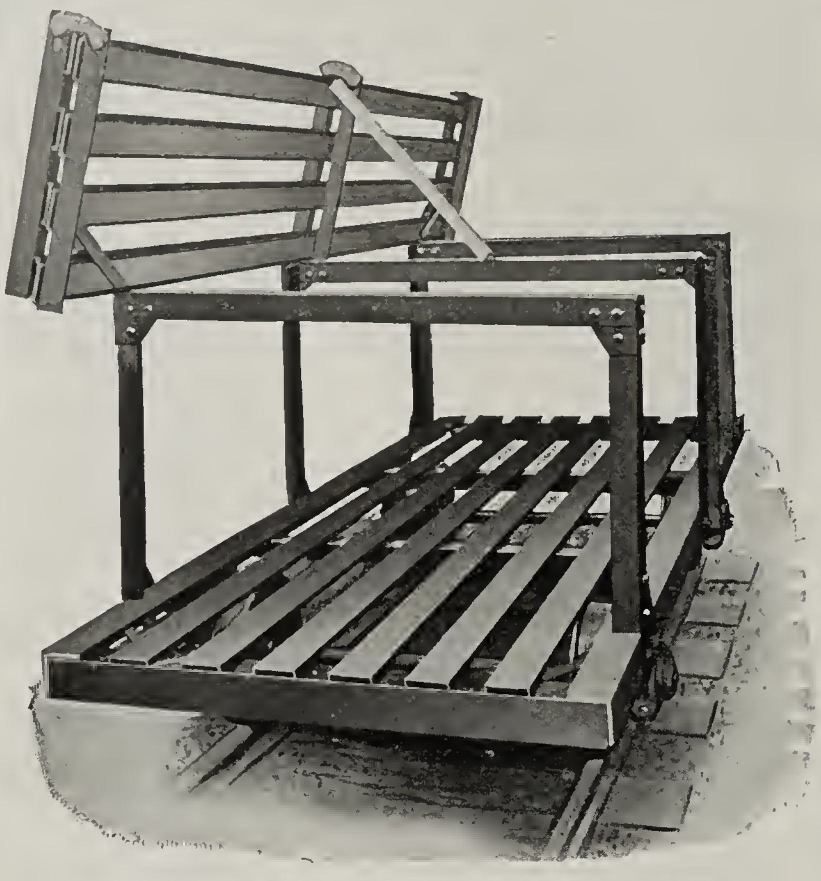

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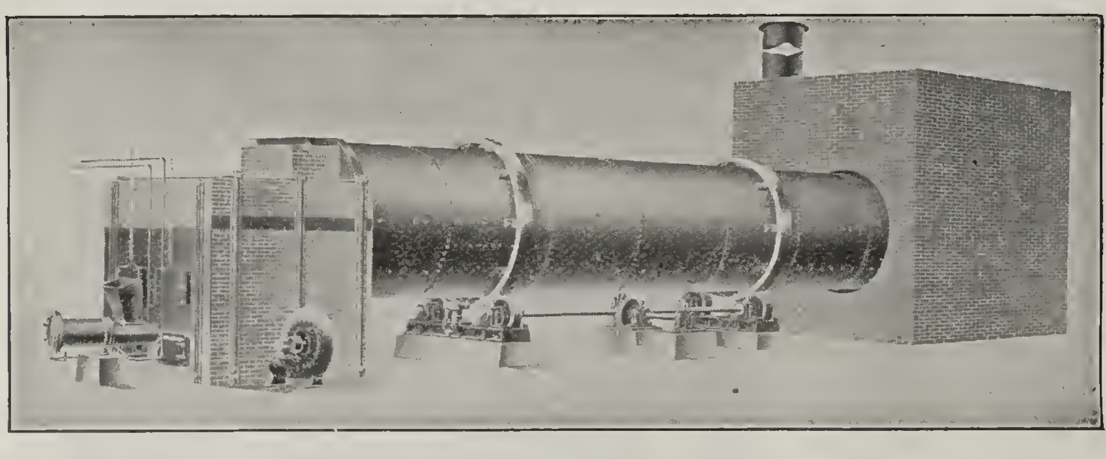

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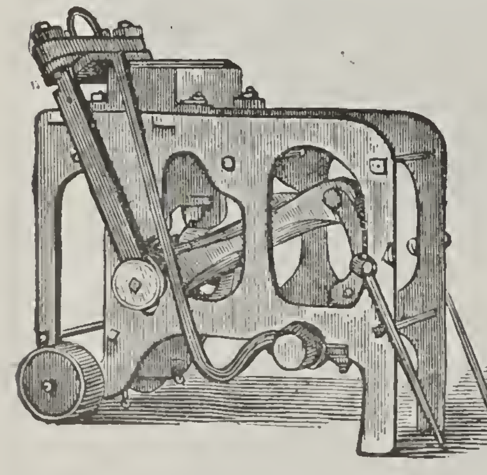

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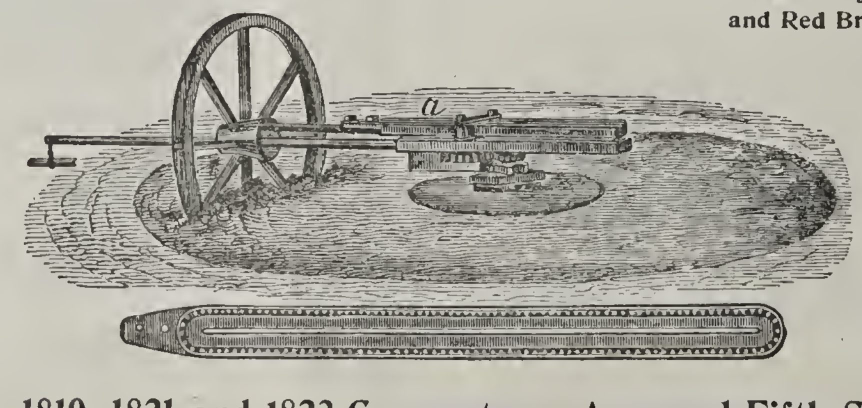

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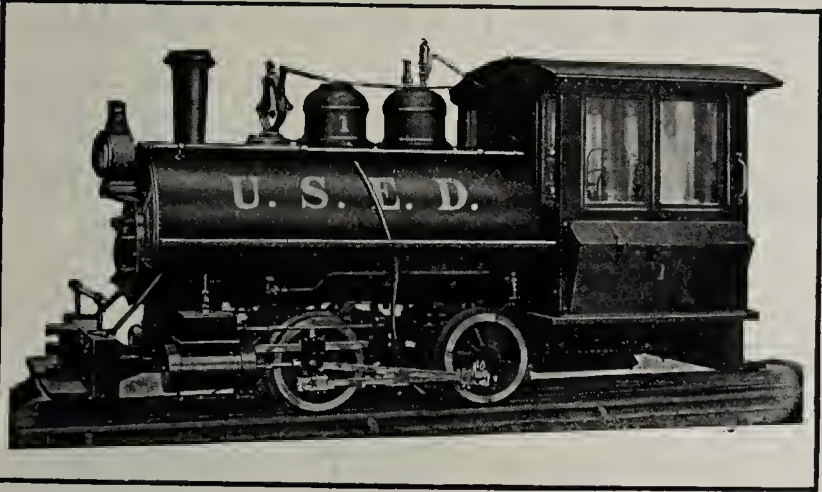

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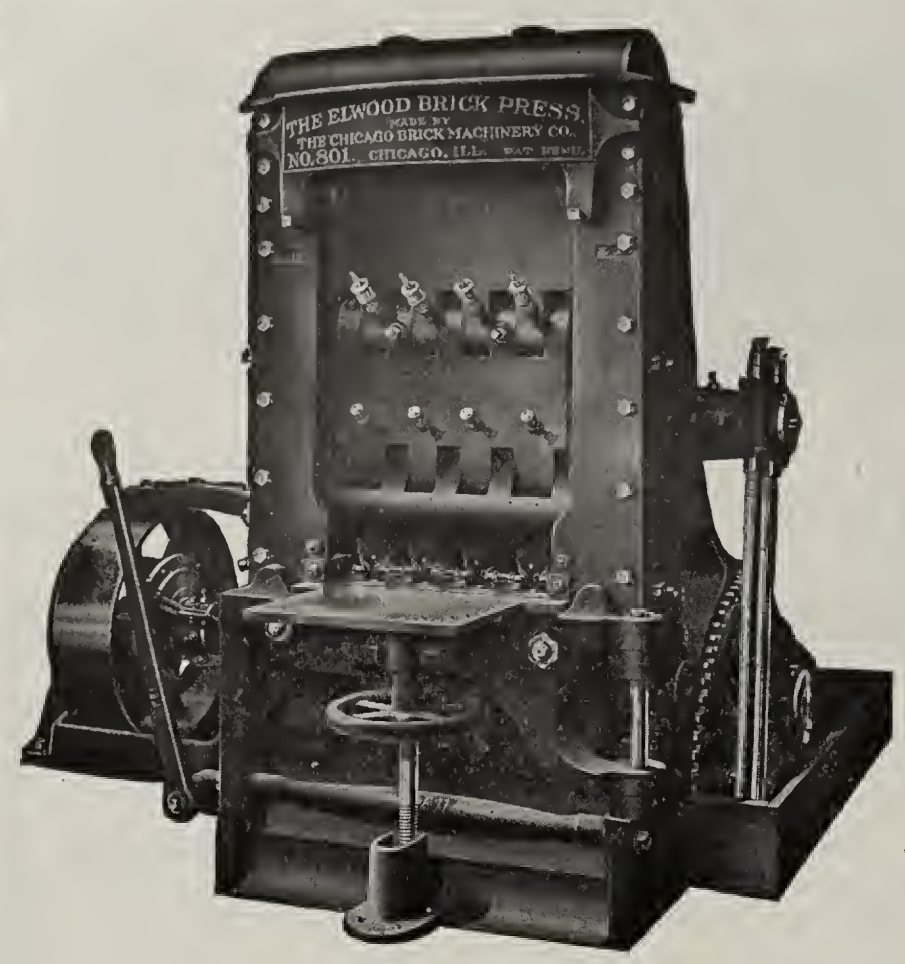
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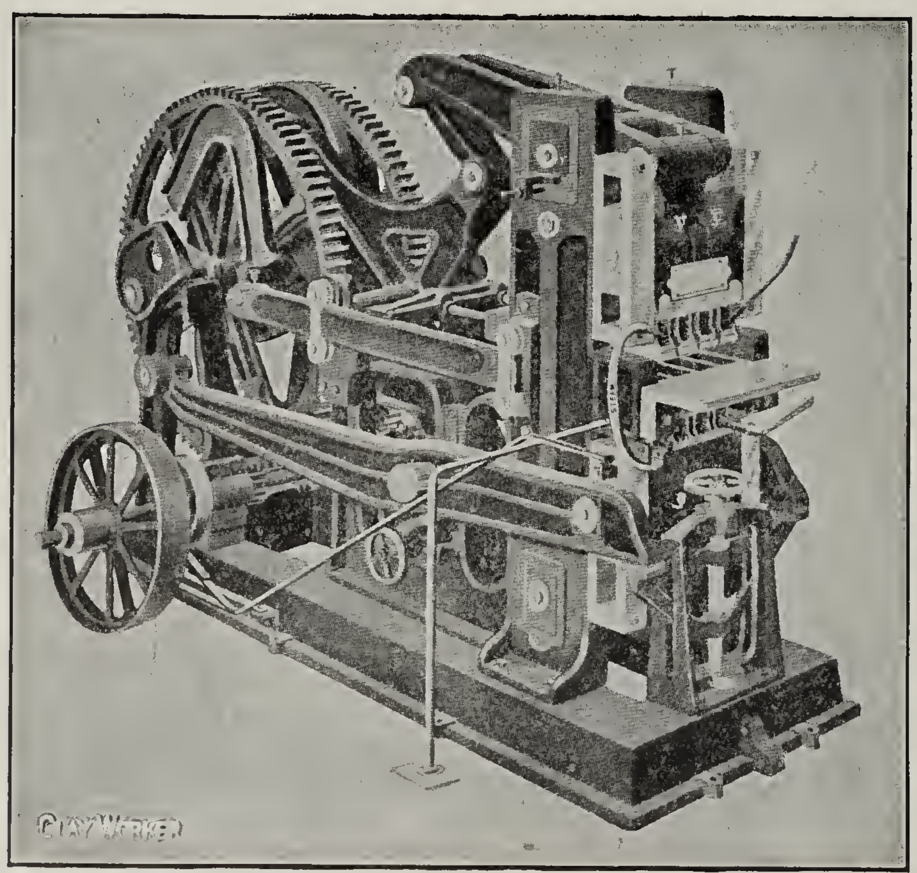

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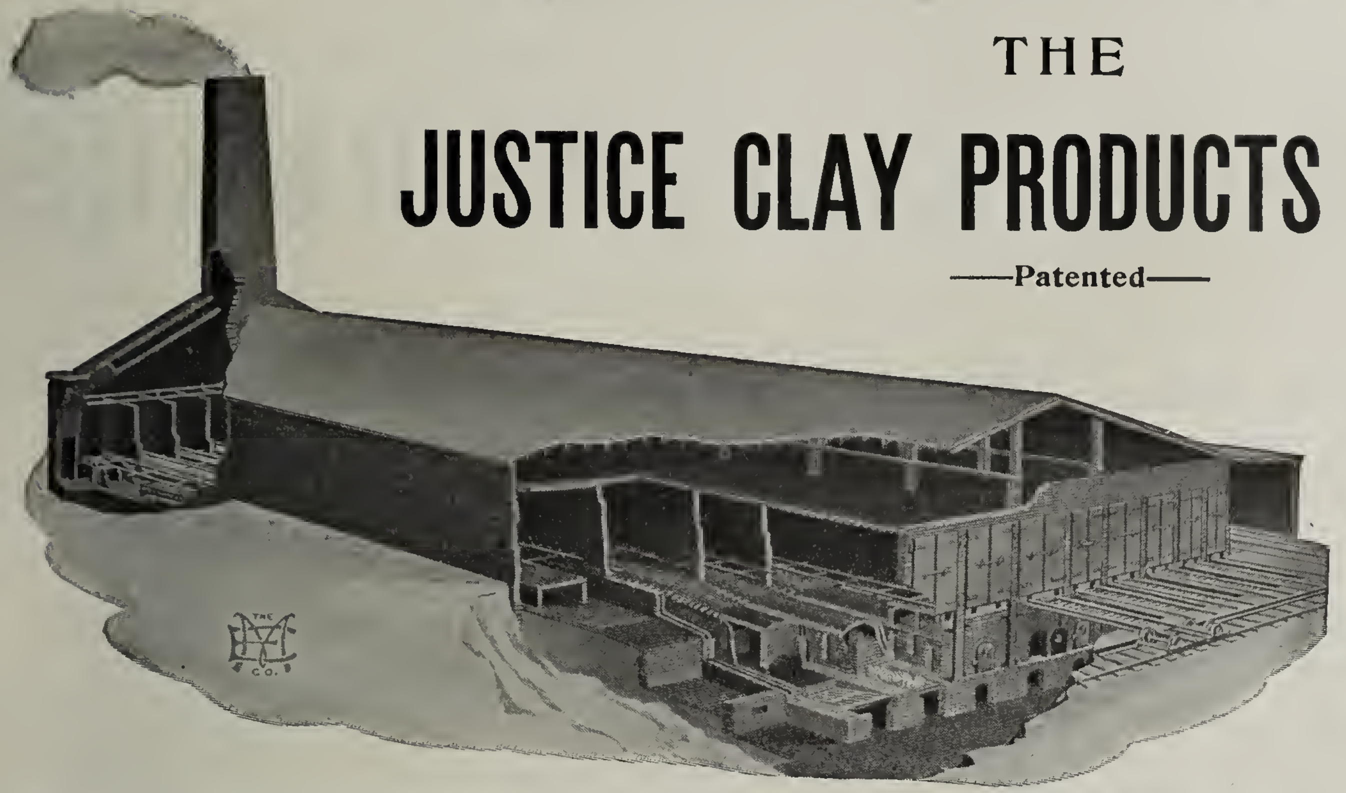

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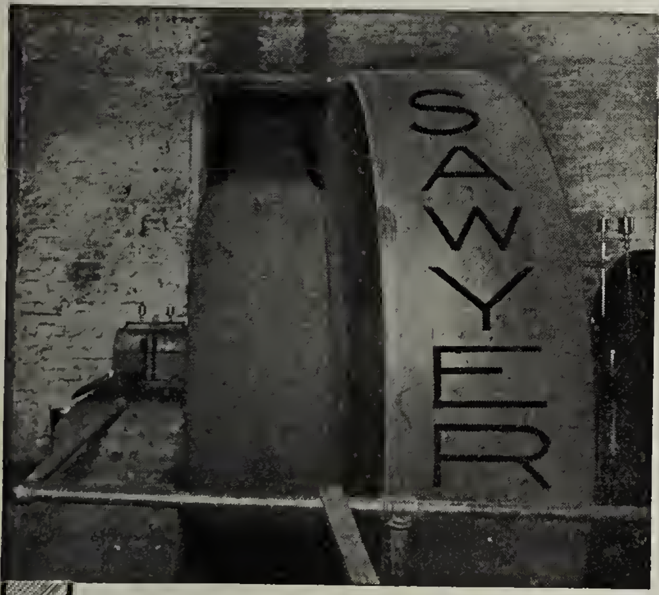

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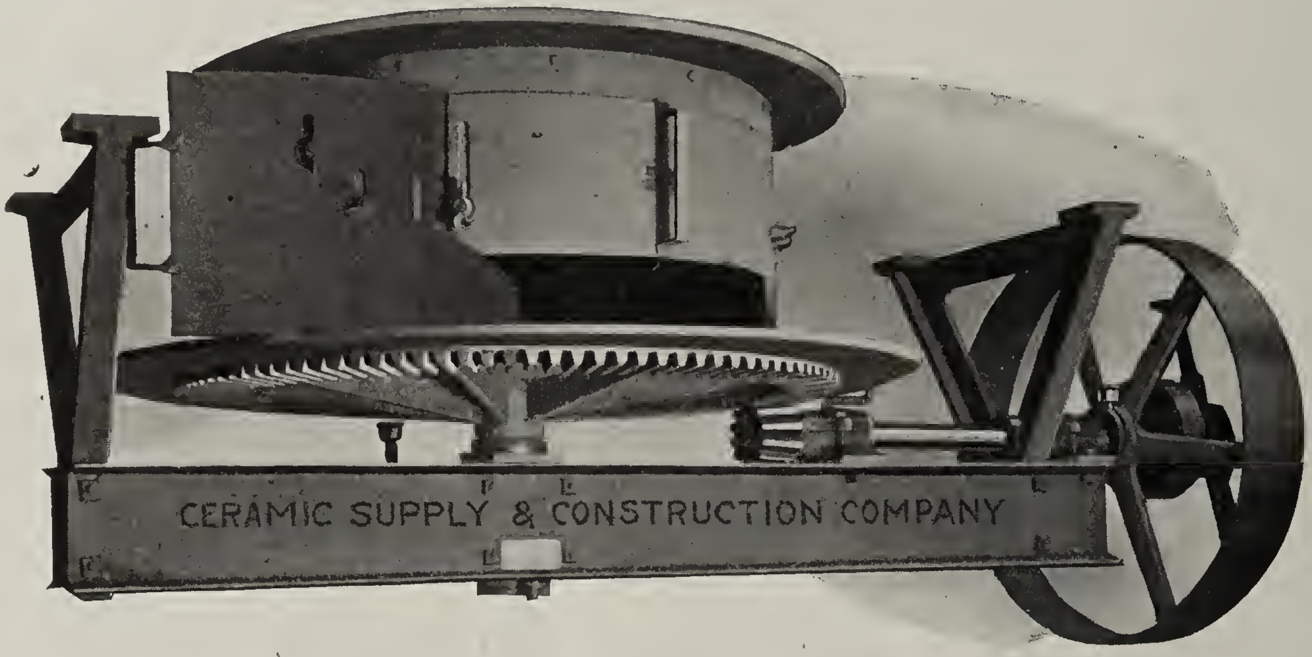

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IT IS PROPOSED to make the entire 7,000 acres part of a co-operative community. Co-operative marketing of produce is doing more for farmers today than any other force having to do with the business side of agriculture. Every one who buys of us will get the benefit of co-operative buying and marketing, insuring that he will pay only the lowest wholesale prices for necessities and get the best market price for his products.

THIS IS EASILY one of the most business-like opportunities ever offered the small or large investor on the payment plan.

AFTER THE TREES begin bearing, the company agrees, if owner is not ready to occupy his purchase, to lease the tract at a cash rental, or manage the property on a co-operative basis for a percentage of the net income.

THE MOBILE Beach & Land Company tract is about two miles inland from the Gulf. The Gulf breezes bring the needed rains, make the heat extremes of the northern summer unknown, and temper the frost when frost reaches so far south. The tract is well drained and thoroughly desirable.

A RAILROAD runs through the tract and a portion has been set aside for the development of a business center. There is nothing to prevent the consummation of the company's plans, which are moving forward at a healthy pace.

To buy now means a competence for old age, a permanent or winter home in the Sunny South, where the outdoors always beckons. Full information on inquiry.

**MOBILE BEACH & LAND COMPANY**
**State Life Building**
**Indianapolis, Indiana**

Mention The Clay-Worker.

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**

The above is a miniature of a sheet steel sign with blue background and embossed white letters. These signs are 20 inches long and 7 inches high. Price, $5.00 per hundred, F. O. B. factory. With firm name in place of "The Everlasting Material," $6.00 per hundred. A "PAVE WITH BRICK" sign similar to above supplied at same price.

# BUILD WITH BRICK

## A Nation-Wide Movement for Boosting the Brick Business.

THE CLAY-WORKER'S BUILD WITH BRICK campaign has taken on nation-wide importance. We have shipped thousands of posters to enterprising brickmakers, from New England to California.

Have you received specimen posters? If not, you can have them for the asking. We have nine different designs, adapted to various uses, from street cars and brick wagons to barns and fences. If you are doing any local advertising, you will find these posters useful in that connection. The Standard Brick Company, Evansville, Ind., has used some of them in its local papers with telling effect.

There is no doubt about it, you can boost the brick business in your own locality by using these posters, and the expense is but a trifle. Poster No. 7 has proven very popular, and No. 1 makes a nice envelope cut. We will be glad to print you a supply of envelopes, or will furnish you an electrotype of this cut at cost for your local printer. In the language of the street, "Get in the game," and help us boost the brick business.

We can supply you with any sort of a poster you want. If you prefer a tin sign or a sheet steel sign, we will furnish same at cost. A two-color sheet steel sign in white and blue, the words "BUILD WITH BRICK," embossed in white letters on a rich blue background, makes an unusually attractive poster. If you want something even better, an enameled steel sign, good for all time, we can get it for you. Write us what you want, and we will do our utmost to supply it.

T. A. RANDALL & CO.,
Publishers The Clay-Worker,
Indianapolis, Ind.

T. A. Randall & Co., Publishers,
Indianapolis, Ind.

Gentlemen:

You may send me........metal signs, also tack card "BUILD WITH BRICK" posters as follows:

...........Poster No......, size 11x11, cost $5.00 per 1000

...........Poster No......, size 11x14, cost $6.50 per 1000
(With Firm Name)

...........Poster No......, size 12x22, cost $8.00 per 1000

...........Poster No......, size 14x22, cost $9.50 per 1000
(With Firm Name)

Posters Nos. 1, 2, 3, 4, 5 and 6 are made 11x11 or 11x14 inches. Posters Nos. 7, 8 and 9, size 14x22 inches. These are printed on substantial 5-ply card.

Print on same my card, as follows:

..................................................
..................................................
..................................................

Very respectfully,

..........................................

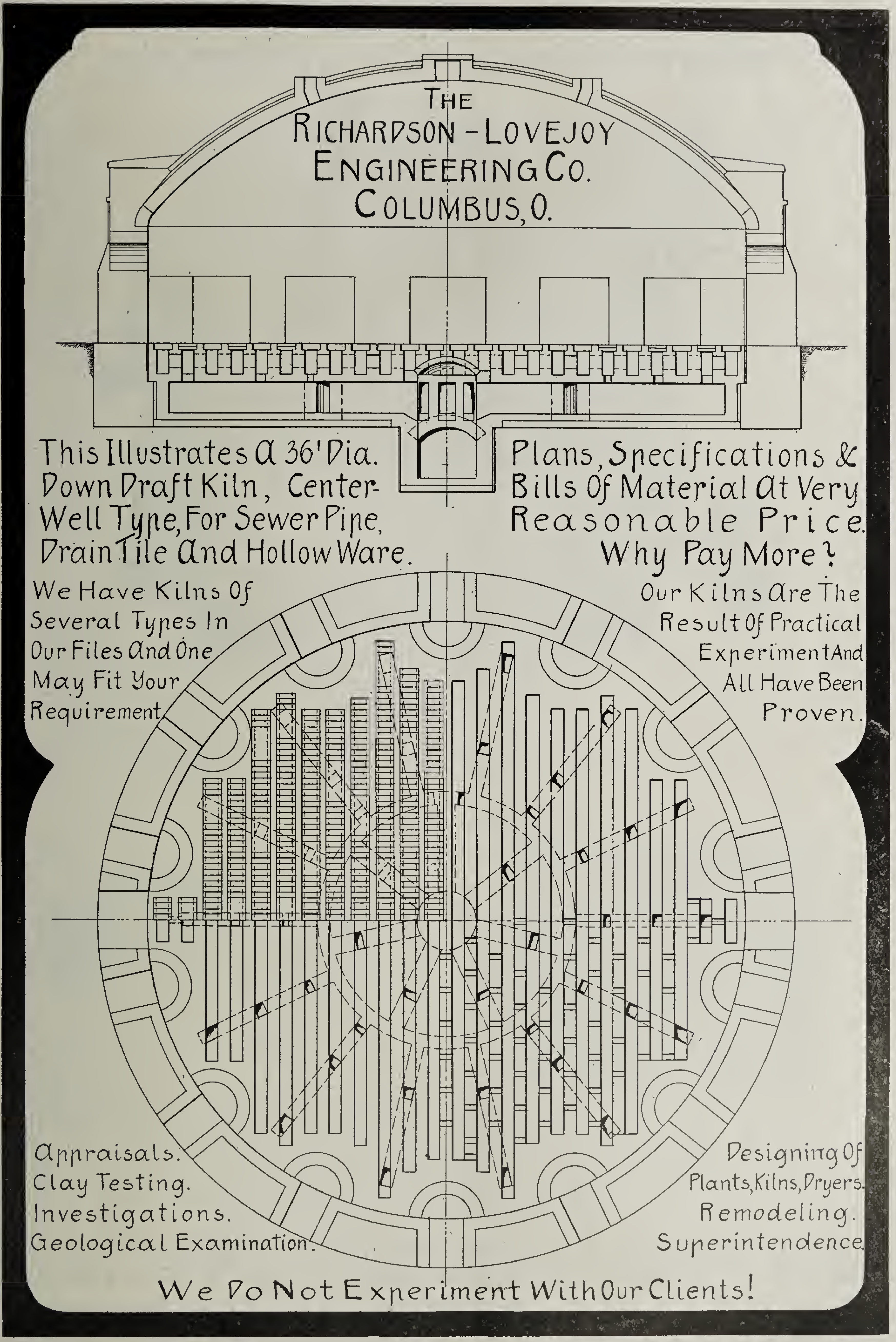
Address ..........................................

..................................................

Tear off this coupon and mail us your order today.

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**
MAKES THE STRUCTURE BEAUTIFUL.
NO PAINTING. NO COST FOR REPAIRS.
FIRE PROOF. TIME PROOF. WEATHER PROOF.
COOL IN SUMMER. WARM IN WINTER.

Miniature of Poster No. 7.



THE
RICHARDSON-LOVEJOY
ENGINEERING CO.
COLUMBUS, O.

This Illustrates A 36' Dia. Down Draft Kiln, Center-Well Type, For Sewer Pipe, Drain Tile And Hollow Ware.

Plans, Specifications & Bills Of Material At Very Reasonable Price. Why Pay More?

We Have Kilns Of Several Types In Our Files And One May Fit Your Requirement.

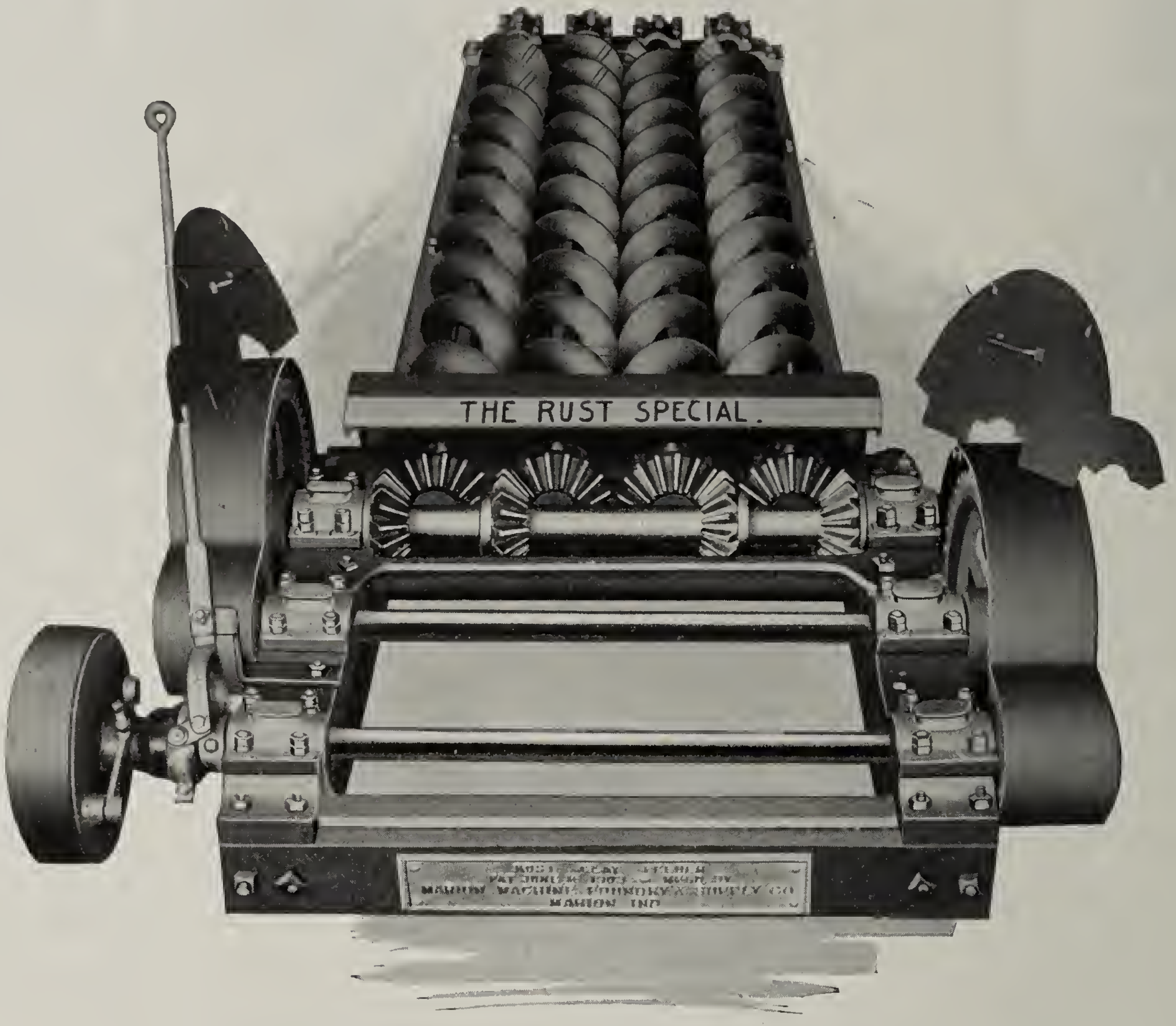
Our Kilns Are The Result Of Practical Experiment And All Have Been Proven.

Appraisals.
Clay Testing.
Investigations.
Geological Examination.

Designing Of Plants, Kilns, Dryers.
Remodeling.
Superintendence.

We Do Not Experiment With Our Clients!

# SOMETHING NEW IN CLAY FEEDERS.



Top View of Rust Clay Feeder.

THE NEW RUST SPECIAL CLAY FEEDER AND MIXER.

## SPECIAL FEATURES

First—No exposed gearing. All gearing will be placed in oil housing so they will be continually running in heavy oil.

Second—Machine will be built with drop bottom, hinged in the center, so the materials under any two of the spirals can be dropped out at any time in order to get at the spirals quickly.

Third—The large gearing will be made throughout of semi-steel, built doubly heavy for any duty the feeder might be called upon to perform.

Fourth—The eight gears that drive the spirals will be made of the highest grade of crucible steel and they will be entirely housed in an oil box.

Fifth—The four spiral shafts of this new machine will be 2 15/16 inches in diameter, whereas those in the former machines are only 2⅜ inches, and the right and left spirals will be mounted on solid steel shafts.

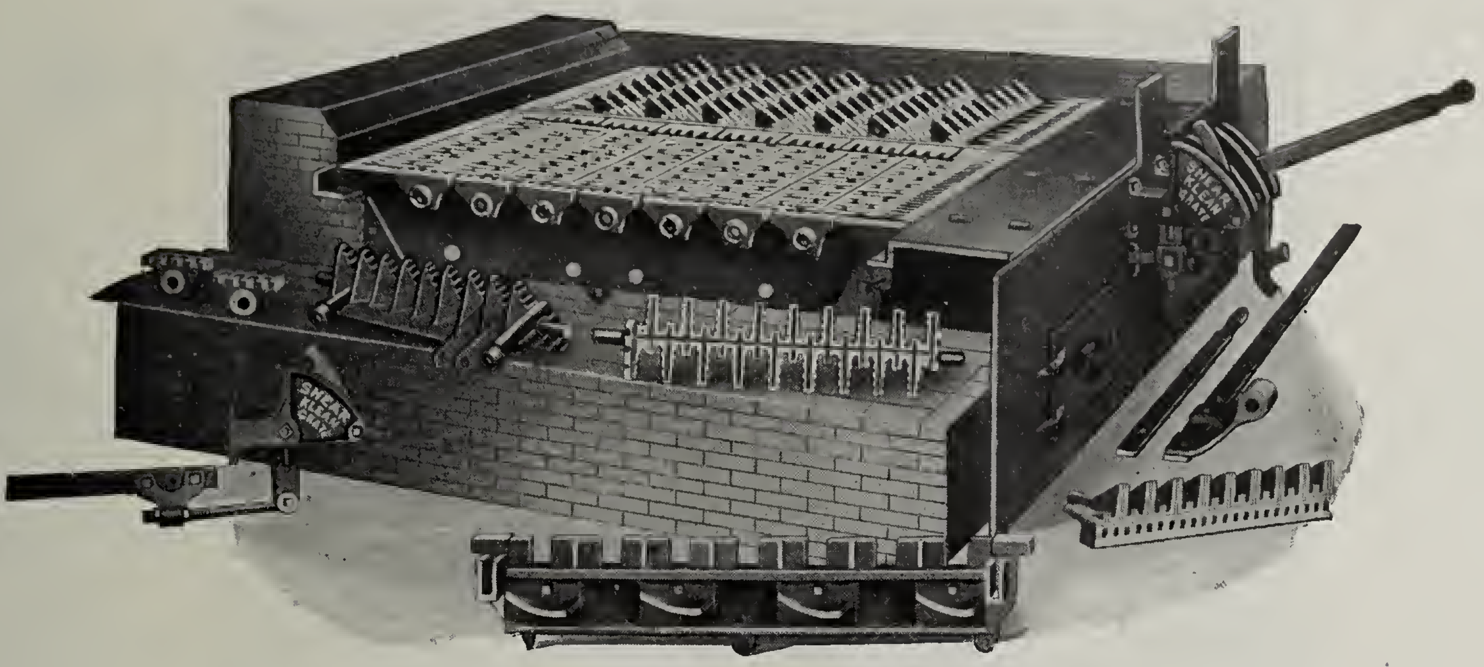
Sixth—The machine has a capacity up to 150,000 brick per day. The quantity can be regulated at will by raising or lowering the end feed gate or by increasing or lessening the speed of the clutch pulley. Requires only about 2 h. p. to operate when running at full load.

Send for new eight-page folder fully describing same.

Also, if in the market for brick and tile machines, disintegrators, cutters, winding drums, wheelbarrows, etc., be sure and get our catalogues and prices before purchasing.

**Marion Machine, Foundry & Supply Co., Marion, Indiana**
**P. O. Box 156**

# THE SHEAR-KLEAN GRATE

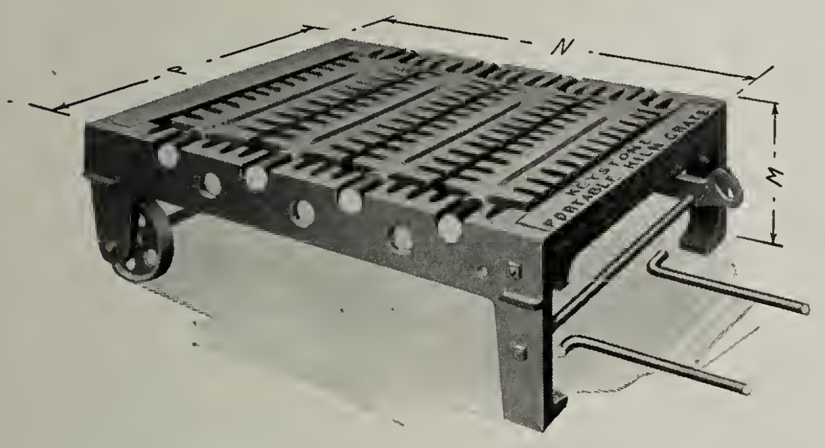


The above represents a detailed view of our Shear-Klean Grate--the grate that knows no clinker. Its working principle is such that the fireman can handle and control his fires without the use of slice bar or poker.

## BURNS LOW-GRADE FUEL WITH MAXIMUM RESULTS.

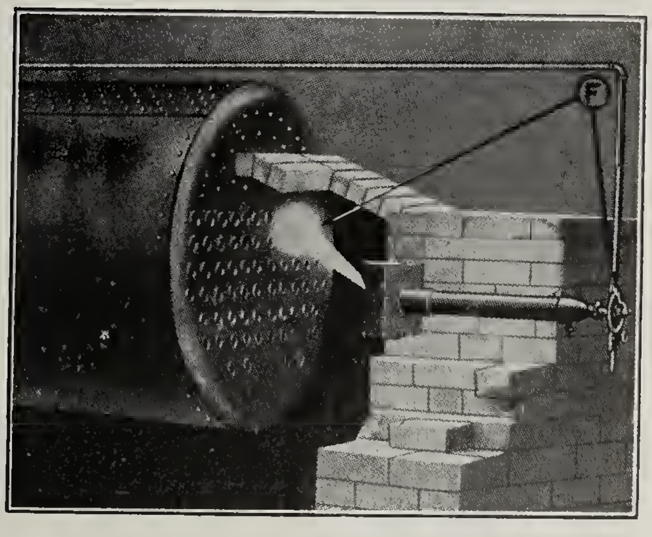
The Shear-Klean Grate is especially adapted for the burning of low grade clinkering coals, especially slack or screenings. Burning this class of material a full day's run can be made without cleaning the fires through the fire doors. The fires can be controlled without the use of slice bar or poker. Consequently leaky flues, smoke, wasting heat and lowering the steam pressure, are entirely eliminated.

Write at once for particulars.



**KEYSTONE PORTABLE KILN GRATE.**

The Keystone Portable Kiln Grate will fill a long felt want in many brick and tile plants. Send for catalogues describing same more fully.



**MARION ROTARY SOOT BLOWER.**

The Marion Rotary Soot Blower will more than repay its cost in one year's time in the saving of your fuel. Will be sent on 30 days trial. Our new 56-page book entitled "EFFICIENCY," is just off the press and will be mailed upon request.

**Marion Machine, Foundry & Supply Co., Marion, Indiana**

Chicago Office, Monadnock Bldg. P. O. Box 156

The above cut discloses

# THE AMERICAN PULVERIZER

as was installed in the National Sewer Pipe Co. Works, Webster City, Iowa, Spring 1913.

A letter dated January 2, 1915, from their manager states, viz.: "Our American Pulverizer has been operated daily and is doing the work of three Dry Pans; in fact, we are grinding shale and clay that would be impossible to get through a Dry Pan."

What better evidence can be required. Try an AMERICAN RING PULVERIZER and gain best results. Ask for particulars.

**American Pulverizer Co.**

**East St. Louis, Ill.**

# The Hook System of Burning Clay Products

## is installed in many plants throughout the United States and Canada

Makes a large saving in fuel, time and labor and greatly improves the quality and uniformity of ware. Hook System Kilns are used in burning both glazed and unglazed products made of shale, surface or fireclay. Combustion of fuel and distribution of heat more perfect than in any other kiln. The Hook System is equally effective in large or small kilns, and with it you can utilize the greater part of the heat that escapes through the stack of the ordinary types of kilns.

## SALT GLAZING IN HOOK KILNS

We have just received a letter from the Atlanta (O.) Tile & Brick Co. which reads:

> "The Hook System installed at our plant has proven very satisfactory. We have burned a 22-foot kiln in as low as 26 hours. This time includes the watersmoking and high fire periods. We are burning coal as fuel at present, but have burned with wood alone and also in connection with coal with equally good results. Our average fuel consumption is about six tons coal per kiln.
>
> We have a clay that is very tender and requires great care in drying in the dry shed. Quite often we can not dry ware fast enough in the dry shed, and to prevent a delay in our work, place it in the kiln very wet. In fact, we have taken ware from the dry shed and set in kiln when it was so wet that it would only stand six tiers high. After placing in kiln to this height, they would be allowed to stand for about a day, after which time they would be stiff enough to permit placing the rest of ware on top. Of oourse when the tile were in this condition we could not finish nearly so quick as it required longer to watersmoke, but it is remarkable how ware can be placed in kiln this wet and come out in such perfect condition. We have burned a full kiln of ware under the conditions mentioned above, and have had but a few, if any, damaged pieces.
>
> We have sent you two tile, one from the bottom tier and one from the ninth tier. You can see that the ware burns uniform. We are very sure that it would be impossible to find a kiln that would burn our ware as successful as is possible with the Hook System."

The Hook System can at small expense be installed in either round or rectangular kilns, old or new. It is working in kilns of both single and multiple stack type.

We can furnish estimates, plans and specifications, or competent masons for building new or remodeling old kilns.

You do not in any way place yourself under obligation by asking for information. Will you permit us to explain wherein your kilns can be made more effective?

**HOOK PATENT KILN CO., Vigo, Ohio**

**Canadian Office, 250 Dufferin St., Toronto, Ont.**

# This Plant Uses Brown Pyrometers

The National Drain Tile Co., Summitville, Ind. uses Brown Recordiug Pyrometers on their continuous kiln. Is it any wonder that they have no trouble with their burning when they can control the temperature of each chamber of the kiln?

**The Brown Instrument Co., Philadelphia, Pa.**

**New York** **Pittsburgh** **Chicago**

# OPEN LETTER

## Illinois Clay Manufacturers' Association
## Anuual Convention

## SPRINGFIELD, ILL.

NEW LELAND HOTEL, **February 8, 9, 10, 1915**

**MR. CLAYWORKER:**

We are going to have an exceptionally good program at this convention. It is going to be worth your while to be there. The program will consist in part of papers and discussions on different topics which are very important and should be of interest to every clayworker.

**HOW MUCH DOES IT COST YOU TO OPERATE?** Among the many papers to be given there will be several on **cost accounting,** touching upon the different methods and systems used and in detail upon manufacturing and overhead expense. Bring your data on cost keeping. Tell us how **you** do it.

**HAVING ANY INSURANCE DIFFICULTIES?** This is another phase upon which there will be papers and discussion. You might find just what you want.

**ANY MANUFACTURING TROUBLES?** Several efficient clay manufacturers along with the Ceramic Department of the University of Illinois will try to solve them for you.

**HOW ABOUT SELLING?** There will be some information for you in that line also.

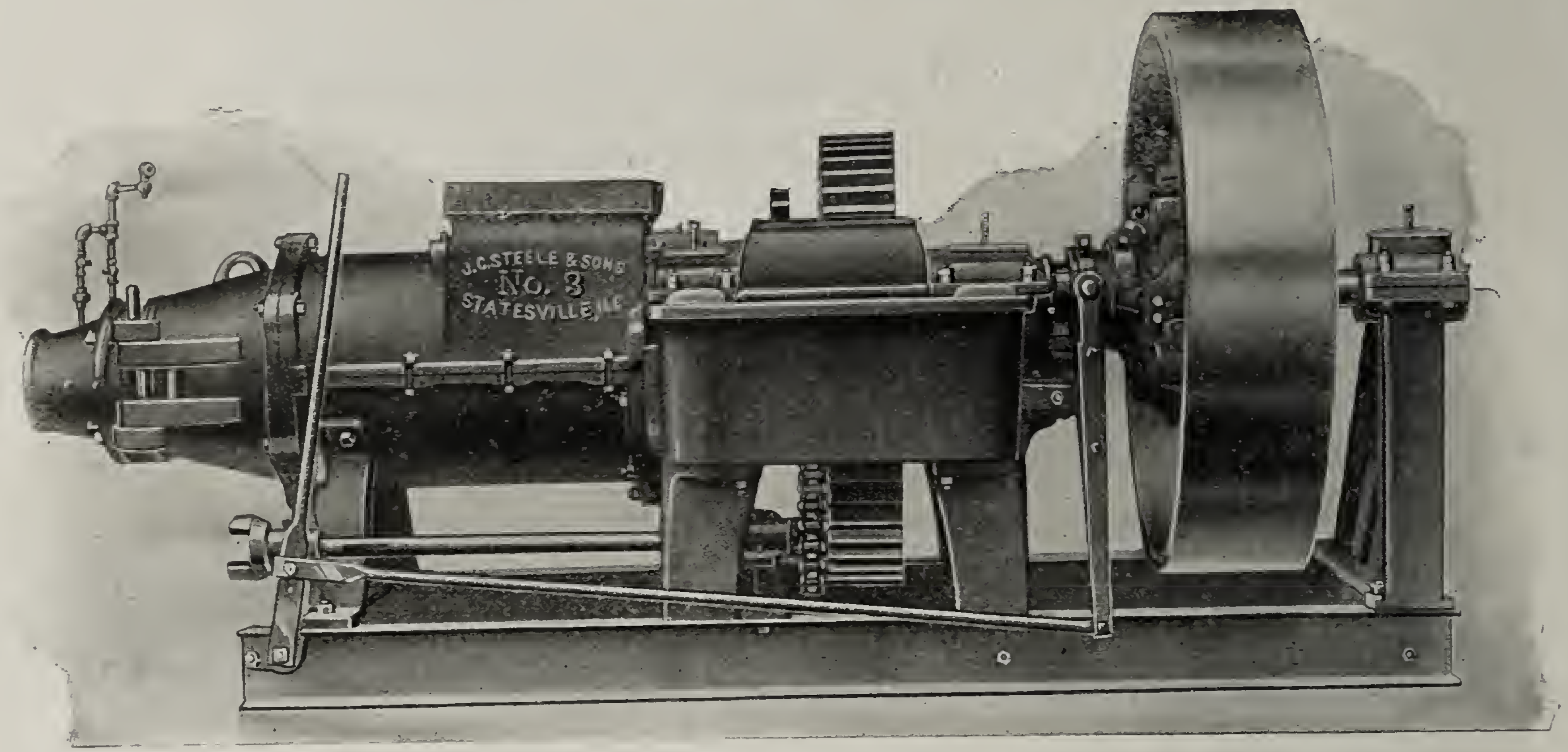
**REMEMBER THIS IS YOUR CONVENTION—BOOST IT**

These papers will be in plain words. You don't have to be a college graduate to understand them.

**A. E. HUCKINS, Secretary, Urbana, Ill.**

# Steele Single Geared Machines

## Few and Heavy Parts



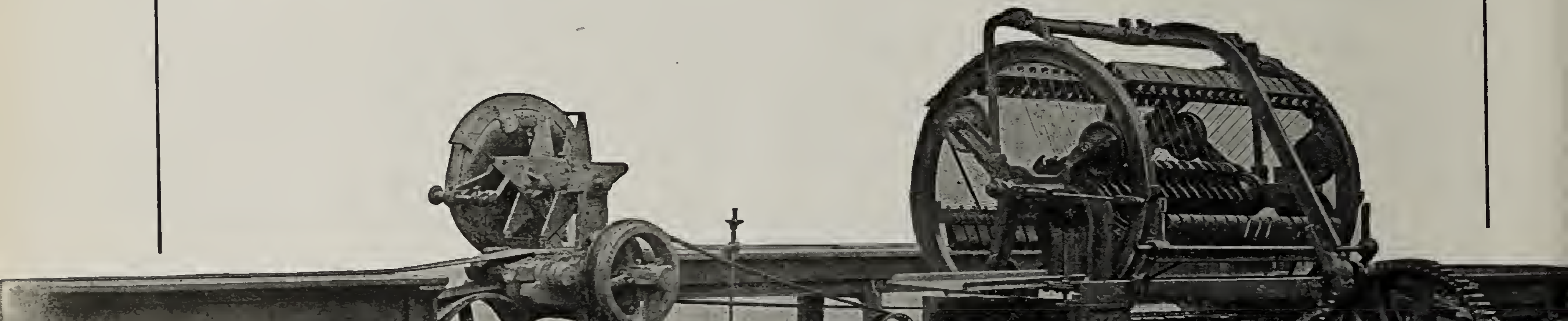
No. 3. 20,000 to 30,000 Brick per Day

Our machines for small capacities receive just the same attention as our larger machines. We know the requirements of the small brickmaker by long experience, and have given special attention to simplifying and improving these machines. We think it better policy to carefully consider the necessities of our customers, rather than to load them up with machinery not suited to their conditions. With our machines you are at no disadvantage with the large plants.

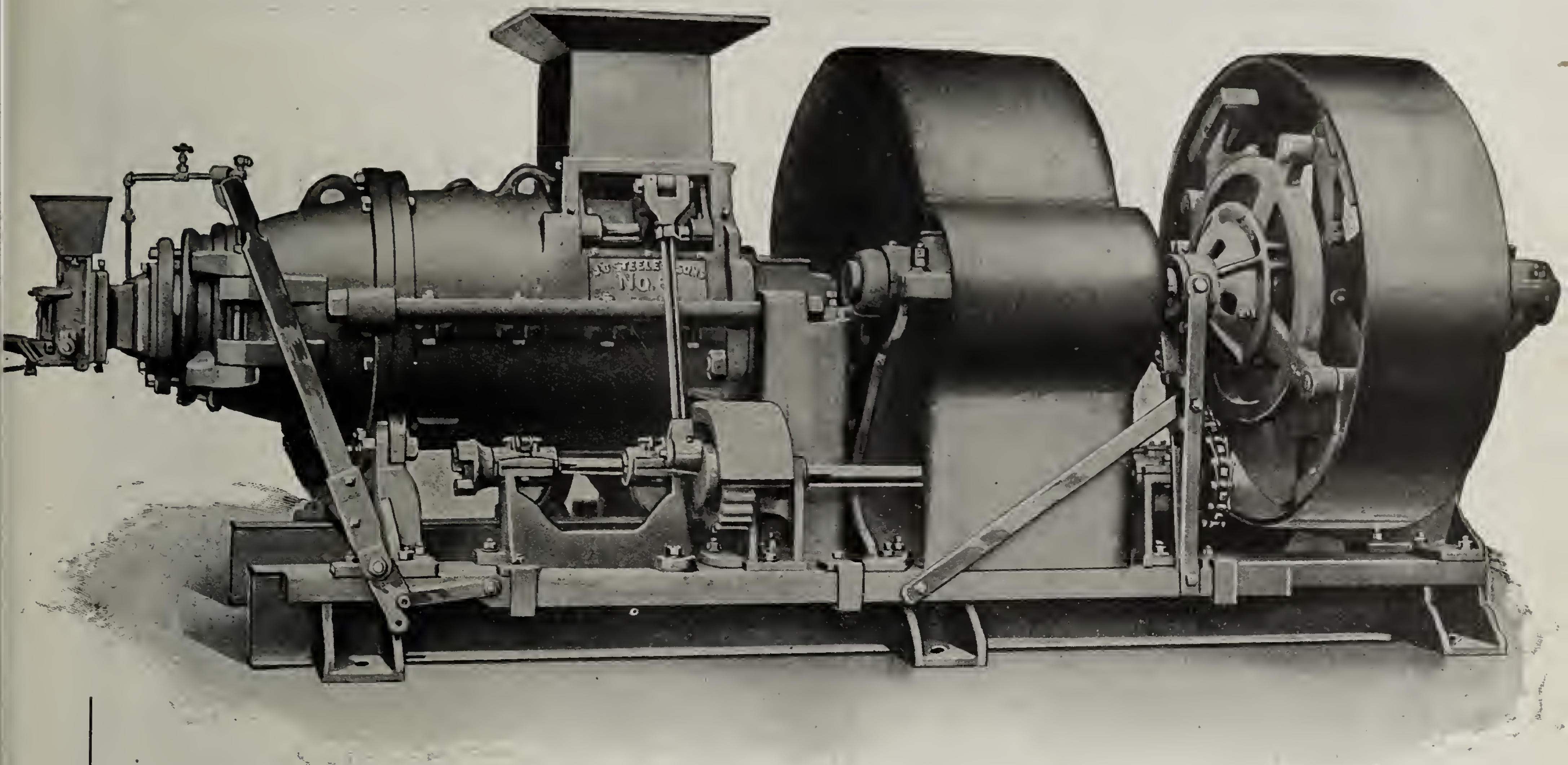
We will be glad to help you if you are having any kind of troubles.

We build the only End Cutter that will cut straight and on edge.

**J. C. STEELE & SONS, Statesville, N. C.**



STEELE'S END AND SIDE-CUT CUTTING TABLES.



## Steele No. 6 Brick Machine, Capacity 50,000 to 150,000

This machine has only two gears and four bearings—a reduction of three bearings, two gears, and one shaft, as compared with most machines of large size.

The bearings are very large—from 4½ inches x 15 inches to 9 inches x 18 inches.

The friction clutch pulley runs loose on a 7⅝ inches x 18 inches bearing. Clutch cast steel.

The gears are very large, thereby reducing tooth load and side strain on bearings to a minimum; therefore reducing power required, wear and tear to a minimum.

Gears are cut, pinion being steel. Housed and run in oil bath.

Thrust bearing of most approved design, in front of gear; end thrust cannot break frame. Outer end of auger shaft supported on out-board stand, thereby getting distance between bearings, and again reducing side strain and friction.

Sills are very heavy "I" beams with heavy channel for side strain.

Machine can be taken to pieces without elevating any part; will run equally well in either direction.

Cutter driving mechanism entirely separated from more important wearing parts, and get any speed in either direction.

A close examination will reveal many interesting points.

Approximate weight, 20,000 lbs. Power required, from fifty to eighty h. p., depending on clay and capacity desired.

Owing to the slow speed of the gears, the auger shaft can be run about one-third faster than usual, giving a corresponding greater capacity without undue wear and vibration.

This machine will appeal to large manufacturers, who almost invariably have had trouble with double geared machines, on account of excessive speed and tooth load, causing a jar that crystalizes the shafts, throws off grease and causes undue wear, breakage, noise and loss of power.

NOTE—The engine (or motor) speed and the auger shaft speed are fixed speeds, and the less driving mechanism between them, the less power will be required, etc.

**For further information address**

**J. C. STEELE & SONS**
**STATESVILLE, N. C.**

# Baird Pottery Molding Machine

New Size No. 0

The machine
is a hummer
when it comes
to making
small pieces
up to 3 in. x 3 in.

We also make
a number of
other sizes
with capacity
up to
12 in. x 12 in.

**We Guarantee Service.**

Correspondence solicited.

**Baird Machine & Mfg. Co.**

34-36 Jefferson Avenue Detroit, Mich.

# HOTEL STATLER

## DETROIT

Headquarters N. B. M. A. 29th
Annual Convention Feb. 15-20, 1915

400 rooms with shower bath at $1.50 and $2.00
400 rooms with both tub and shower at $2.50 to $6.00

COME TO
DETROIT

# Begin Reducing Costs at the Clay Pit

# USE A THEW—IT PAYS

**Type 0 Thew Shovel in J. W. Wells' Clay Pit, Chattanooga, Tenn.**

This shovel is loading clay for 100,000 brick daily.

One man on the shovel and one man on the ground the only men in the clay pit, as usual. The total cost of loading the clay and moving the cars to the foot of the incline is, in this case, less than six dollars. Can you afford to be without a THEW?

**Made in six sizes. Operated by steam or electricity of any commercial voltage.**

| | | | | |
|---|---|---|---|---|
| Type 0, | 18 Tons— ⅝ yd. dipper, | for ordinary clays; | capacity | 100,000 |
| Type A-1, | 24 Tons— ⅞ yd. dipper. | for ordinary clays; | capacity | 150,000 |
| Type 1, | 32 Tons—1⅜ yd. dipper, | for ordinary clays; | capacity | 200,000 |
| Type 2, | 35 Tons— ¾ yd. dipper, | for ordinary shales; | capacity | 125,000 |
| Type 3, | 40 Tons—1¾ yd. dipper, | for ordinary clays; | capacity | 250,000 |
| Type 4, | 55 Tons—1¼ yd. dipper, | for difficult shales; | capacity | 200,000 |

These outputs may be materially increased by the addition of a fireman and an extra laborer.

The Thew is the standard for the clayworker. 300 Plants now using Thews.

108 of these plants furnished accurate reports which reveal the average time their Thews have been in service to be 6⅓ years; the average daily capacity per plant 76,000; the average total pit cost including repairs 9⅘ cents per thousand brick.

Write for catalogue "B" and list of Thew owners near you.

## THE THEW AUTOMATIC SHOVEL CO.

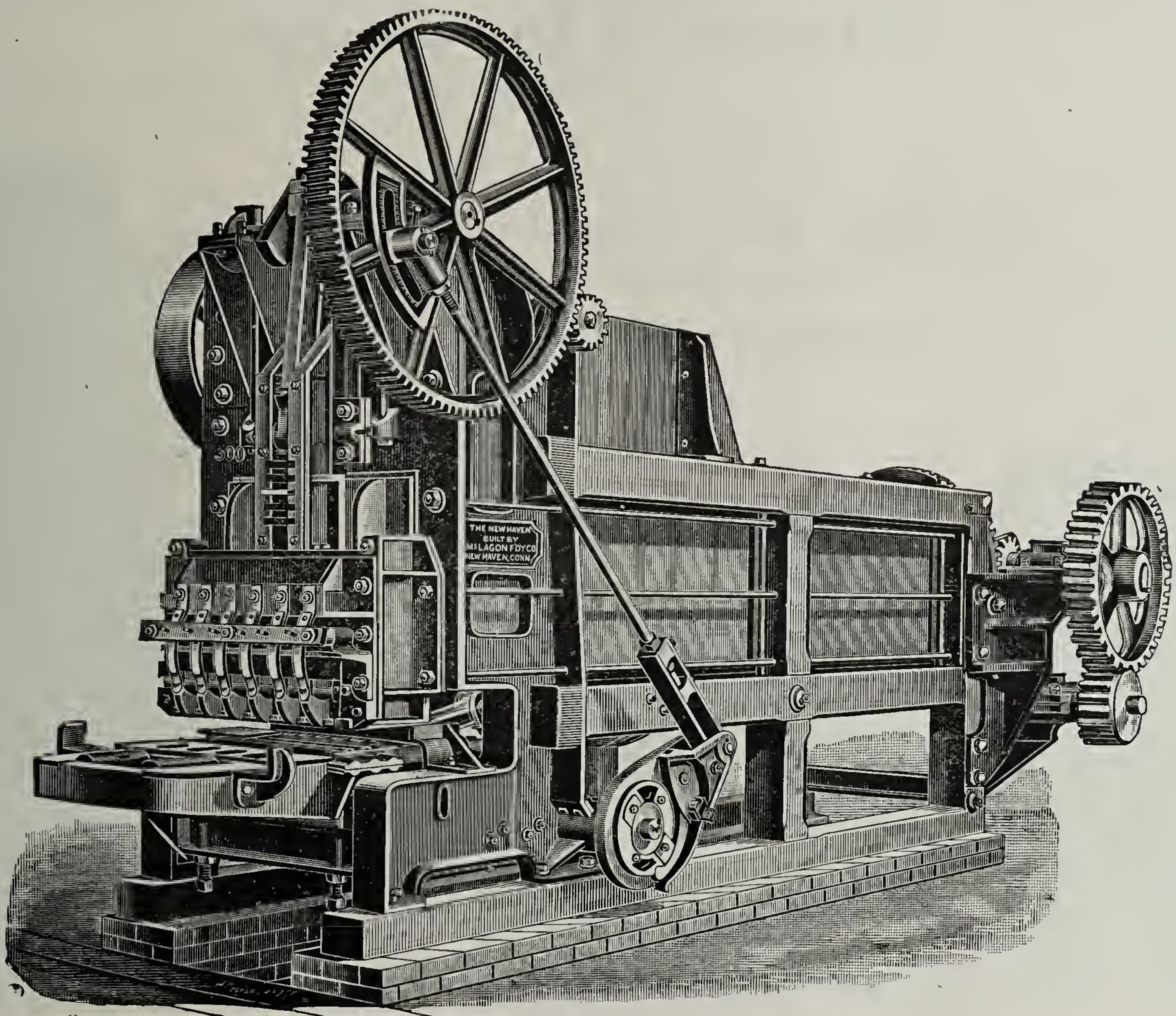
LORAIN, OHIO

# Soft Clay Brick Machines

Are the only kind we build, and it's our aim to build them well. They are the reliable kind, with great strength placed just where it is most required.

Stout shafts, long bearings, large oil holes, strong gears, steel liners and other details in proportion. They are the kind

*THAT DON'T BREAK DOWN EVERY DAY*



"NEW HAVEN" HORIZONTAL BRICK MACHINE.

## "New Haven" Brick Machines

Came into existence some twenty-six years ago, and they came to stay. They have staid so well and are so well liked at home that three-fourths of all the brick made in New England are the product of "NEW HAVEN" MACHINES. They excel everything and

**FOR HARD SERVICE ARE SURE TO SATISFY**

Where others fail. That is the reason all our machines are standing advertisements and why all our patrons recommend them. Such machines are worth investigating.

**The EASTERN MACHINERY CO.**

NEW HAVEN, CONN.

# TURN FAILURE INTO SUCCESS

## With The Wonder Machine.

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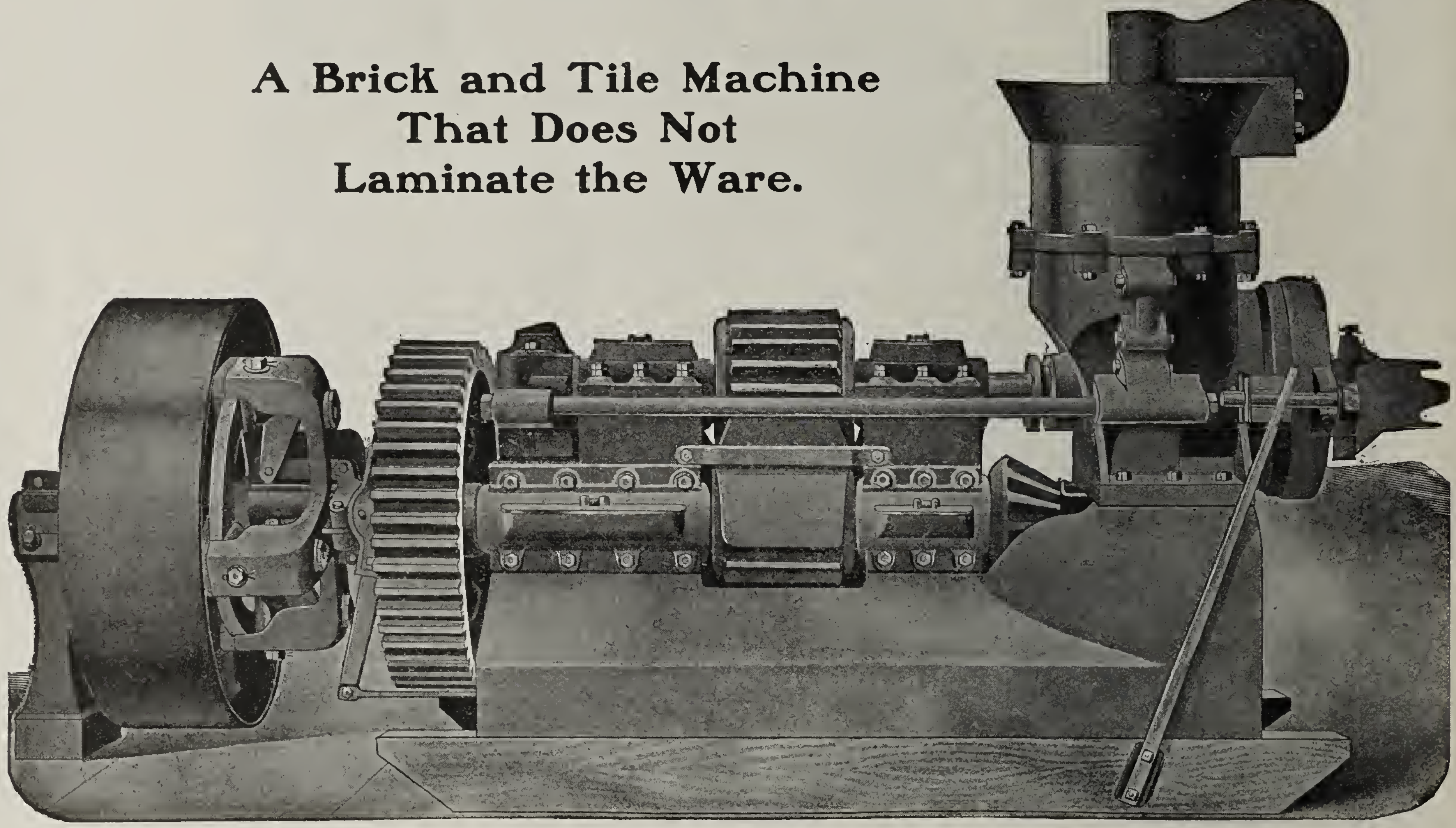
**A Machine of Large Capacity. Unequaled in Record of Durability.**

---

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

*Write for Catalog and Prices.*

# THE WALLACE MFG. CO.

**FRANKFORT, IND.**

# "A Man With a Message"---

## For the Brick Man

By this title was Floyd E. Waite heralded after his address at the joint convention of Face Brick Manufacturers and Dealers, held at French Lick December 8, 9 and 10, 1914.

Mr. Waite did not appear to the Clayworkers as a "wrecker," but as a "Builder." His talk was constructive.

Not only were the weaknesses and the mistakes in the business of promoting fire-resisting materials pointed out—a remedy was offered. And it is a perfectly practical, within-your-reach remedy, too.

A printed copy of this address FREE if you write for it. Read this vital message. It's YOUR business.

SAFE
PROTECT YOUR HOME

**Society Advocating Fire Elimination**

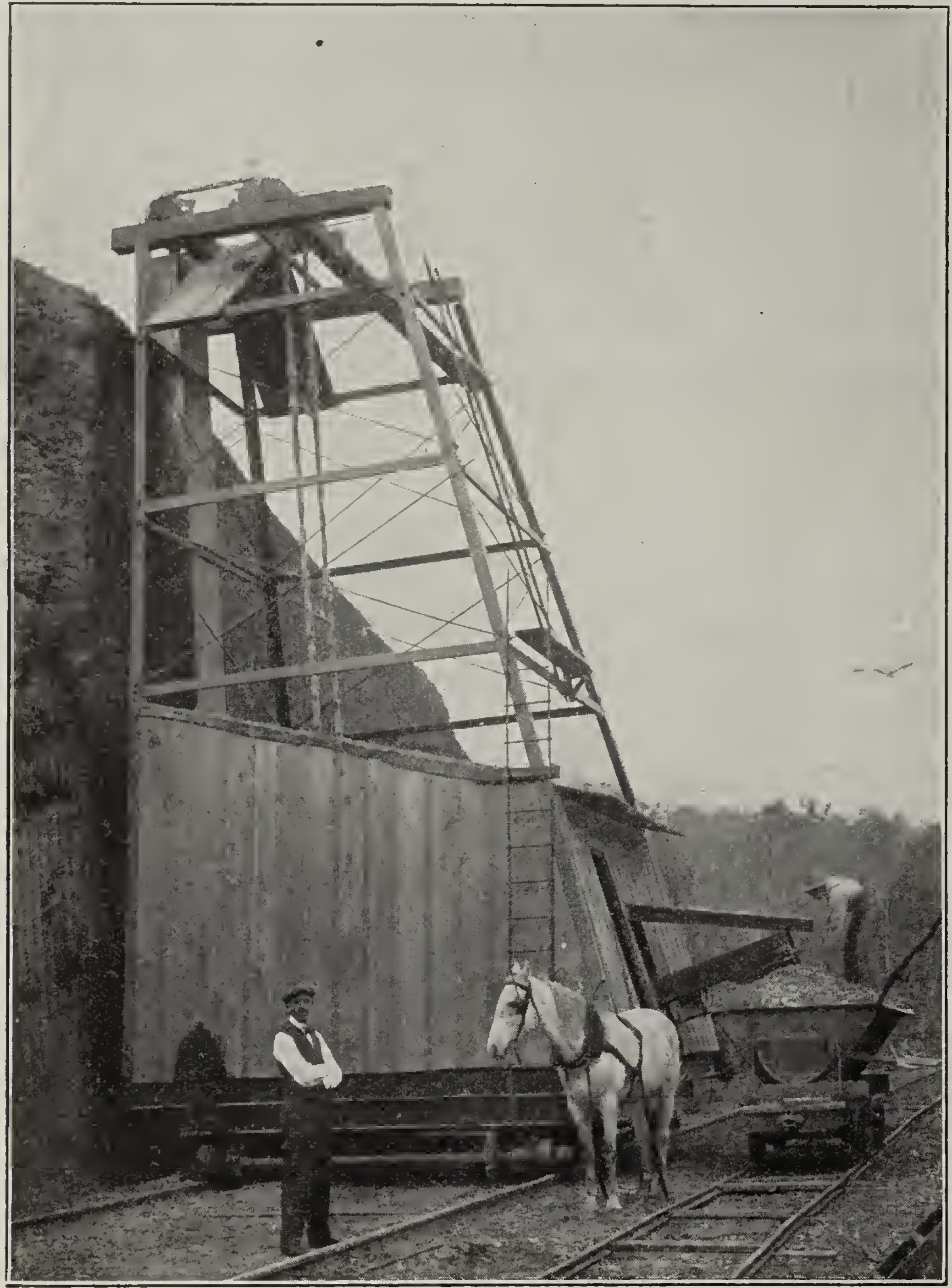
R. P. Stoddard, Secretary

340 Leader-News Building CLEVELAND, OHIO

# DIVIDENDS

## WILL SURELY BE THE REWARD OF THE COMPANIES WHO DECIDE TO INSTALL THE POWELL PATENTED SHALE PLANER.

These machines pay for themselves in a few months, and then pay big returns.



Coffeyville, Kansas, Feb. 26, 1914.

Arbuckle & Company,
Rushville, Indiana.

Gentlemen:

It has always been our motto, if we buy a machine and it proves satisfactory to let the parties from whom we bought it, know it. If it does not prove good and is not satisfactory, we generally let them know it also, in either case it ought to benefit the parties producing the machine.

In the matter of the Powell Shale Planer which you installed for us some six or eight months ago, we are pleased to give the following report:

We have used this Planer almost continuously since it was installed and believe we can safely say the Powell Shale Planer is revolutionizing the manner of "getting up" shale. Our shale is rather harder than the average shale used for brick and tile.

One man handles the machine and has no difficulty in providing 100 tons of shale per day. We are using a General Electric Motor, which furnishes us plenty of power.

Shale gotten up with this Planer is nearly half ground, so that the grinding capacity does not need to be near as large as though it was brought in in the regular way, neither is it near so hard on a Dry Pan as very few pieces go into the pan larger than an ordinary size tea cup. We are using one man at the Planer, one man at the Pan, and we count half a man at the hoist (the hoist man puts in half his time at other work). If you wish to refer anyone to us as to the good qualities of this machine you are at perfect liberty to do so.

Very respectfully yours,

THE DENISON CLAY CO.
J. F. Denison, President.

Aside from the remarkable saving in labor cost, don't overlook the advantage of a **finely cut up and perfectly mixed** Shale or Clay.

Don't put off equipping your plant with this machine.

Delay means more useless waste.

The Powell **Patented** Shale and Clay Planer is an investment of assured Dividends.

ARBUCKLE & CO. BUILT FOR SERVICE CLAY WORKING MACHINERY

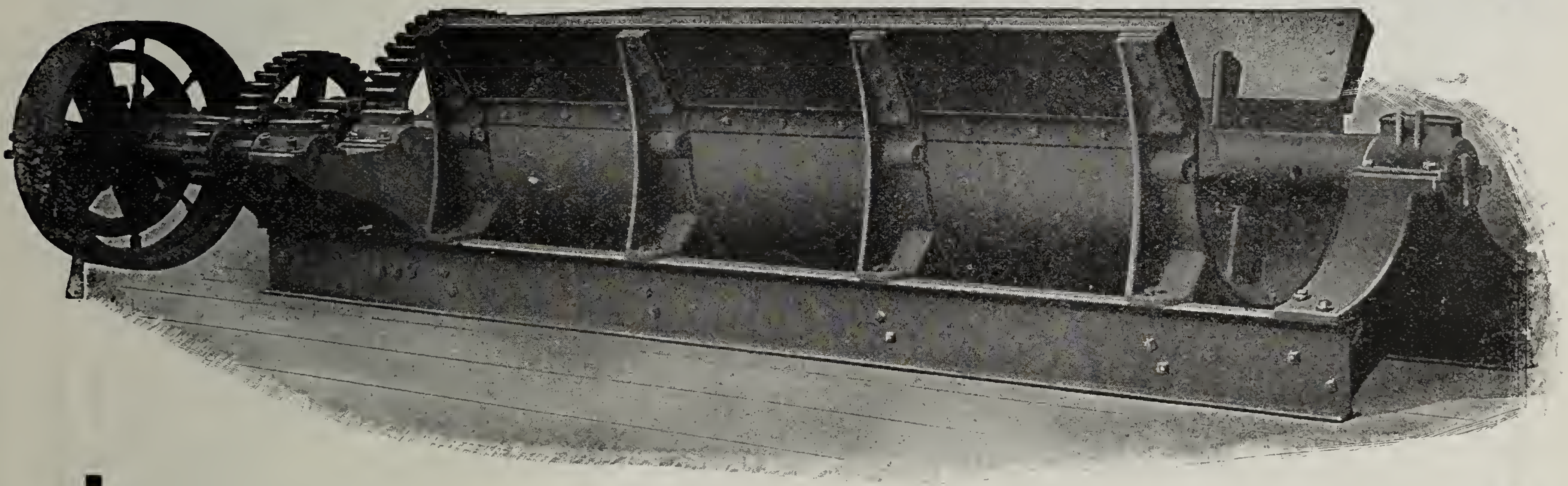
# ARBUCKLE & COMPANY

## RUSHVILLE, = INDIANA

IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD

# GRANULATORS

Too many plants are running without Granulators, but it isn't our fault. We have them in large, small and medium sizes, spur and bevel geared drives, pushing and pulling patterns. A Granulator to suit every plant. Something into which you may dump a carload of clay, and from which you may get a uniform delivery with large lumps reduced to a size which the machine ahead can handle.



## THE BREWER NO. 17

is a spur-geared pushing granulator of the large size. It weighs 18,000 pounds. The tub is 12 feet long. The granulating shaft is 10 in. diameter. The knives (48 of them) are forged from hard, high-carbon steel, and each one is independently adjustable for pitch. The back thrust bearing is of the grooved marine pattern. The main gears are 8-in. face, semi-steel. It is big and strong enough for anybody.

The smaller sizes range down in weight to 5,000 pounds.

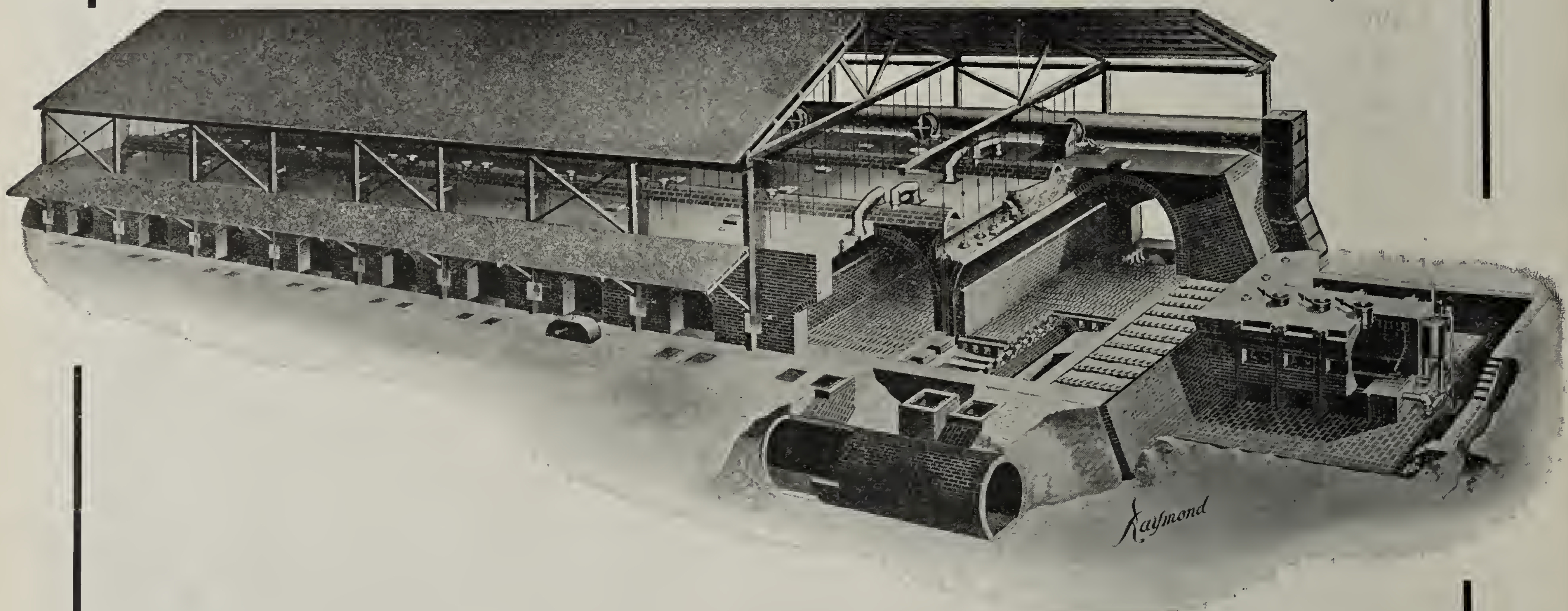
**See our catalog for details and specifications.**

**It will be mailed upon receipt of your request.**

**H. BREWER & COMPANY, Tecumseh, Mich.**

# START THE NEW YEAR

## BY CUTTING YOUR FUEL BILL



**The Raymond Producer Gas Fired Continuous Kiln**

It's use enables you to put the coal savings into your own pockets. It makes better brick, thus more profits than you have thought possible. Start the New Year by improving your burning. Wouldn't you like to burn better brick, if possible, than your competitor across the way? You can by using our Producer Gas Fired Continuous Kiln. Write for information regarding the actions of our kilns in other brick plants.

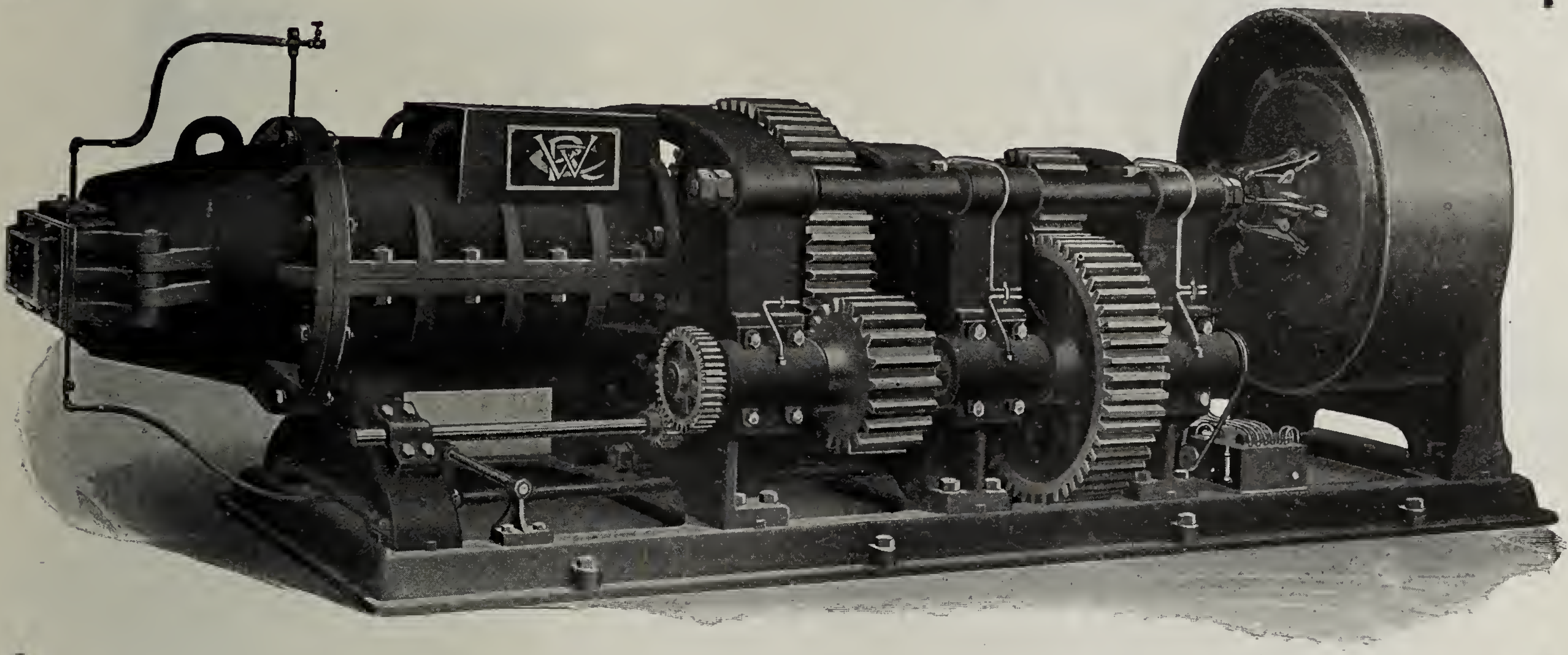
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# A PROSPEROUS YEAR

## IS BEFORE YOU IF YOU'D BUY



### THE RAYMOND "CWR" BRICK MACHINE

Prosperity is built right in this machine. What it is doing for others, it will do for you. If you have dreams of future prosperity, start now to realize them. You have everything to gain and nothing to lose by writing to us now, for the facts about this, the most wonderful brick machine, to which none can compare in strength, output and longevity, and practically no repairs, with the utmost efficiency.

---

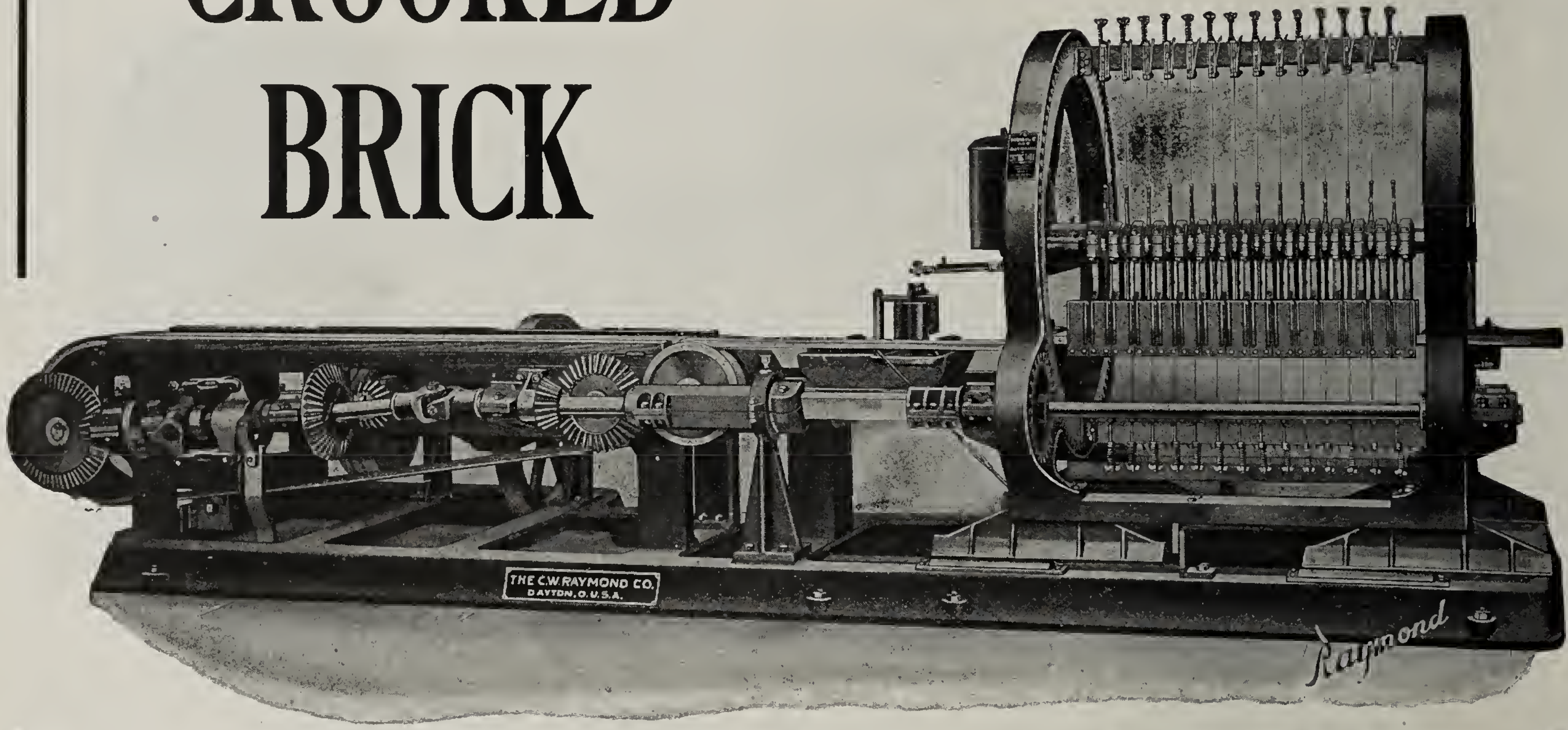
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# HAS YET TO CUT

# CROOKED
# BRICK



## The Raymond "Mobile No. 4" Automatic Side Cutter

There are lots of Cutters on the market that may cut straight brick, but—will they always cut straight brick and at all speeds? There is where the Mobile No. 4 forges ahead.

The action of the Cutter is a downward shear movement, cutting absolute straight edges and in case a wire breaks, another can be put on without stoppage of the Cutter. The cutting reel moves in unison with the clay bar while the wires are cutting, thus eliminating all lost motion. The clay bar is lubricated thoroughly and carefully supported by a sliding oil reservoir. This Cutter cuts straight brick just as well, turning out 20,000 as it does 100,000 a day. It is truly "automatic."

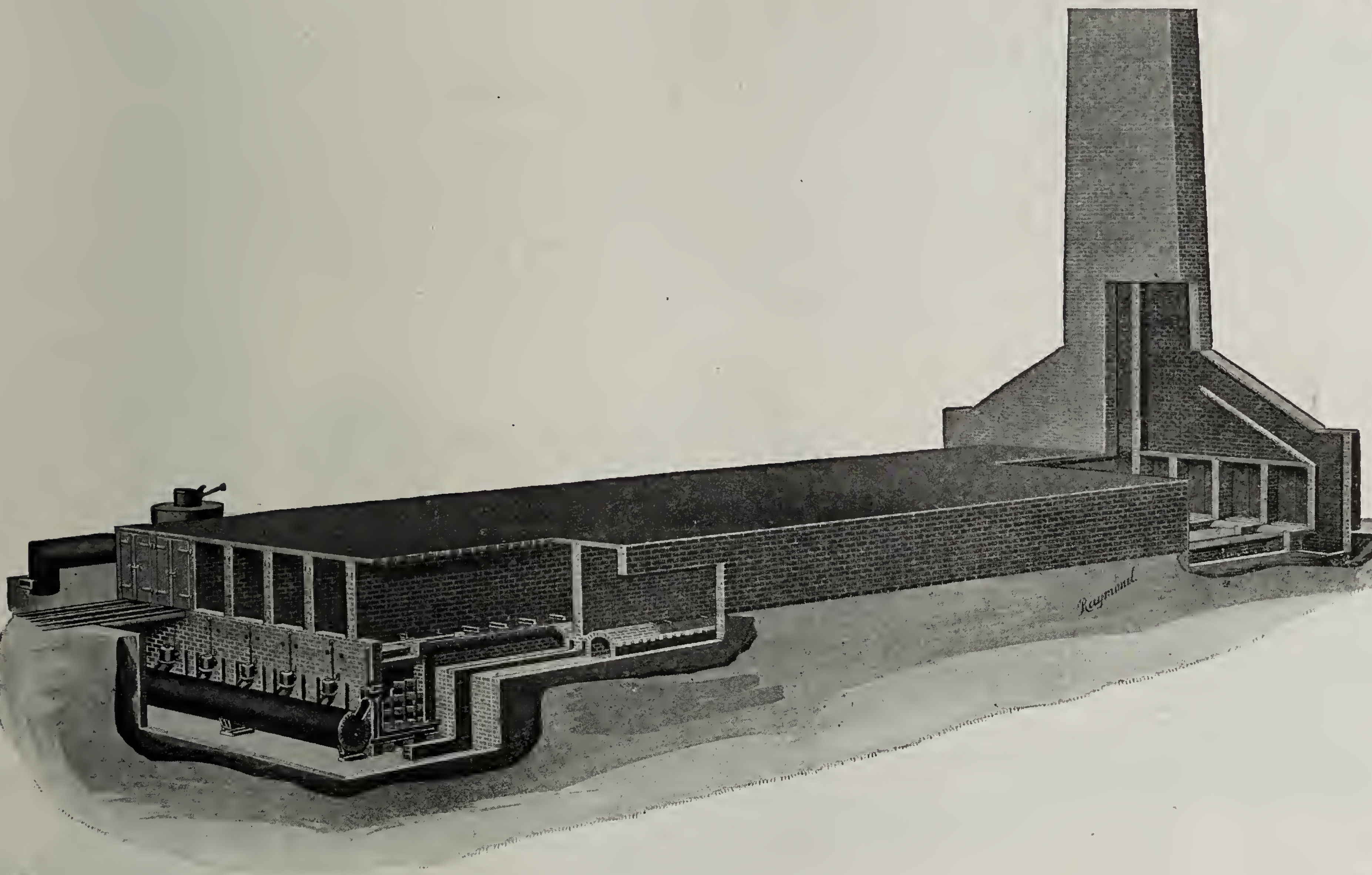
If you decide you are interested in future dividends write to us.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# BEST RESULTS—— ——LOWEST EXPENSE



## The Raymond Producer Gas Fired Metallic Radiation Dryer

To get maximum results with minimum expense is the object of today's business man. If our Dryers were used in other lines of business instead of brick only, we could not meet the demands, but as it is they are going fast. But don't take that as an indication that we cannot furnish you, because you need the Producer Gas Dryer. It's saving over present systems should net you the original cost of our equipment in a year's time. Again, the products of combustion do not touch the drying ware.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

See ads on pages 10 and 11.

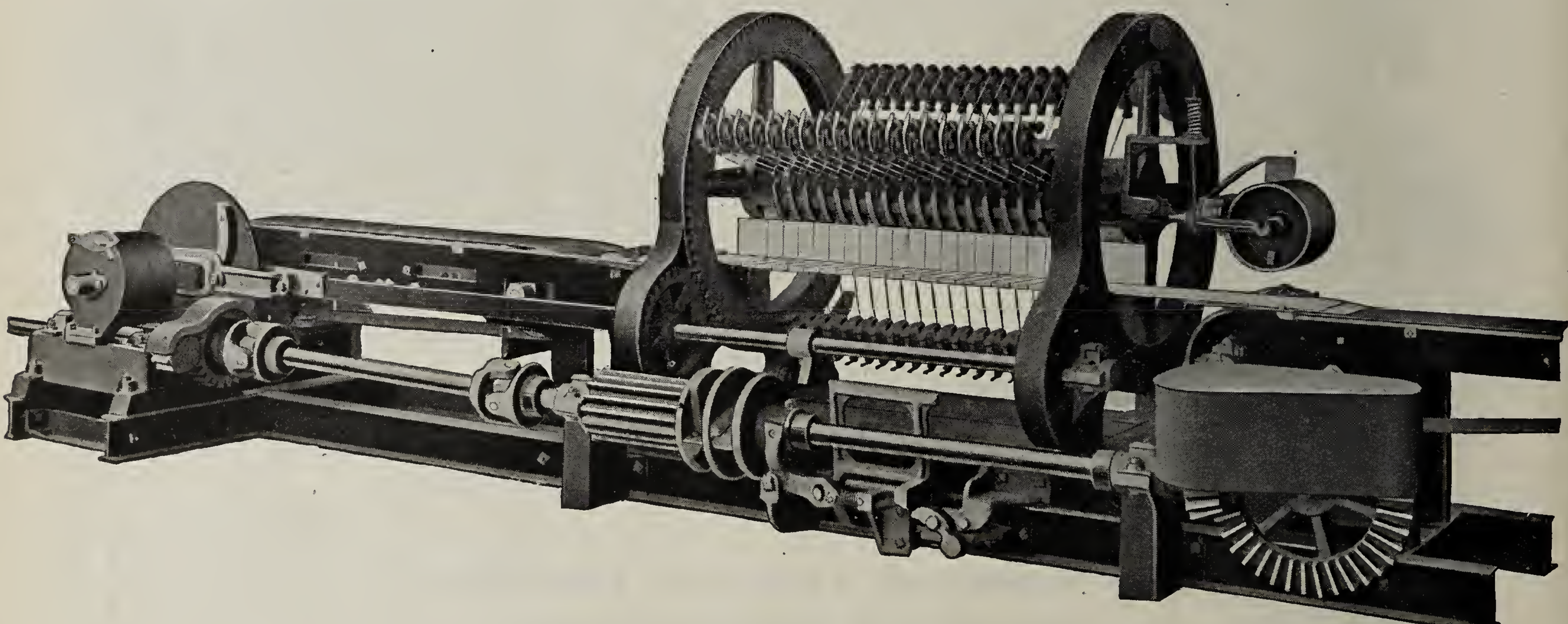
# DOLLARS AND SENSE

If an investment of a thousand dollars netted you a hundred dollars a year—10%—wouldn't you consider it a GOOD investment? Wouldn't you think it advisable—good business sense—to make such an investment if you had the opportunity?

If you're using a cutter that cuts crooked, misses cuts, or frequently runs wild; one that necessitates continuous repairing; or one that requires the constant attention of an attendant, you have that opportunity.

For a cutter with positive, never-miss mechanism—one that sends all of your clay column into the dryer—means a saving of power and repairs, and—still more important—it means a dependable output of perfect brick.

And these are worth more than a hundred dollars to you.



**Model C 20 Rotating Automatic Cutter**

Don't select a cutter from engravings or photographs—Find out what it does and how it acts under working conditions. Write or visit men who use them and know. We'll gladly send you the names of a dozen users of the Freese Cutters in your immediate vicinity.

---

## E. M. FREESE & COMPANY, 140 South St., Galion, Ohio

**Dependable Machinery of Proven Efficiency**

For
Sixty-Three
Years
The Name

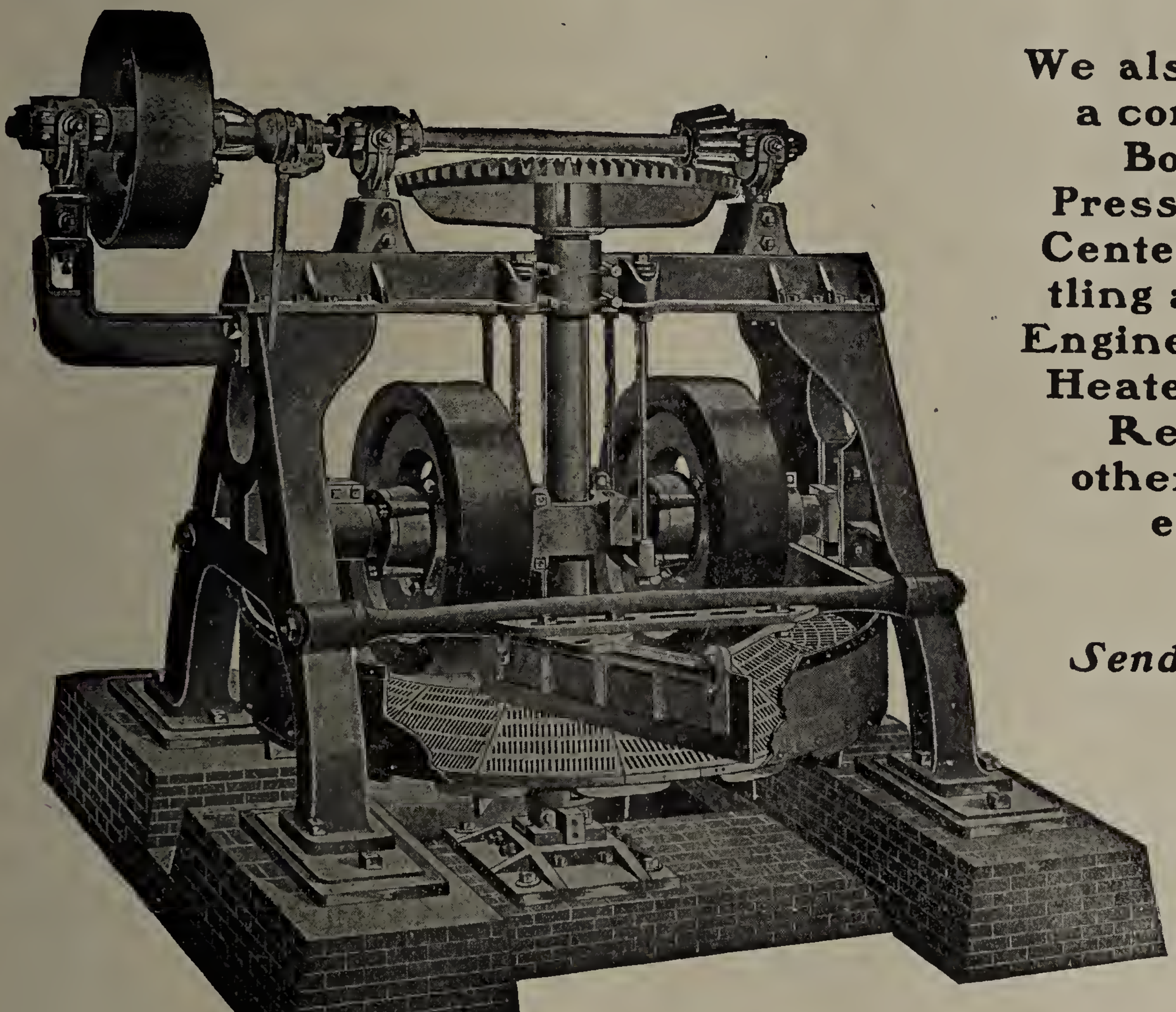
# Frost

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.

**WHY!** Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.



We also manufacture
a complete line of
Boilers for all
Pressures, Side and
Center Crank Throttling and Automatic
Engines, Feed Water
Heaters, Tanks, Air
Receivers and
other power plant
equipment.

---

*Send for Bulletins.*

## The Frost Manufacturing Co.

Works at
GALESBURG, ILL.

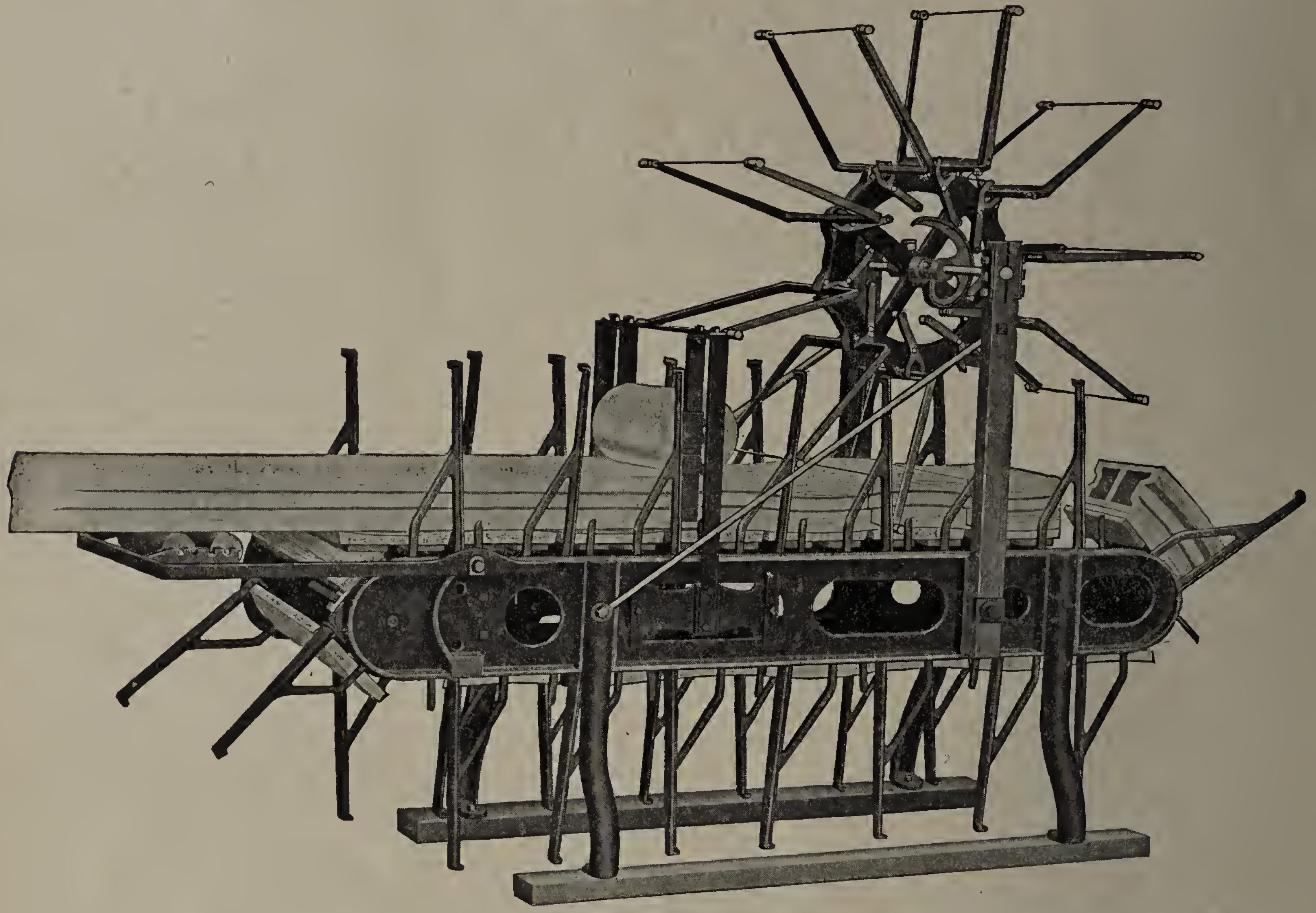
Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

**The Fate Quality**

*Quality hinges on two things—mechanical perfection and the best material.*

THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



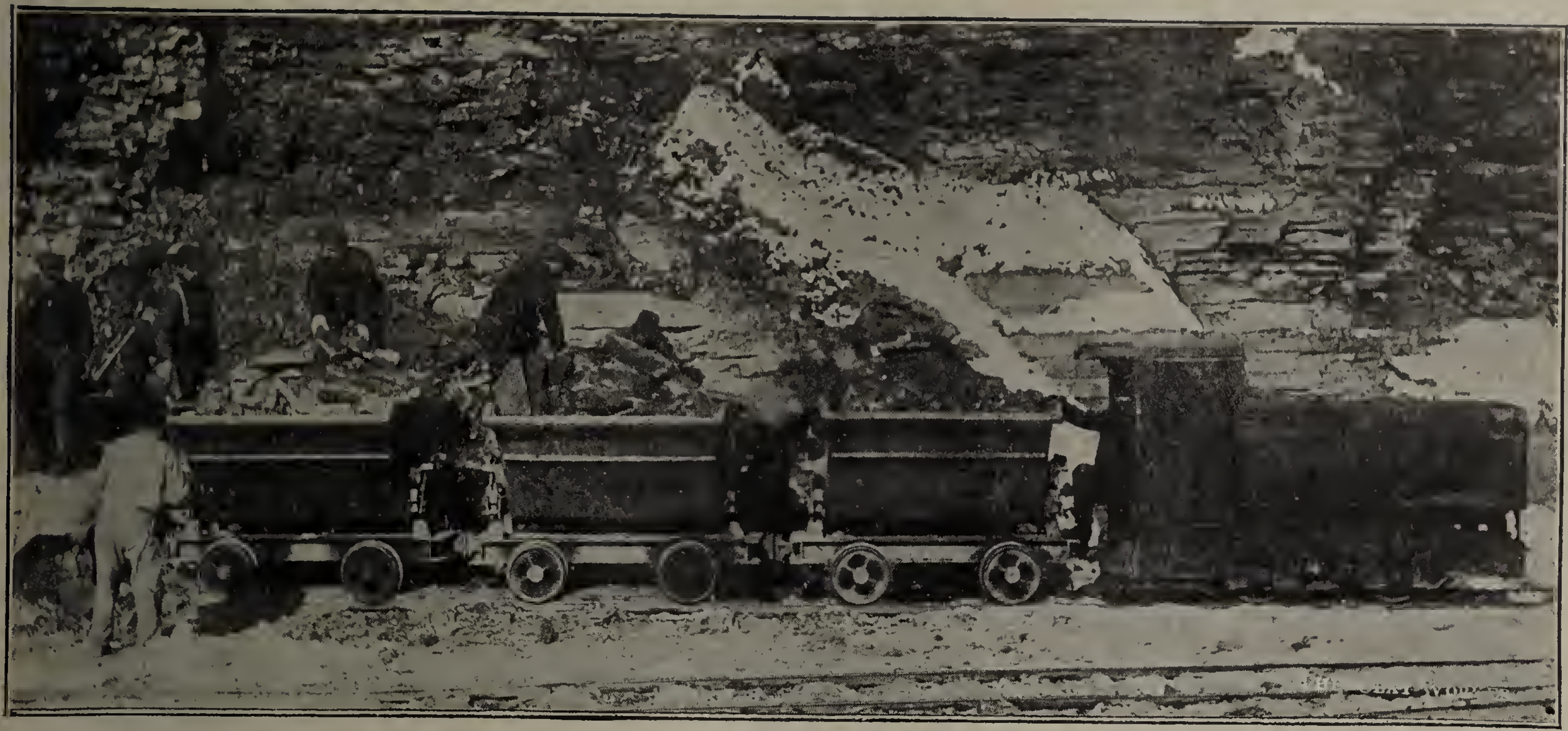
AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

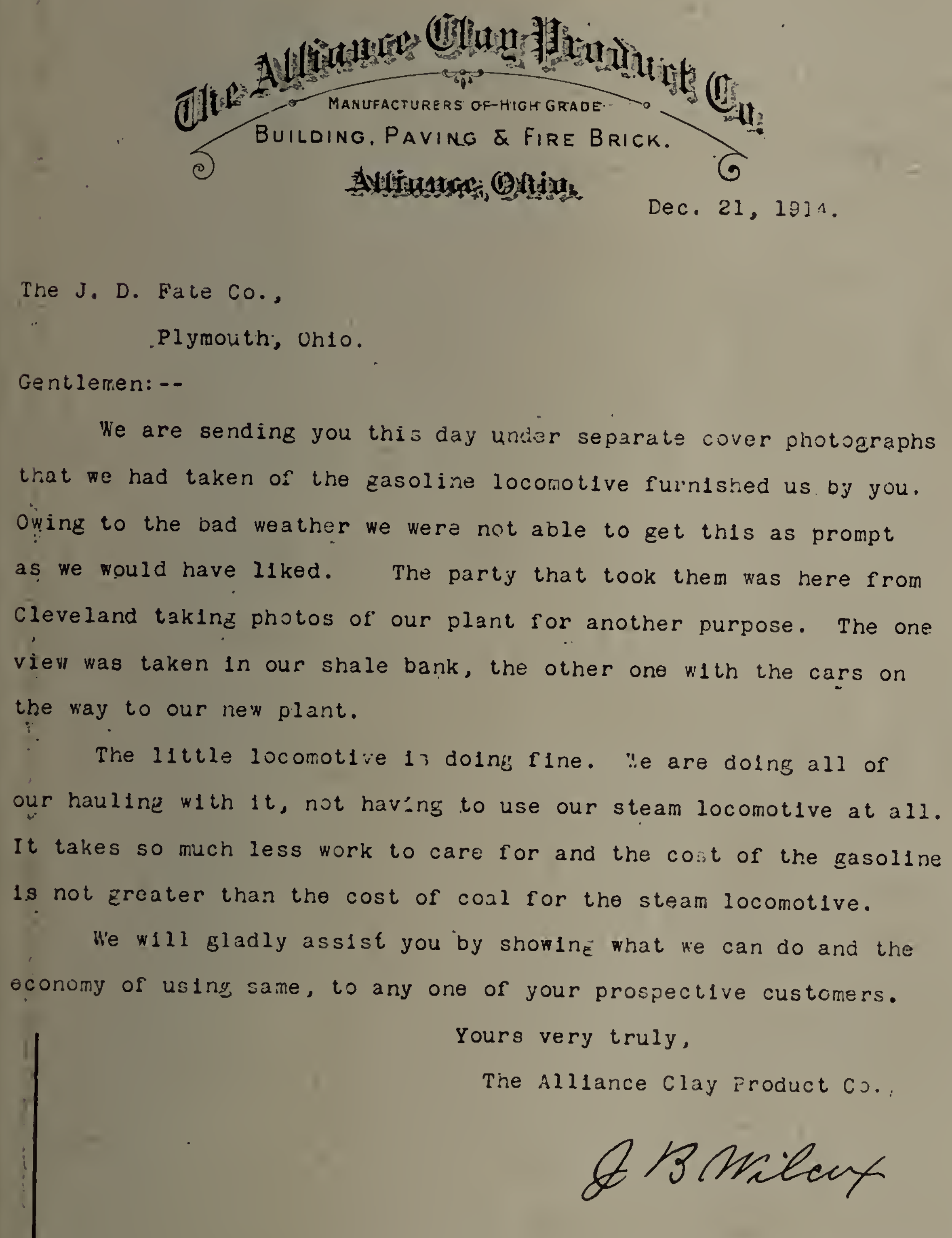
After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

**The J. D. Fate Company**
**Plymouth, Ohio**
Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O



The Alliance Clay Product Co.
MANUFACTURERS OF HIGH GRADE
BUILDING, PAVING & FIRE BRICK.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
Plymouth, Ohio.

Gentlemen:--

We are sending you this day under separate cover photographs that we had taken of the gasoline locomotive furnished us by you. Owing to the bad weather we were not able to get this as prompt as we would have liked. The party that took them was here from Cleveland taking photos of our plant for another purpose. The one view was taken in our shale bank, the other one with the cars on the way to our new plant.

The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers.

Yours very truly,
The Alliance Clay Product Co.,
J B Wilcox

The "PLYMOUTH"
is the
IDEAL HAULAGE
for CLAY PLANTS.

Efficient, Economical to Operate, Low in Price and Low in Upkeep.

Any Speed—Forward or Backward—Power Equal in Both Directions.

No Licensed Engineer Required.

Eats Only When it Works.

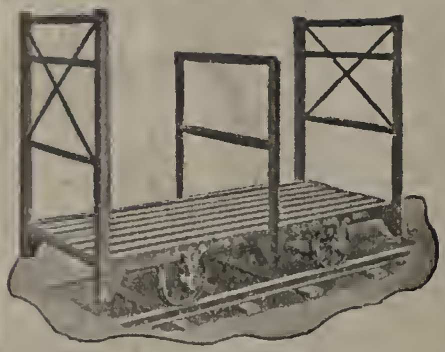
Continental 4-Cylinder Motor, Bosch High Tension Magneto, Schebler Carburetor, Hyatt Roller and New Departure Ball Bearings—Power, Brakes and Sand on all 4 wheels, and all parts very accessible. Any Gauge, 20-inch to Standard.

Let us tell you more about them, and how an 8-year old boy operates one in a clay plant at Morrisonville, Ill.

The J. D. FATE CO.

Eastern Office, Woolworth Bldg., New York City
Western Office, Blake-McFall Bldg., Portland, Ore.

See pages 94 and 95 for other ads.

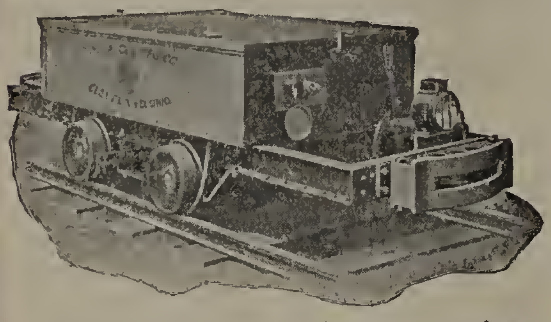


REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

No. 1205
Triple Deck Dryer Car supplied with or without decks of wood or steel.

Rocker Side Dump Car
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives



Storage Battery Locomotive for general use.

will meet your requirements: Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

**MOLDS MOLDS MOLDS**

**Of Every Description**

Machine and Hand Brick Molds
Built of Air Dried Stock.

You can't buy a better brick mold.
The price is reasonably low.

I have made a lifetime study of the manufacture and sale of brick molds.

Write for catalog and detailed information.

**JAMES W. HENSLEY**
Successor to
S. K. Fletcher
**Indianapolis, Ind.**

**"LAKEWOOD LINE CARS"**

LAKEWOOD NO. 166.

**Dryer Cars**
**Rack Cars**
**Dump Cars**

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Company**
*(Formerly The Ohio Ceramic Engineering Co.)*
**CLEVELAND, OHIO**
Chicago: 555 W. Quincy St.
Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802

L

OF THE
UNIVERSITY OF ILLINOIS
[illegible] FEB 1915

FEBRUARY, 1915

# THE CLAY-WORKER

A Moderate Price Hy Tex Brick Bungalow

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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BUYERS' READY REFERENCE LIST
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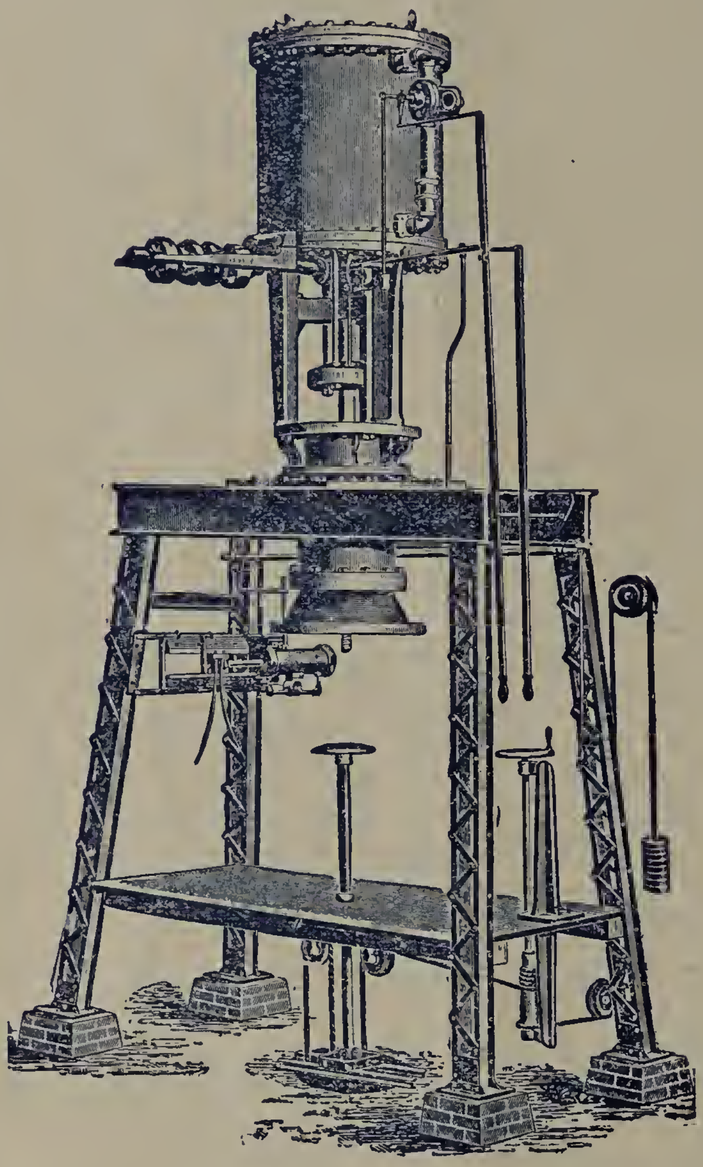
Page 263

Ask for a Sewer Pipe Press, Dry or Wet Pan, or other Clayworking Machinery, and there is NO TELLING WHAT YOU WILL GET.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

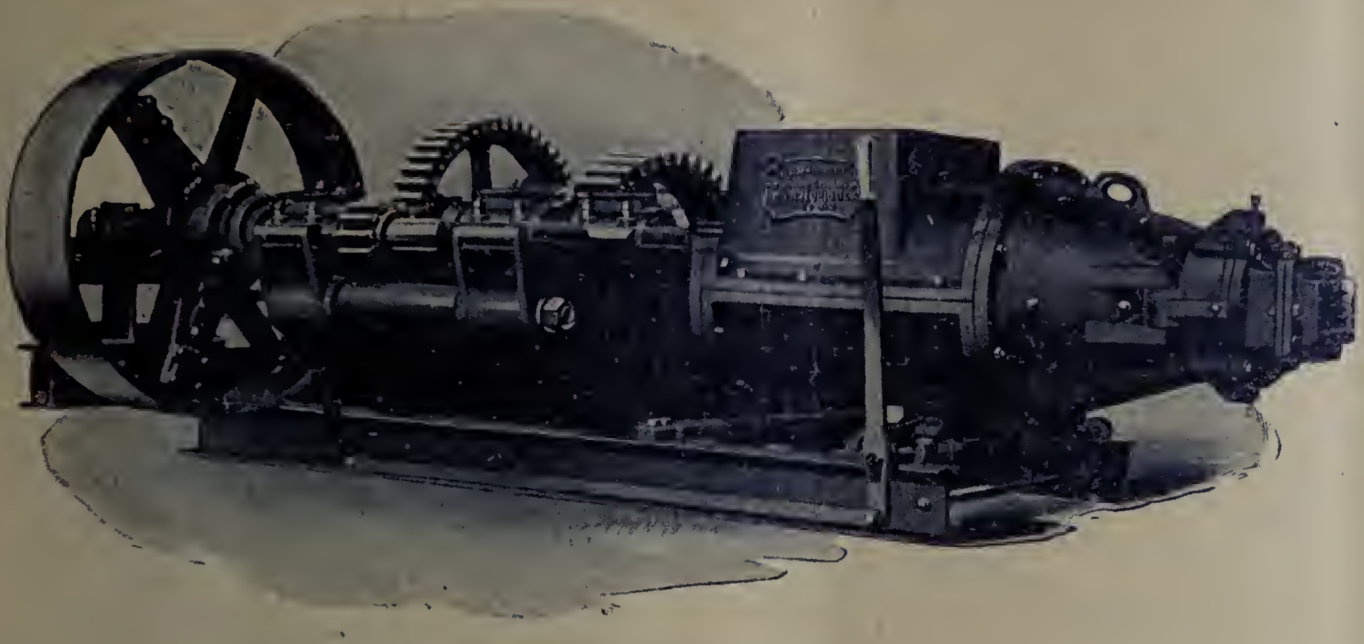
Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

---

## THE TAPLIN, RICE-CLERKIN CO.

**Akron, Ohio**

The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.



**Read the Experience of a Well-known Manufacturer of High-grade Face Brick.**

**Uses Three of Our Rotary Automatic Cutters and Three Brick Machines.**

The Bonnot Co.,
City.

Canton, Ohio, Oct. 23, 1914.

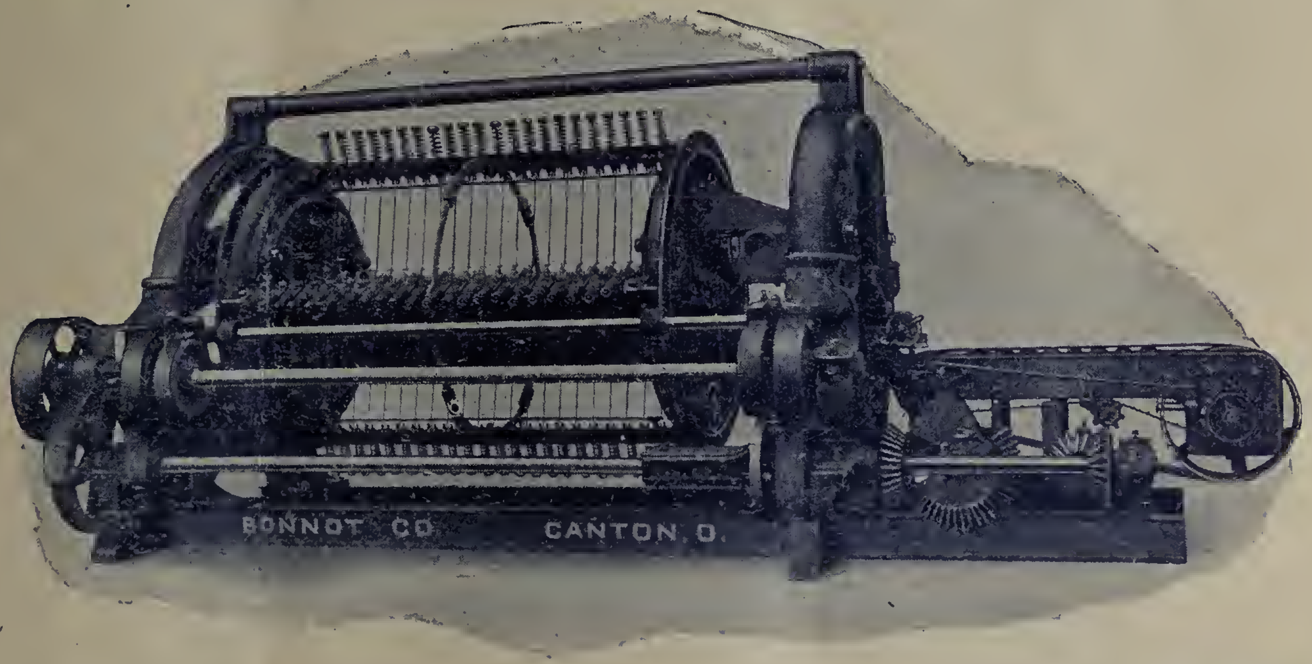
Gentlemen—After having operated practically all makes of machinery, five years ago we decided to standardize the equipment in our plants and have so far installed three of your Rotary Automatic Cutters, two No. 10 Brick Machines, and one No. 14 Combined Brick Machine and Pug-Mill, two Double-Geared Pug-Mills, two 9-ft. Dry Pans and three Piano Wire Screens. As our old equipment wears out we expect, if the pleasant relationship that has existed to date continues, to install your machines, as we feel they represent the best values available.

At any time that you desire to show interested parties any of the equipment in our plants you are at liberty to do so.

Sincerely yours,
THE BELDEN BRICK CO.,
(Signed) P. B. Belden, Gen. Mgr.

**A Reliable, Smooth-working and Satisfactory Automatic Cutter.**

**No. 20 Catalog Describes the Complete Line.**



CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

**THE BONNOT COMPANY**

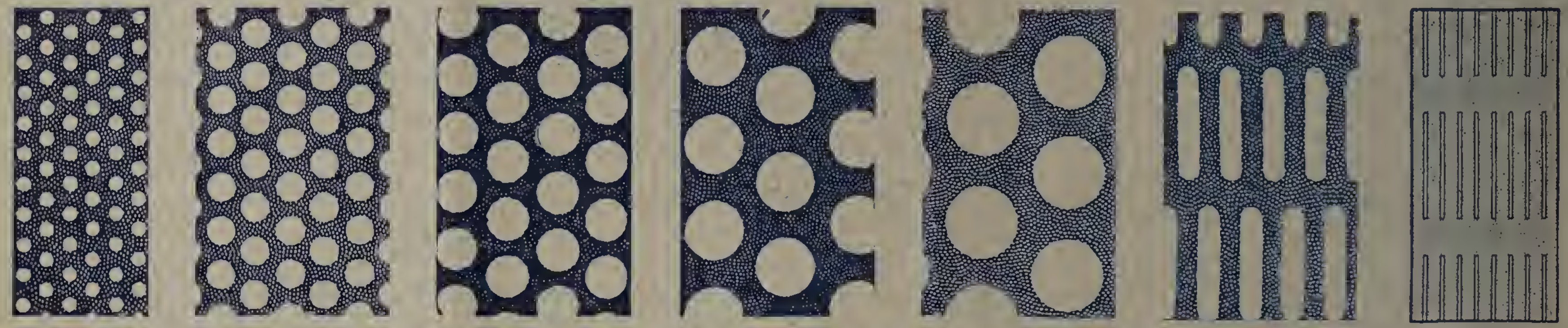
909 N. Y. Life Bldg., KANSAS CITY, MO.
211 Higgins Bldg., LOS ANGELES, CAL.
CANTON, OHIO

CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

PERFORATED STEEL SCREENS

FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

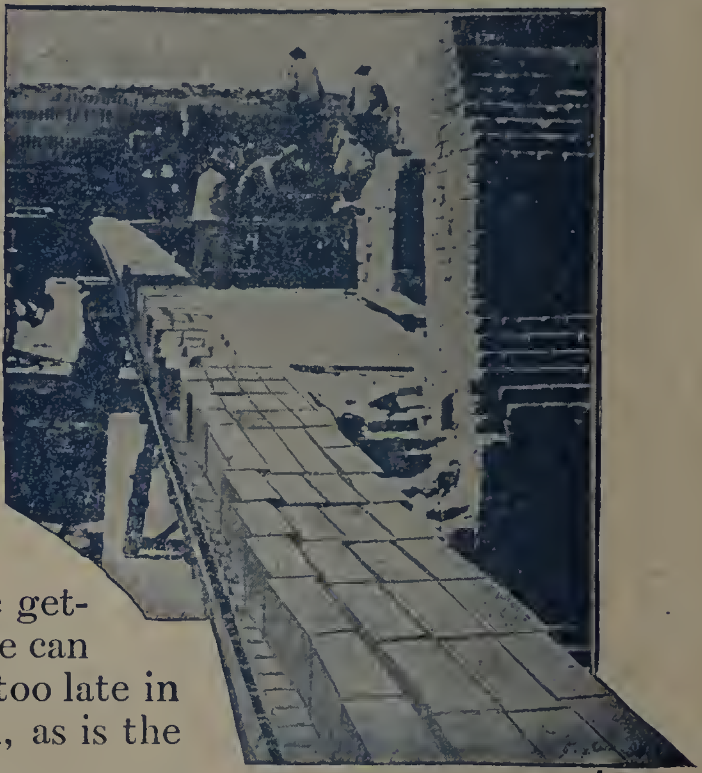
NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

A Steady Stream of Brick From Kilns to Cars.

**The Mathews Patented Gravity Brick Conveyer Doubles the capacity of every man in your Car-Loading Crew.**

A Mathews Gravity Brick Loading System will prove its full worth when the rush orders commence to come in. Then you will wish you had taken the time early in the spring to get together with us to study out your problems. Right now we know there are many brick men who will not attempt to handle their brick another year with wheelbarrows. Every day we are getting letters from manufacturers who are anxious to know what we can do for them. There are a great many others who will wake up too late in the season for us to help them, as is the case every year.



*Our Expert is at your service.*

Catalog and Detail Information sent on request. We will not be able to fill orders quickly late in the season.

SPEED
THE MATHEWS WAY
MATHEWS GRAVITY CARRIER COMPANY
THE SAVING WAY
ECONOMY

MAIN OFFICE AND FACTORY
ELLWOOD CITY, PENN.

BRANCH FACTORIES:
TORONTO, ONT.
LONDON, ENG.

RODGERS

**THE ENEMY OF YOUR PRODUCT---**

the moisture in your clay---is an enemy whose vanquishment must be complete before peace can be declared.

If you're fighting single handed, and the fight seems to be going against you, better arrange an alliance.

RODGERS WASTE HEAT DRYERS

are widely known as the ablest allies in combating this particular enemy---moisture. The list of battles fought and won, by means of their assistance, is a very long and constantly increasing one. A visit to any of the battlefields will prove interesting, as well as instructive, and convince any "doubting Thomas" of their ability to fight moisture and fight to victory.

If you're losing, secure an ally and together down

THE ENEMY OF YOUR PRODUCT.

---

**L. E. RODGERS ENGINEERING CO.**

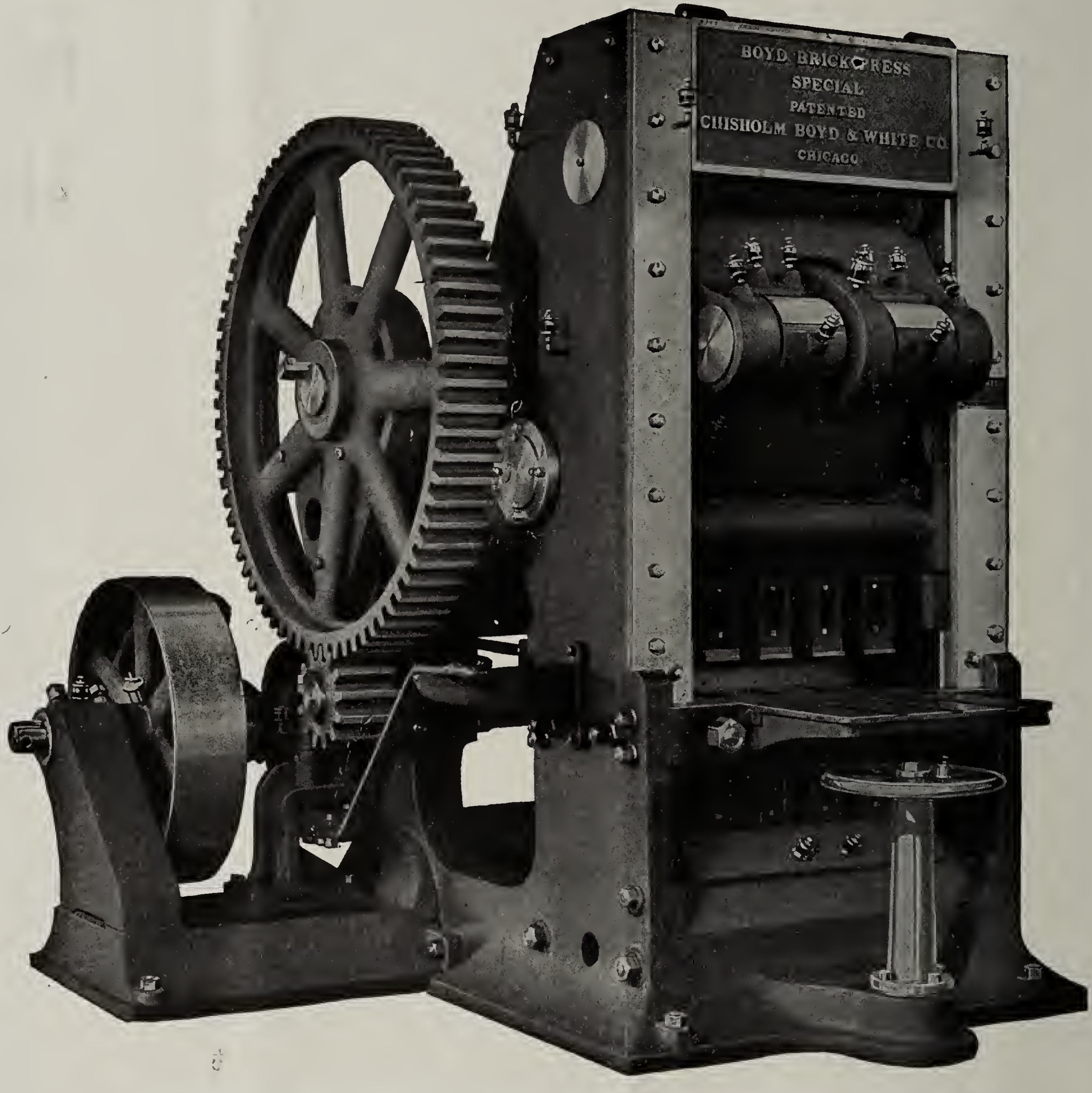
Waste Heat Dryer Specialists
Brick Works Engineers

Largest Manufacturers of Brick Drying Equipment in the United States
30 North LaSalle St. .:. .:. CHICAGO

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED=PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

### Ammeters.
TheBrown Instrument Co.

### Analysists and Chemists.
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Automatic Clay Bin Emptier.
Fate Co., The J. D.
Raymond Co., The C. W.

### Automatic Cutting Tables.
(See Cutting Tables.)

### Barrows and Trucks.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Barytes, Carbonate of
Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

### Bearings, Roller.
(See Supplies.)

### Belting.
Gandy Belting Co.
Sawyer Belting Co.

### Belt Conveyors.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Blowers.
American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

### Brick (Building).
Bloomfield Clay Co.
Hydraulic Press Brick Co.
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.
American Clay Machinery Co.
Mathews Gravity Carrier Co.

### Brick and Tile Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.
Wellington Machine Co.

### Brick Machines (Stiff Mud.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press.)
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

### Brick Recutter.
Raymond Co., The C. W.

### Brick Setting Machinery.
American Clay Machinery Co.

### Buffing Machinery.
American Clay Machinery Co.

### Burning and Drying Systems.
American Blower Company.
Boss, John C.
Buhrer, Jacob.
Dennis, F. W.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
National Dry Kiln Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

### Cars.
(See Dryer and Dumping Cars.)

### Castings.
Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.
American Pulverizer Co.
Arbuckle & Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Clays.
Bloomfield Clay Co., The.

### Clay Dryers.
American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.
Stevenson Co., The.

### Clay Gatherers.
(See Scrapers.)

### Clay Steamers.
Raymond Co., The C. W.

### Clay Technologists.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.
(See Supplies.)

### Coloring Materials.
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.
Orton, Edward, Jr.

### Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick and Tile.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

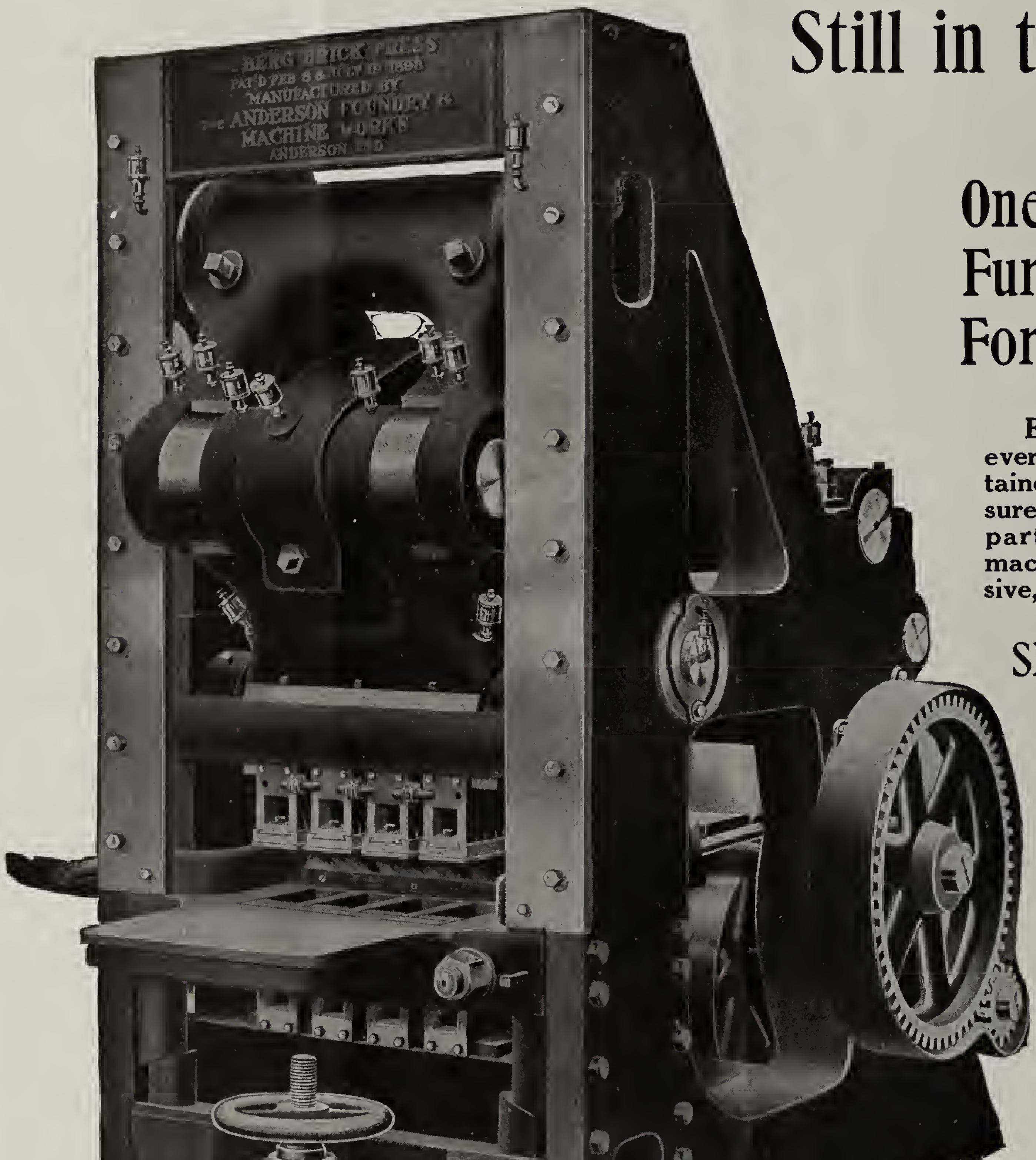
### Dryers.
American Blower Company.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co., H.
National Dryer Company.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
National Dryer Company.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.

(Continued on page 153.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

**SHIPPED IN ONE PIECE.**

All Machines Are Equipped With

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Standard Dry Kiln Co., The.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

### Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

### Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wellington Machine Co.

### Electric Instruments.

Brown Instrument Co., The.

### Electric Shovels.

Thew Automatic Shovel Co.

### Electrical Furnaces.

Brown Instrument Co., The.
Richardson-Lovejoy Engr. Co.

### Electrical Locomotives.

Atlas Car & Mfg. Co.

### Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

### Elevating Equipment.

(See Conveyors.)

### Engines.

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

### Engineers.

Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

### Fans.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Filler (Paving).

Barrett Mfg. Co.

### Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

### Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

### Fire Clay.

Bloomfield Clay Co.

### Floor Tile.

Chicago Ret. & Fire Brick Co.

### Flower Pot Machinery.

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The.
Taplin-Rice-Clerkin Co.

### Friction Clutch Pulleys.

(See Supplies.)

### Furnaces.

Brown Instrument Co., The.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

### Gas Fire Continuous Kilns.

Raymond Co., The C. W.

### Gears.

(See Supplies.)

### Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

### Gravity Haulage.

American Clay Machinery Co.

### Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

### Hand Winch.

(See Supplies.)

### Hangers.

(See Supplies.)

### Hoists.

(See Supplies.)

### Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Illustrators.

Lamb, J. & R.

### Insurance.

Mantel, Tile & Grate Monthly.

### Jacks.

(See Supplies.)

(Continued on page 155.)

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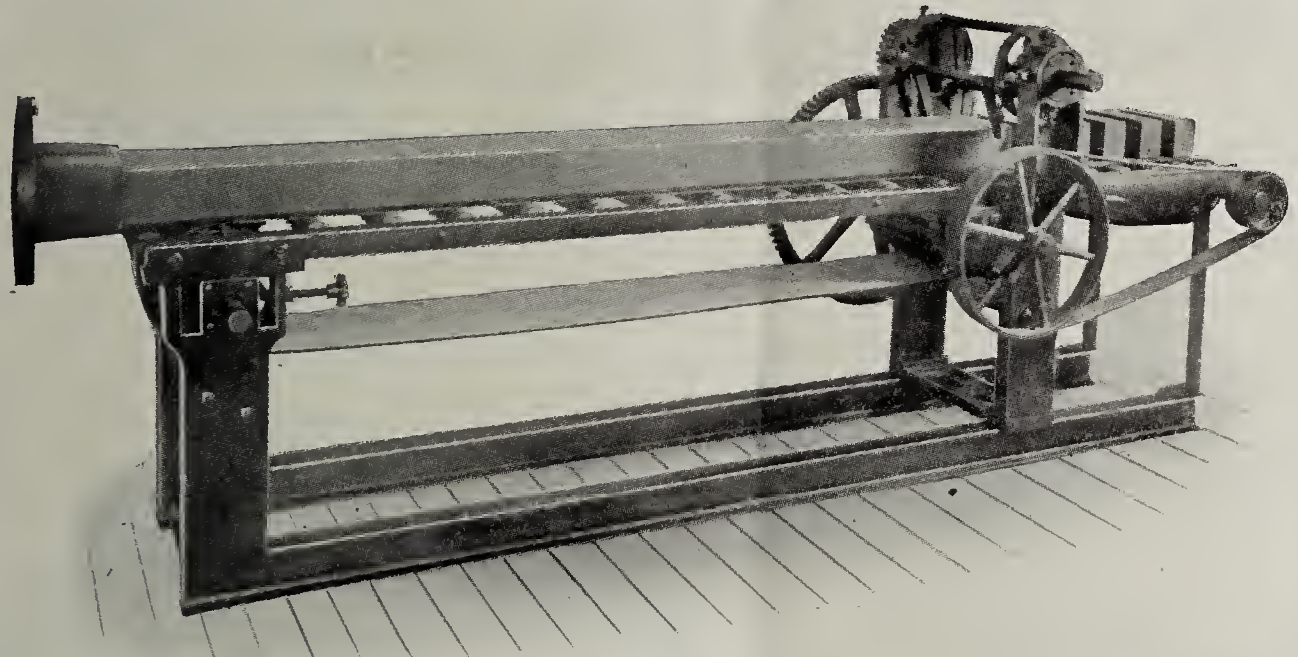
## MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

## ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

## MUELLER BROS.

**1436 Macklind Ave.** (on Friso Tracks) **ST. LOUIS, MO.**

The Layton, Pa., Plant of the Kier Fire Brick Co.

**BUILD WITH BRICK**

# 25,000 Silica Fire Brick

**are being dried every day by the**

# Sirocco

TRADE MARK.

# Waste Heat System

and dried economically, at the Layton, Pa., plant of the Kier Fire Brick Co.

They decided to convert their waste heat into a valuable drying element. You can do the same. The cost is small as compared to the results obtained.

Our Brick Engineering Department will lay out a Sirocco System for you, by the installation of which **you** can turn a **waste** into a **gain.**

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
San Francisco, Cal., 667 Mission St.
Dallas, Texas, 1908 Commerce St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 705 Merchants National Bank Bldg.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

### Kilns.

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Vogt, Anton.
Yates, Alfred.

### Kilns, Doors, Castings and Frames.

(See Supplies.)

### Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.

### Kiln Furnaces.

Illinois Supply & Con. Co.

### Knives.

(See Supplies.)

### Locomotives.

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

### Manganese.

(See Coloring Materials.)

### Mechanical Draft.

Boss, J. C.
Rodgers Engr. Co., The L. E.

### Mineral Paint.

(See Coloring Materials.)

### Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

### Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

### Mortar Colors.

(See Coloring Materials.)

### Motor Trucks.

Wm. E. Dee Co.
Fate, Co., The J. D.

### Oil Burners.

Illinois Supply & Con. Co.

### Paints.

(See Coloring Materials.)

### Pallets.

Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

### Pans (Dry and Wet).

(See Dry and Wet Pans.)

### Paving Brick or Block.

(See Brick.)

### Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

### Pitch (Paving).

Barrett Mfg. Co.

### Plows.

(See Scrapers.)

### Poidometers.

Schaffer Eng. & Equip. Co.

### Portable Track.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### Pottery Machinery.

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

### Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

### Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Pulleys.

(See Supplies.)

### Pulverizers.

American Pulverizer Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Taplin-Rice-Clerkin Co.

### Pumps.

Dean Bros. Steam Pump Wks.

### Pyrometers.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

### Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

### Rattlers (Paving Brick).

Ceramic Supply and Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

### Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

### Represses.

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson & Co.

### Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

### Revolving Steam Shovels.

Thew Automatic Shovel Co.

(Continued on page 157.)

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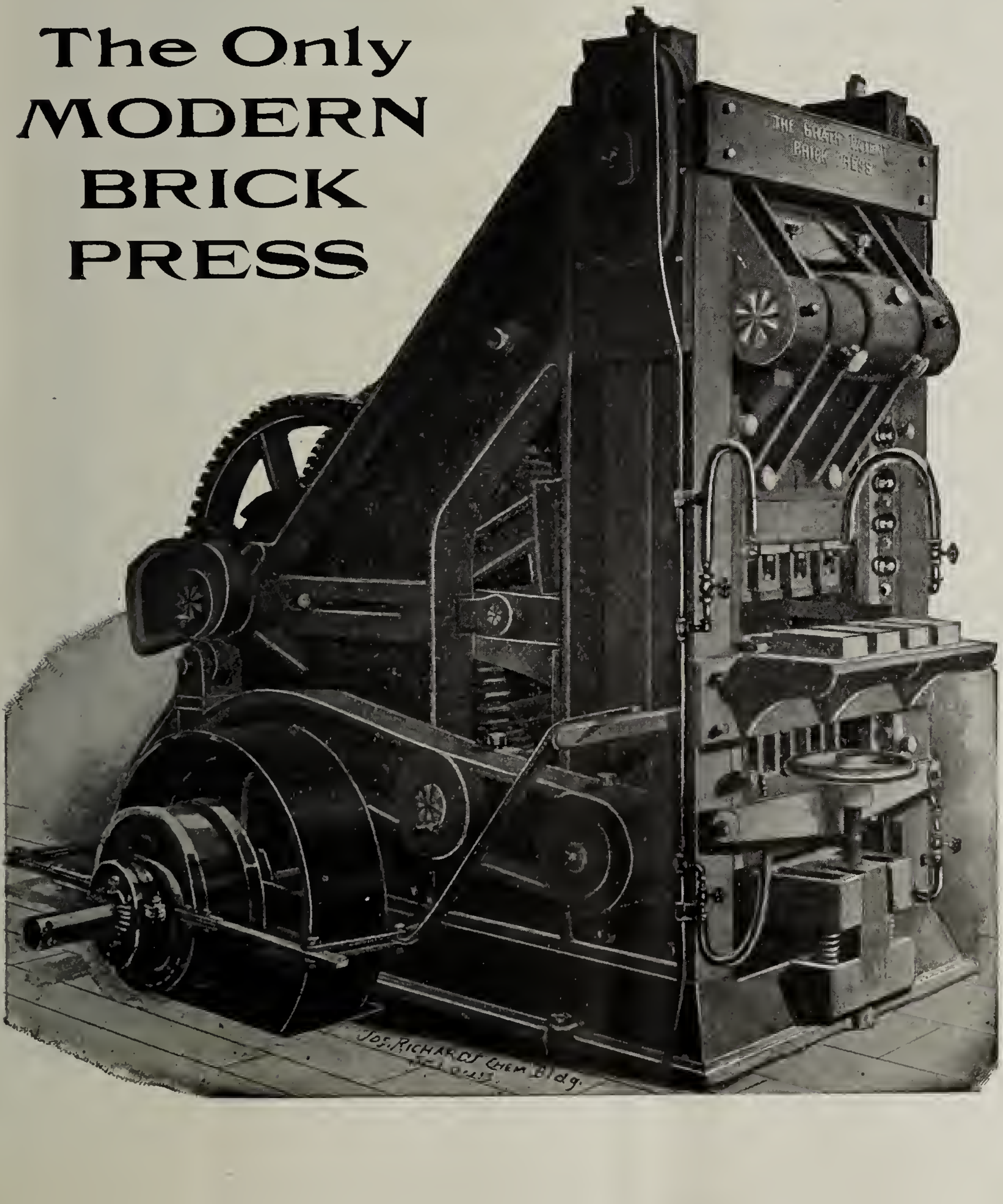

THE GRATH PATENT BRICK PRESS
Jos. Richards Chem Bldg.

The Only
MODERN
BRICK
PRESS

THE GRATH
PEERLESS PRESS

(Made in Four and Five Mould Sizes.)

For shales, fireclays and surface clays. Gives FULL pressure without brick cracking or splitting open.

Guaranteed capacity six to seven thousand perfect brick per mould.

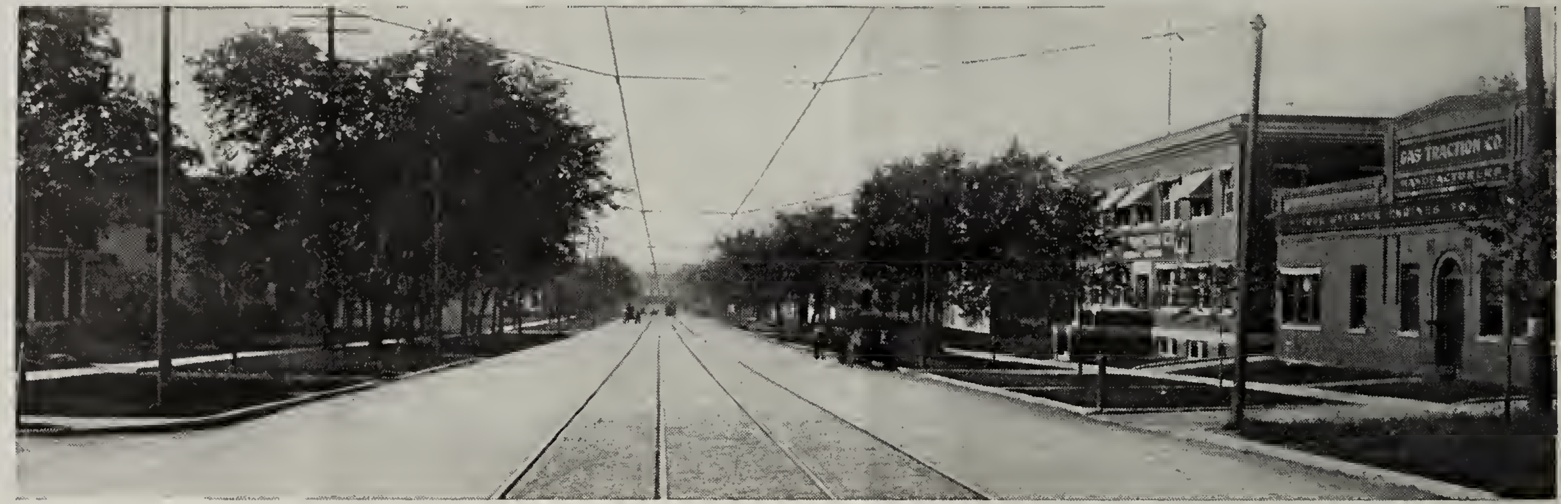
The Jersey Clay Products Co., Newbern, Ill., turn out with four mould press 28,000 perfect brick in ten hours.

Thickness of brick changed in less than two minutes.

Ill. Supply & Const. Co.
722 Century Bldg., St. Louis, Mo.

TRADE B MARK

Barrett's PAVING PITCH



University Avenue, S. E., Minneapolis, Minn. Creosoted Blocks filled with Barrett's Paving Pitch.

## Adds to the Life of Wood Block Pavements

CREOSOTED wood block pavement on a concrete foundation forms a very durable and satisfactory pavement. The creosote saturation prevents decay in the wood, but it does not prevent the expansion of the wood when wet. Laboratory experiments and service tests have indicated that, no matter how thoroughly creosoted, the wood fibre still retains some capacity for absorbing moisture.

To be sure, most of the rain will quickly run off a wood block pavement and the surface will be dry in a very short time. This, however, is because the surface of the wood block pavement gets pounded down and becomes very hard and compact, and thus is armored against the intrusion of water at that point.

There is, however, no such compacting process going on at the base of the block, and the water which finds its way down there is absorbed by the wood and a certain amount of expansion is set up. This necessitates expansion joints, which are always troublesome affairs, and which are by no means always successful.

The ideal remedy is to prevent the expansion altogether by protecting the block absolutely from water at the sides and bottom of the block. This can be done with Pitch Filler. Pitch will adhere tightly to the wood at all times of the year and at all temperatures. Sand filler, of course, has no water-resisting capacity, while asphalt filler does not cling to creosoted wood as well as pitch, which, being of kindred nature, will unite and form a homogeneous compound with such creosote oil as may exude on the surface of the block.

The favorite method of using Pitch Filler with wood block is to pour it on the surface and work it into the joints by the use of squeegees. This, for example, is the practice in Minneapolis, which has the largest area of wood block pavement of any city of the United States. It is also the common practice in London, which has 300 miles of wood block pavement.

Booklet telling all about Paving Pitch free on request. Address our nearest office.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Wellington Machine Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Constr. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Central Iron Works.
Eagle Iron Works.
Illinois Supply & Con. Co.

### Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### |Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

Thew Automatic Shovel Co.

### Steam Specialties.

Dean Bros., Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

### Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply and Com. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Steele & Sons.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Switches.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., H.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Com. Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

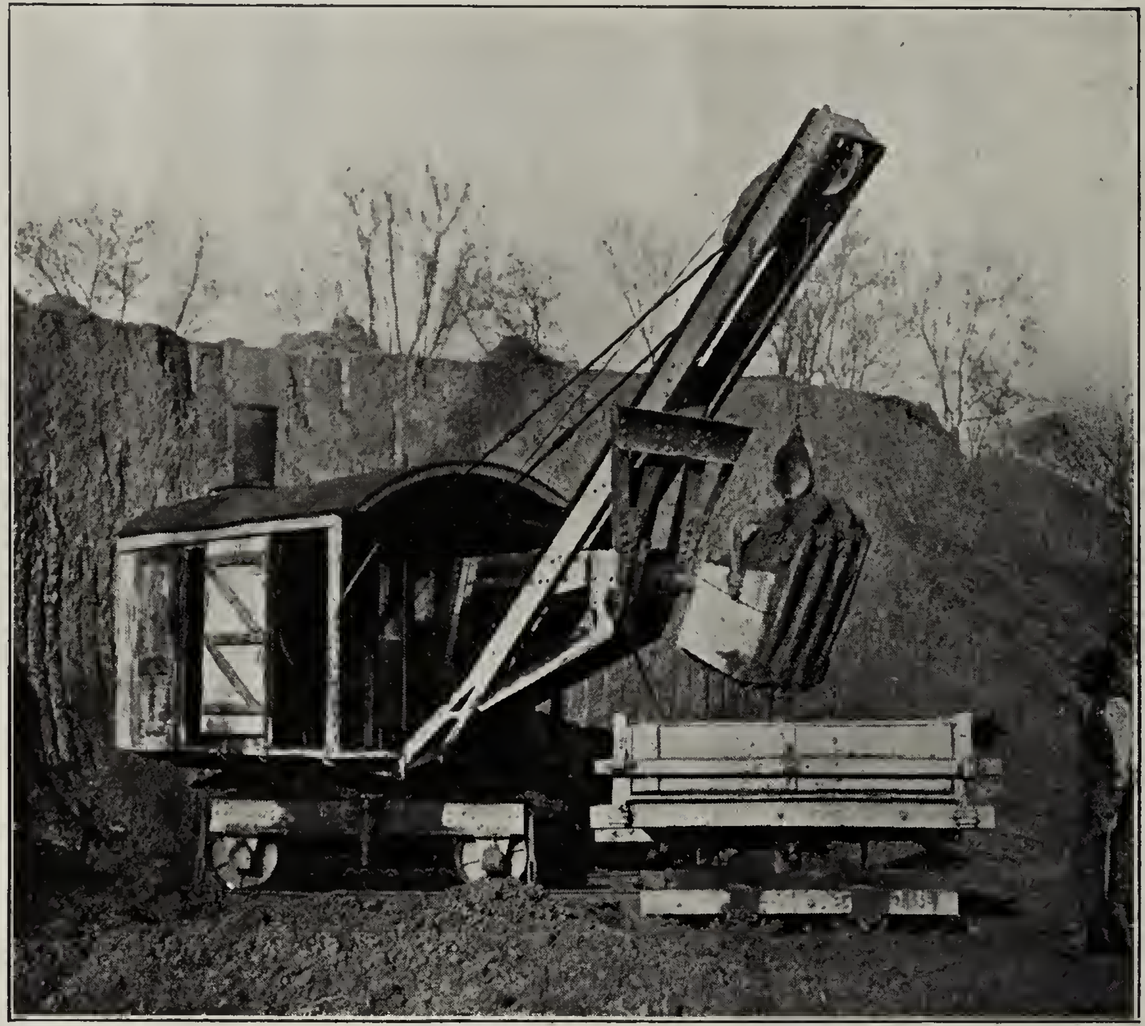
POTTERY ADVERTISING NOVELTIES

Majolica and Terra Cotta Work
for Sculptors a Specialty.

DUANE F. ALBERY
421 Sherman Ave., Evanston, Ill.
Correspondence solicited.

# Begin Reducing Costs at the Clay Pit

# USE A THEW—IT PAYS



**Type 0 Thew Shovel in J. W. Wells' Clay Pit, Chattanooga, Tenn.**

This shovel is loading clay for 100,000 brick daily.

One man on the shovel and one man on the ground the only men in the clay pit, as usual. The total cost of loading the clay and moving the cars to the foot of the incline is, in this case, less than six dollars. Can you afford to be without a THEW?

**Made in six sizes. Operated by steam or electricity of any commercial voltage.**

| | | | | | |
|---|---|---|---|---|---|
| Type 0, | 18 Tons— | ⅝ yd. dipper, | for ordinary clays; | capacity | 100,000 |
| Type A-1, | 24 Tons— | ⅞ yd. dipper. | for ordinary clays; | capacity | 150,000 |
| Type 1, | 32 Tons— | 1⅜ yd. dipper, | for ordinary clays; | capacity | 200,000 |
| Type 2, | 35 Tons— | ¾ yd. dipper, | for ordinary shales; | capacity | 125,000 |
| Type 3, | 40 Tons— | 1¾ yd. dipper, | for ordinary clays; | capacity | 250,000 |
| Type 4, | 55 Tons— | 1¼ yd. dipper, | for difficult shales; | capacity | 200,000 |

These outputs may be materially increased by the addition of a fireman and an extra laborer.

The Thew is the standard for the clayworker. 300 Plants now using Thews.

108 of these plants furnished accurate reports which reveal the average time their Thews have been in service to be 6⅓ years; the average daily capacity per plant 76,000; the average total pit cost including repairs 9⅘ cents per thousand brick.

Write for catalogue "B" and list of Thew owners near you.

## THE THEW AUTOMATIC SHOVEL CO.

LORAIN, OHIO

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**

The above is a miniature of a sheet steel sign with blue background and embossed white letters. These signs are 20 inches long and 7 inches high. Price, $5.00 per hundred, F. O. B. factory. With firm name in place of "The Everlasting Material," $6.00 per hundred. A "PAVE WITH BRICK" sign similar to above supplied at same price.

# BUILD WITH BRICK

### A Nation-Wide Movement for Boosting the Brick Business.

THE CLAY-WORKER'S BUILD WITH BRICK campaign has taken on nation-wide importance. We have shipped thousands of posters to enterprising brickmakers, from New England to California.

Have you received specimen posters? If not, you can have them for the asking. We have nine different designs, adapted to various uses, from street cars and brick wagons to barns and fences. If you are doing any local advertising, you will find these posters useful in that connection. The Standard Brick Company, Evansville, Ind., has used some of them in its local papers with telling effect.

There is no doubt about it, you can boost the brick business in your own locality by using these posters, and the expense is but a trifle. Poster No. 7 has proven very popular, and No. 1 makes a nice envelope cut. We will be glad to print you a supply of envelopes, or will furnish you an electrotype of this cut at cost for your local printer. In the language of the street, "Get in the game," and help us boost the brick business.

We can supply you with any sort of a poster you want. If you prefer a tin sign or a sheet steel sign, we will furnish same at cost. A two-color sheet steel sign in white and blue, the words "BUILD WITH BRICK," embossed in white letters on a rich blue background, makes an unusually attractive poster. If you want something even better, an enameled steel sign, good for all time, we can get it for you. Write us what you want, and we will do our utmost to supply it.

T. A. RANDALL & CO.,
Publishers The Clay-Worker,
Indianapolis, Ind.

T. A. Randall & Co., Publishers,
Indianapolis, Ind.

Gentlemen:

You may send me........metal signs, also tack card "BUILD WITH BRICK" posters as follows:

...........Poster No......, size 11x11, cost $5.00 per 1000

...........Poster No......, size 11x14, cost $6.50 per 1000
(With Firm Name)

...........Poster No......, size 12x22, cost $8.00 per 1000

...........Poster No......, size 14x22, cost $9.50 per 1000
(With Firm Name)

Posters Nos. 1, 2, 3, 4, 5 and 6 are made 11x11 or 11x14 inches. Posters Nos. 7, 8 and 9, size 14x22 inches. These are printed on substantial 5-ply card.

Print on same my card, as follows:

.............. .............................. ..............................

.............. .............................. ..............................

.............. .............................. ..............................

Very respectfully,

...........................................

Address ................................................................

.............. .............................. ..............................

Tear off this coupon and mail us your order today.

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**
**MAKES THE STRUCTURE BEAUTIFUL.**
**NO PAINTING. NO COST FOR REPAIRS.**
**FIRE PROOF. TIME PROOF. WEATHER PROOF**
**COOL IN SUMMER. WARM IN WINTER.**

Miniature of Poster No. 7.

## The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country,"
**Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio**

**SHAWMUT VITRIFIED PAVING BRICK WORKS**
Shawmut, Pa. Alfred Yates, Gen. Mgr.
**Vitrified Shale and Fire Clay Paving Bricks and Blocks.**
Burned in Yates' Patent Kiln.
Samples and prices on application.

**ALTON BRICK COMPANY**
Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION
**The Barr Clay Co.**
C. C. Barr, Pres. - Streator, Ill.

**The Danville Brick Company,**
Manufacturers of the Unsurpassed
**Danville Paving Block.**
Danville, Ill.
LET US QUOTE YOU PRICES.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED
**KUSHEQUA**
Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

**McAVOY VITRIFIED BRICK COMPANY**
PHILADELPHIA, PA.
"McAVOY BLOCK"

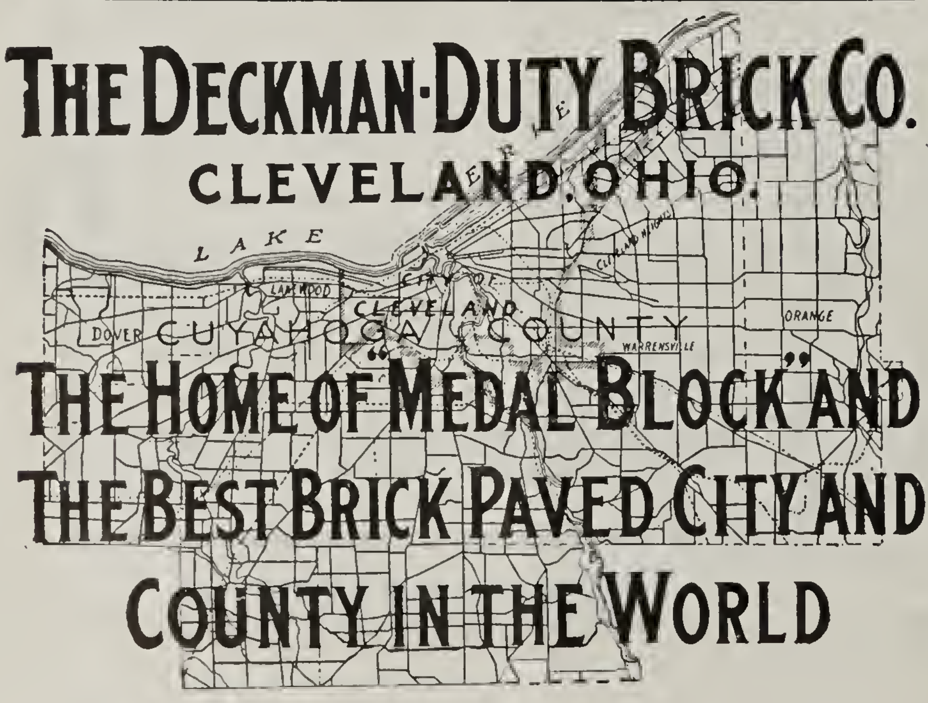
**PROMENADE TILE**
Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

**C. P. MAYER BRICK CO.**

The MAYER BLOCK is Unequaled in Abrasion Test.

**Tile Underdrainage.**
By J. J. W. Billingsley. Price 25 Cents.
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

**THE DECKMAN-DUTY BRICK CO.**
CLEVELAND, OHIO.



**THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD**

**"Best Paving Block Made"**

Daily Capacity
500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

IRONSTONE BLOCK

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

Terre Haute Vitrified Brick Co.
TERRE HAUTE, IND.

Murphysboro Paving
Brick Company

Manufacturers of

The Celebrated
EGYPTIAN PAVING BLOCK

The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,
(C. A. Bloomfield, Treas. and Manager)
P O. Box 413. METUCHEN, N. J.

CLINTON PAVING BRICK CO.

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

Clinton Paving Brick Company
Clinton, Indiana

VITRIFIED PAVING BRICK

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second edition.

Mailed to any address on receipt of $2.00.

T. A. Randall & Co. (Inc.) Publishers
Indianapolis

Bessemer Limestone Company

Youngstown, Ohio.

Manufacturers of

BESSEMER BLOCK.

The Most Uniform Shale Paver Made.

PURINGTON PAVERS

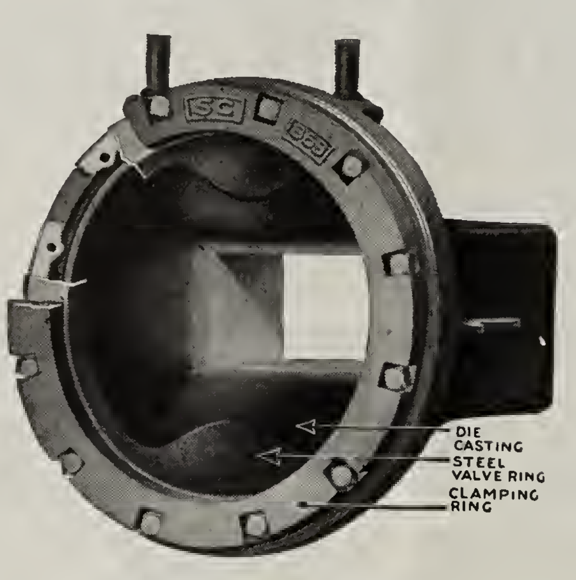
ARE MADE OF

GALESBURG
SHALE

PURINGTON PAVING BRICK CO.
GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

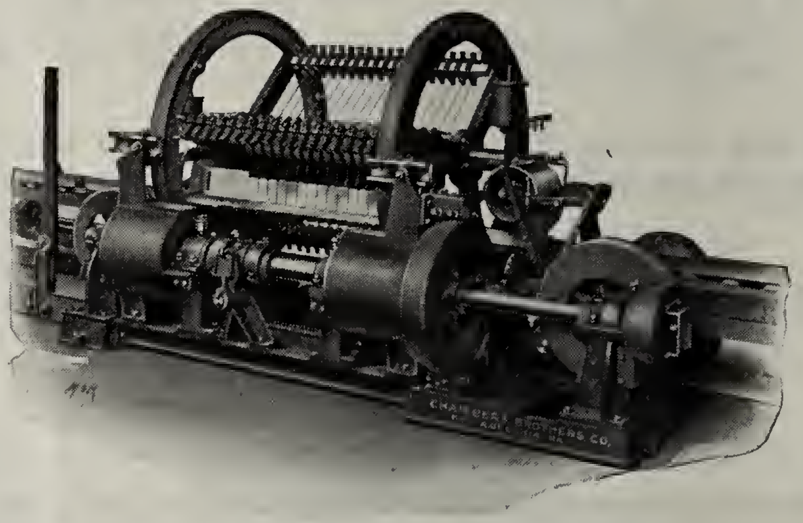
## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

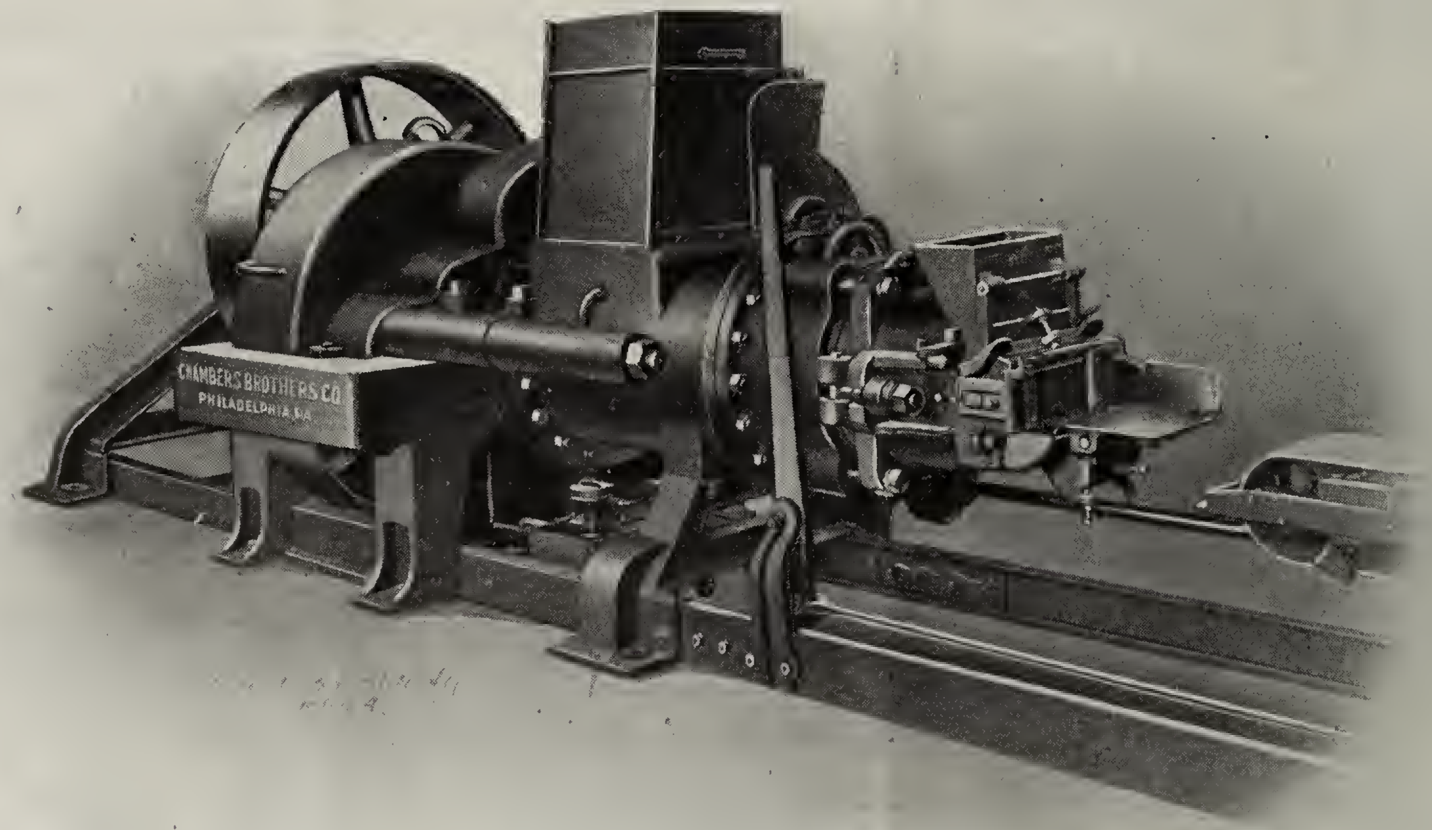


AUTOMATIC SIDE-CUTTER NO. 10.

### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

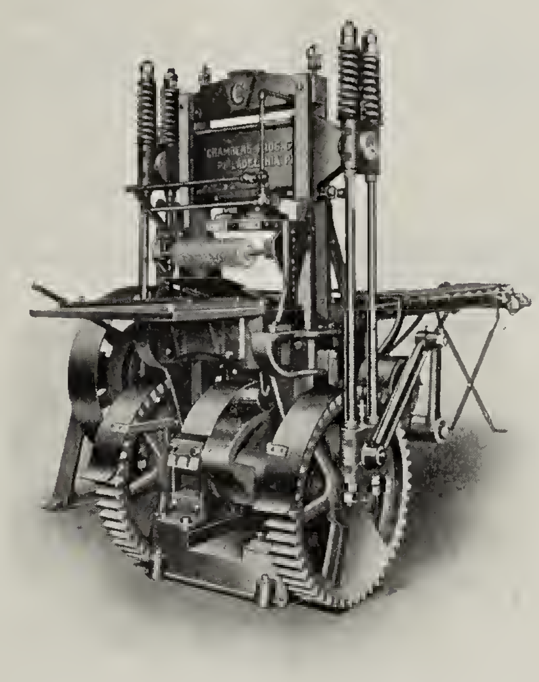
# Chambers Brothers Co., Philadelphia, Pa.

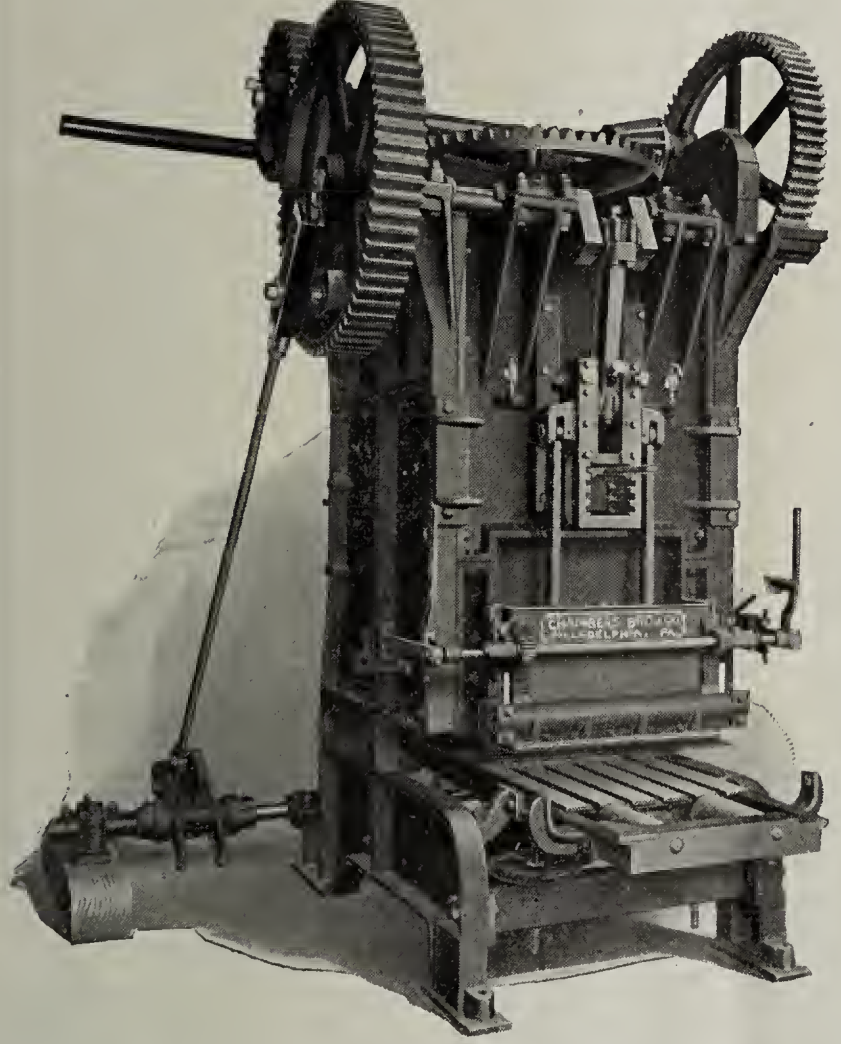
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

THE BELMONT
SOFT MUD BRICK MACHINE

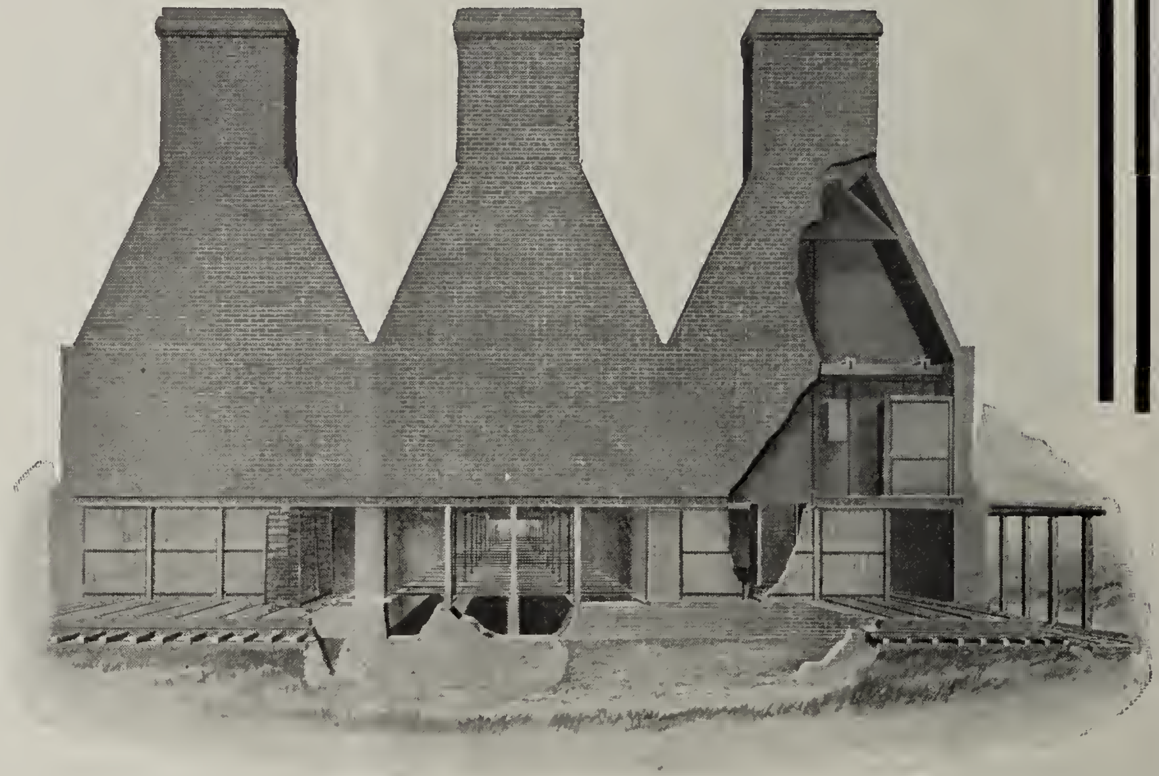
Molds sharp clean edge brick as stiff as can be dumped from the molds.

℞ For satisfactory brick drying—
Get the basic principle right, then get the drying elements under absolute control.
Dr. X. Perience

**Or in other words: For satisfactory drying of *any variety* of clay, install The Standard Natural Draft Drier.**

The experience of many users, covering a long period of years, proves that the basic principle of Standard Drying is absolutely right. And any user will tell you that the drying elements are always under the operator's control, which makes it easy to regulate them so as to exactly suit the requirements of *any variety* of clay.

Write for interesting catalog, containing list of many Standard Drier users. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.

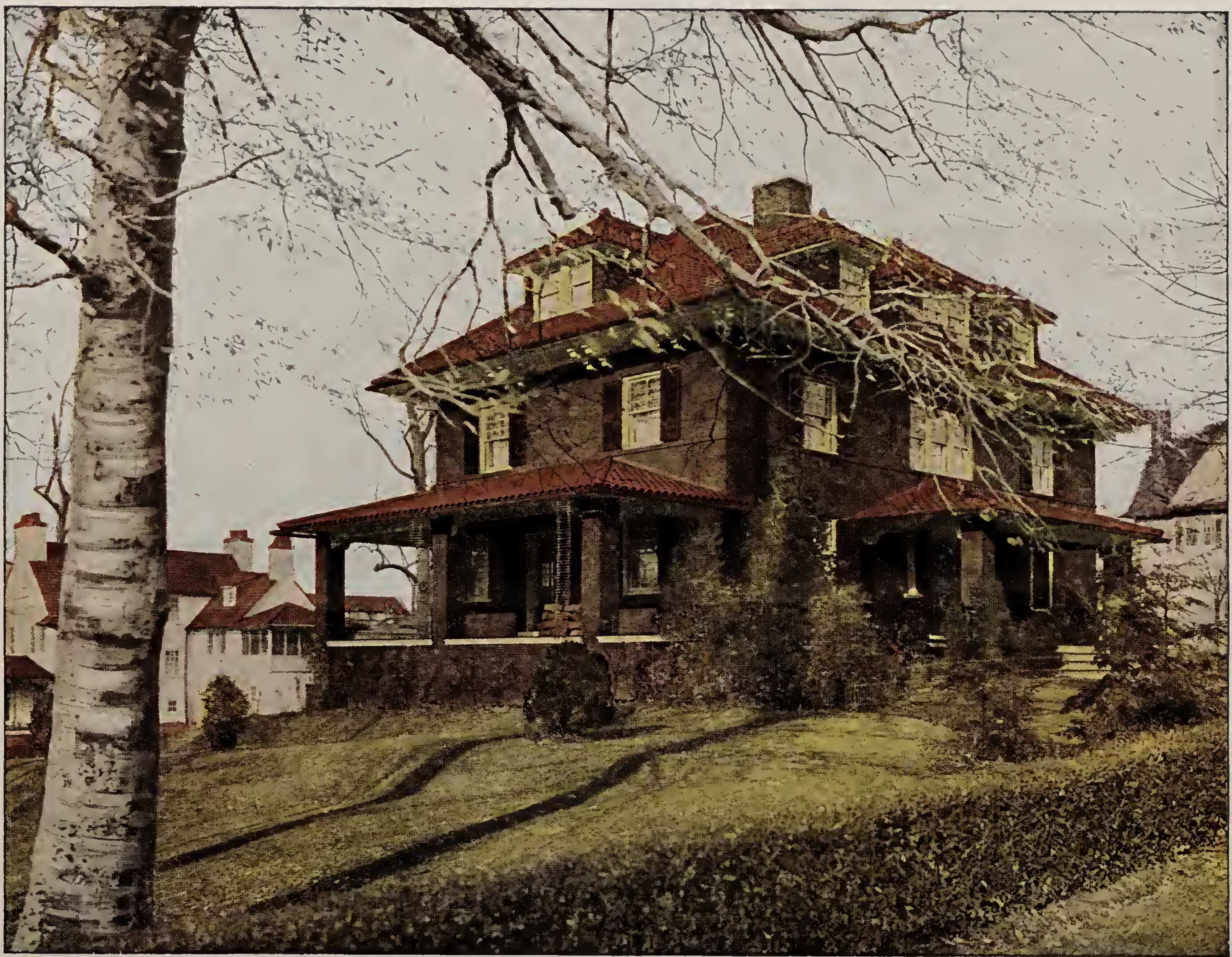


# Hy-tex
## The Standard of Quality in Brick

## HYDRAULIC-PRESS BRICK COMPANY
**SAINT LOUIS**

BRANCH OFFICES AND EXHIBIT ROOMS

Baltimore; Chicago; Cleveland; Davenport;
Dubois, Pa.; Indianapolis; Kansas City;
Minneapolis; New York City; Omaha;
Philadelphia; Toledo;
Washington, D. C.



RESIDENCE A. H. McADAMS, Overbrook, Penn. Chas. Barton Keen, Architect. Hy-tex Winslow Ironspot.

Courtesy Hydraulic Press Brick Co.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXIII. INDIANAPOLIS, IND., FEBRUARY, 1915. No. 2

Written for THE CLAY-WORKER.

# BRICK IN ARCHITECTURE.

### Because the Most Durable and Artistic, Brick is the Most Economical Building Material.

BRICK AND ARCHITECTURE go so consistently and harmoniously hand in hand that to think of architecture is to be reminded of brick as the natural material with which to make real its ideals.

There is a reason. Also there is a truism in connection with artistic design and with architecture generally to the effect that the lines and colors of beauty are properly the result of usefulness, or rather when combined with usefulness or utility, the beauty in architecture is materially enhanced thereby. This gives us a well-recognized link that connects brick to architecture the world over and similarly adds to the beautiful that which is the most useful in architecture.

> *BRICK THE IDEAL BUILDING MATERIAL.*
>
> *"Brick in architecture is, figuratively, as old as the hills. It has been associated with architecture all through the ages, and it is being recognized more generally today than ever before as the ideal material with which to carry out architectural designs."*

That was why beauty is so much more readily apparent in architecture where face brick enters into the construction than in structures made of other material. The brick brings with it the strongest element of utility, and finally of economy. It has long been recognized as the best material for permanency, for resisting fire and for holding its own generally.

It is easy from all this to understand why a brick house looks better than one of frame or stucco or any other material. Even an exterior plain brick wall in a house makes a more attractive looking structure than effort at decorative architecture in frame building—the fact that it is brick adds value, fitness and beauty.

From this we can argue logically that it is better to have a plain, simple, brick home than to have an artistically designed frame structure, but we needn't stop there, that is simply the starting place. In planning a home, it is desired and worth while to embody in the architecture other lines and features that will add to the beauty of the outside appearance of the brick house. One strong argument in favor of this is the fact that there are hundreds of people who pass by and see the outside of your home to where there is one who enters to observe the coziness of the interior. This makes it important to beautify the exterior for the observation of the passerby, and what is still more important, is the measure of satisfaction as you approach your home or view it with your mental eye and know that it is beautiful in design as well as permanently built with the best building material on earth.

And brick and the higher ideals in architecture naturally go together for the reason that as a man reaches the point where he wants to build for permanence and build a good home that he can be proud of, he attains at the same time higher ideals and his desires are such that it takes something better than a plain box structure or a structure ornamented with a little gingerbread work to satisfy. He wants architecture, something artistic in design. He wants to make out of the material available and the means to be expended the best that can be had, both in point of utility and beauty of design. It is thus that we are finding both brick and architecture entering more extensively every year into home building in this country and into everything, from the modest cottage or bungalow to the elaborate mansion.

It used to be thought, and with some truth, too, that only the wealthy could afford to indulge in either architecture or a brick home. A part of this was a mistake at the time, and it is all a mistake at the present time. There is no question any more in the minds of the well informed about the final economy of building with brick, or the material or cash advantage of having something attractive or artistic in design. The material value and the lasting qualities more than make up for the extra cost in brick building as compared to any other form of structure.

Moreover, and here is one of the important points being emphasized strongly today, there is not a great deal of difference in the first cost itself between erecting an attractive brick home and a plain frame structure. The difference varies, of course, under different conditions, but as a rule, it ranges between 5 and 10 per cent. This is a much smaller difference than the average man imagines who contemplates building a home. Almost any prospective home builder when once convinced that he can build with brick and get permanence and beauty of design at a cost not exceeding 10 per cent. more than it will cost to build with wood, will naturally turn to brick and add the necessary 10 per cent. He can do it, even if he is borrowing money with which to build, because the brick structure represents, in the eyes of bankers and others with money to loan, much better security than is offered by the flimsy structures, and a man can borrow the additional sum required for a brick building much easier than he can borrow the smaller sum required to erect a frame building.

Brick in architecture is, figuratively, as old as the hills. It has been associated with architecture all through the ages and it is being recognized more generally today than ever before as the ideal material with which to carry out architectural design. Incidentally, brick is helping carry architectural designs into the modest homes, which means a threefold benefit. It means more friends for brick and brick building, it means more architecture, and finally, it means better homes and better satisfied people, and finally, these people make a better and more satisfied nation.

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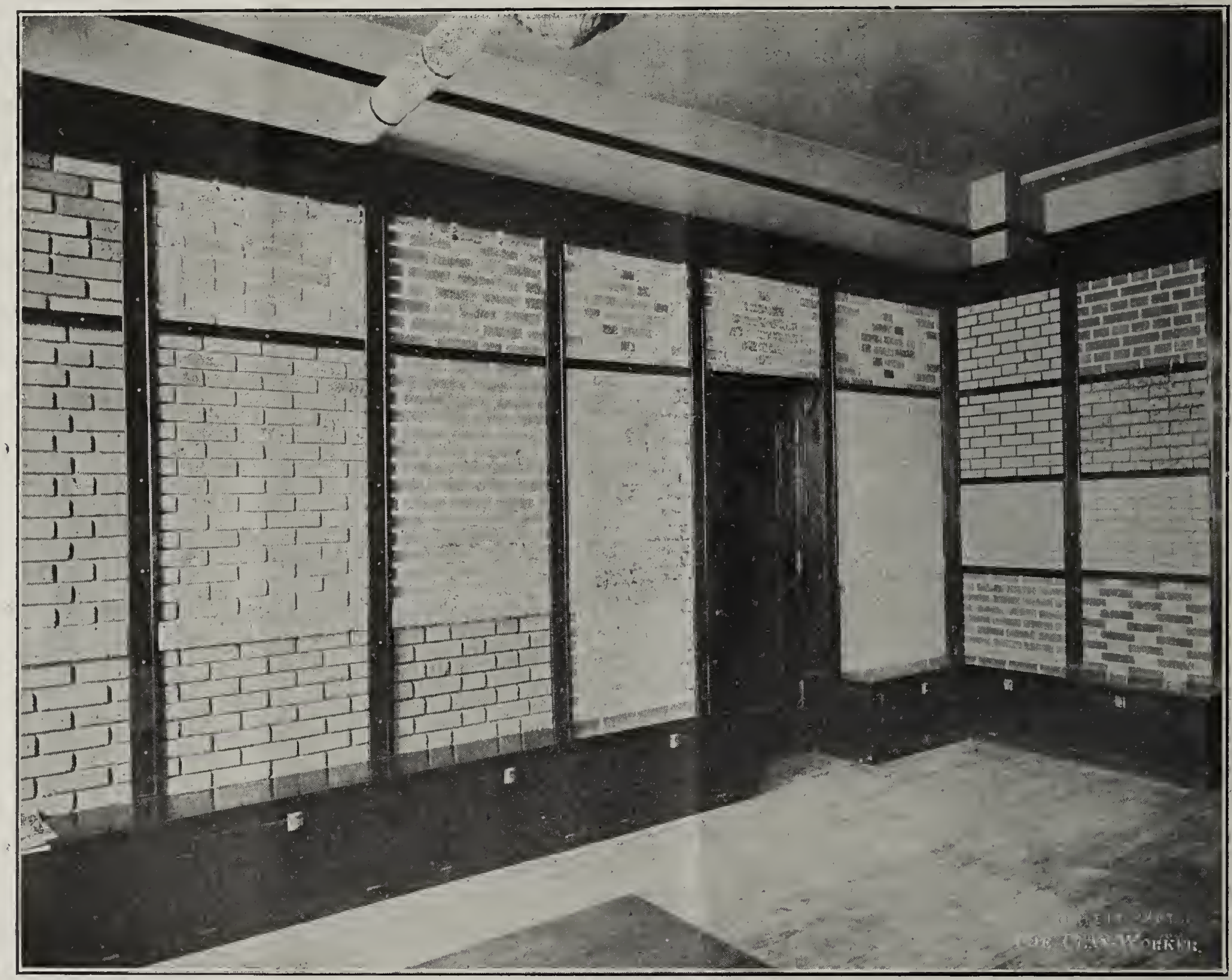
Every man must see life through his own spectacles; there is no other way to see it. But by a little effort one may change the hue of the coloring, and certainly one can change his angle or viewpoint now and then and get a different light on things. And it is certainly worth the effort that it calls for.

## SPLENDID DISPLAY OF HYDRAULIC BRICK.

ADJOINING THE ENGINEERS and Architects' Club in Louisville, on the fourteenth floor of the Starks building, Leo M. Parsons, of the Union Cement & Lime Co., has equipped a sales office room with a splendid display of hydraulic brick. The entire room is paneled with brick in varying shades and texture and to complete the display and make it more homelike, a rustic fireplace and hearth is included, set off with a pair of old brass andirons and a couple of brass candlesticks.

The display is made entirely of the products of the Hydraulic Press Brick Co., St. Louis, of which the Union Cement & Lime Co. is now the Louisville selling agent.

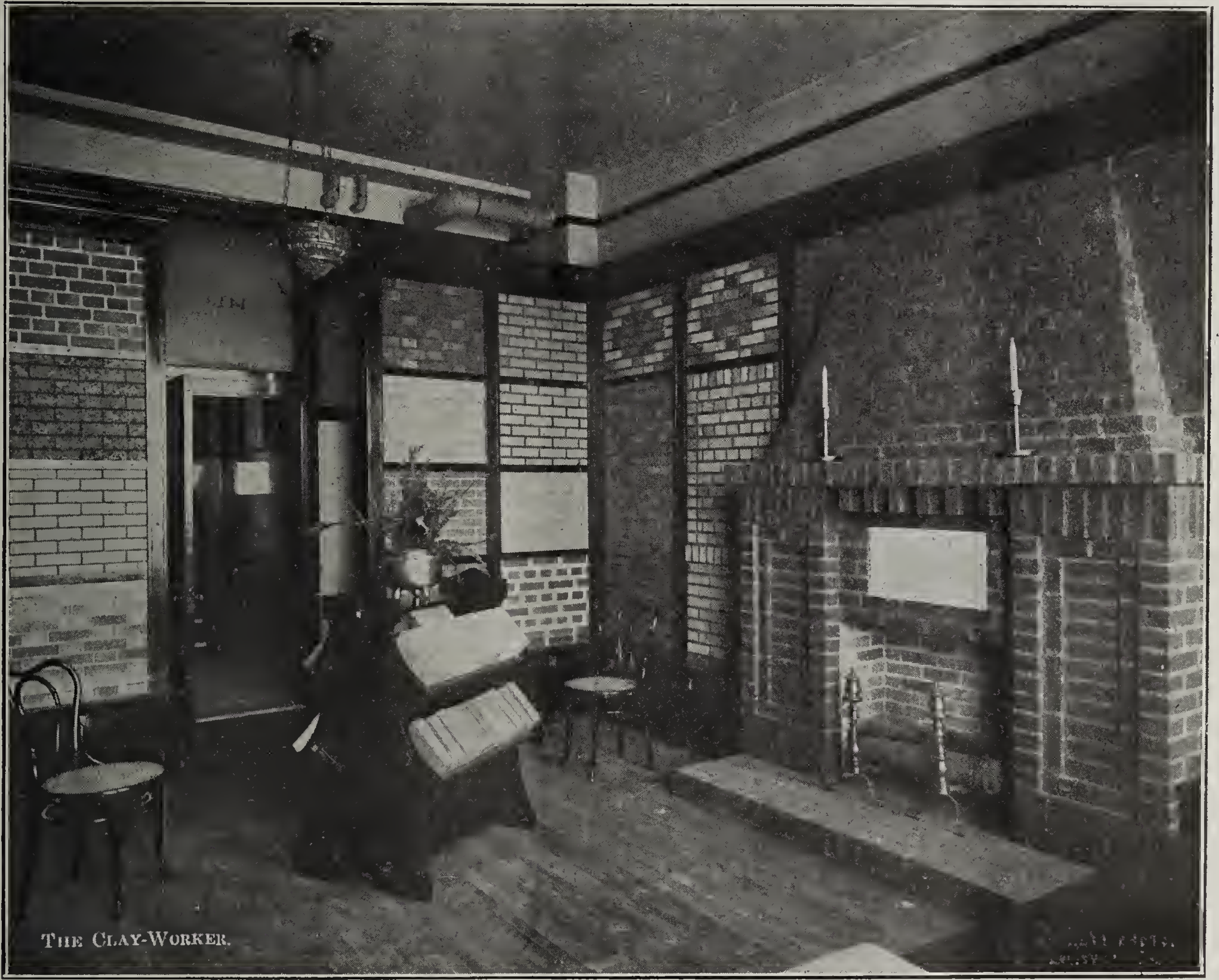
The new room and their new connections, that of selling agents for brick and terra cotta and a number of building specialties, are the results of Leo Parsons becoming associated with the Union Cement & Lime Co. The Union Cement & Lime Co., which is a successor of the Utica Lime Co., is one of the oldest lime and cement concerns in Louisville, but heretofore it has confined its business largely to the manufacture and sale of lime and cement. When Leo Parsons began casting about with a view to going into the brick and building material business, the suggestion was made that he join forces with the Union Cement and Lime Co., and take up this new line in connection with them instead of independently. As a result, Mr. Parsons has taken the position as sales manager of this concern, of which John L. Wheat is president, and established a sales office display room adjoining the Architects and Engineers Club in the Starks building, where he will be in close touch with the architects and where the architects can step right in any time and make a study of various offerings in hydraulic brick. There are many different



A Corner in the Display Room of the Hydraulic Press Brick Company, Louisville, Ky.

brick and mortar effects shown in the panels built in the wall all around and in addition to this there are many samples of brick, some pileed in racks, and extra samples stored in the row of closet boxes shown at the base under the panels.

This is their big line of building material, lime and cement, and the Hydraulic products, but they have taken on various other items to round out their building material line, including the terra cotta product of the Midland Terra Cotta Co., Chicago; Monarch metal weather strips; Herring bone wall ties, the Peerless mortar stains of the Samuel H. French & Co., Philadelphia, and the Meilink steel wall safes.



The Artistic Display Room Made up Entirely of Hy Tex Brick.

## BRICK FROM BABYLON.

The obtaining in these days of antiques in the way of brick and clay tablets from Babylon or any part of the old Holy Land is not what it looks like it might be. Maybe if in the rounds the old Turkish Empire is wiped out real articles of this kind may be obtainable, but at the present time there is a law in the Turkish Empire prohibiting the exportation of relics and antiques more than 100 years old. Consul Chas. F. Brissel, of Bagdad, Turkey, reports that it is said that there are a number of dealers who sell relics claimed to be genuine and old but he is reliably informed that many of these are spurious. He says that stones or pieces of burnt clay may be obtained, that is without inscription or anything, but these are practically valueless since a piece of clay from Babylon would be just the same as a piece from Musol. Brick from either of these places known to be genuine are unobtainable. Even the German excavators who were until recently at work at places in Bagdad were only allowed to photograph the antiques which they found, and were required to send the originals to the National Museum at Constantinople and leave them as the property of the Turkish government. He says that sometimes relics may be smuggled out but this is not likely, and a recent attempt of the kind was frustrated and those attempting it were fined the equivalent of $2,000 and the goods confiscated.

## THE NAGGING FOREMAN.

There is a great big difference between selecting men and putting them in the right place for efficiency and nagging and driving men. The nagging foreman is an abomination and his day of usefulness in the industrial world is about over. Mankind, at least that portion of it which is worthy of entrusting work requiring judgment, has reached the point in temper and temperament where it will not stand to be nagged and harrassed. So that foreman who does go on the theory that he can practice a modified form of the old driving tactics of the rough and ready foreman is generally laying up trouble for himself without accomplishing much. There are some places where it may work. Some foreigners of sluggish natures are so accustomed to things of this kind that they expect it, but as a rule these can only be used for the crudest kind of work and with the simplest tools. The good men using modern appliances are not men to be handled in this way, and many times local labor troubles have resulted from nothing else but friction between the foreman and his men, friction generated by the nagging disposition of the foreman. It is all right to make an appeal to men to exert themselves on certain occasions for special purposes, but to be eternally nagging and egging men on for harder work and better service is to create dissatisfaction. It develops the habit of shirking the minute the foreman's back is turned. The right idea with the right kind of men is to cut out the nagging stuff and incorporate in its place a species of co-operation known as team work and as pride and interest in the welfare of the business.

# A CALL TO ARMS.

## Pertinent Suggestions to the Building Brick Manufacturers of America for the Betterment of the Industry by Architect F. W. Fitzpatrick.

BRICKMAKERS OF AMERICA, awaken! They say you're dead. Throw off your lethargy and prove to your detractors you are not even moribund, but indeed very much alive—although you have been snoozing at the switch a bit.

Some years ago it seemed to me you were somewhat sleepy and I took the liberty of nudging you at the convention. It had some effect; you realized it was high time brick indulged in some publicity and you sent a committee down to talk things over with me here in Washington, an energetic and able committee. It decided upon a plan of action, comprehensive, though modest, but you did not back up your committee as you should have done. In fact, it paid some of the expenses incurred out of its own pockets, and that was something to be ashamed of on the part of the great brick industry.

Since then I believe you have made another spurt and done some little advertising and achieved some publicity; but not enough. And now you've neglected that sort of thing so long it is not only publicity and the like you need, but also a fighting organization that will actually go after things generally and put up a scrap over each worth-while job that comes up so as to secure at least a fair show for brick, for today it is actually being legislated against, persecuted, and its detractors are many and in high places!

F. W. Fitzpatrick, Washington, D. C.

The situation is an unhappy one, but a perfectly natural one, the results, as anyone could foresee, of a certain line of action on one part and inaction on another part.

Cut up hay, pack it in attractive packages and put a million or more dollars into advertising it as a breakfast food, and you'll sell it by the carload. People will swear by it. On the other hand, manufacture an appetizing and nourishing and healthy food, one that excels all others in those qualities, but just dump it on the market without judicious and widespread advertising, and though you'll sell some, it's true, the most of it will grow stale in storage, and before long the undiscriminating public will really believe there is something wrong with it.

The cement people have not a worthless product by any means; the hay is hardly a fit comparison. Cement and concrete have their places, and in a hundred ways are ideal materials. But the cement producers are not content with occupying a splendid place in the construction world and have become rapacious—they want to supplant every other material; they want cement used everywhere; there where it is fitting and there where it is utterly unfit. Why, they'd have us use it for pies. All at so much a barrel. They stick together like Siamese twins, hold their prices and assess themselves to create a good, fat "kitty" fund with which to advertise, to scrap, to smooth the path and lubricate things generally for cement. I understand that that assessment is 2 cents a barrel. Figure it up on 88,514,000 barrels of Portland cement alone, made in 1914, and you'll find that it provides a rather handsome wherewithal for the advancement of the industry's welfare. The results show that whoever handles that fund uses it judiciously. Although the production fell off some 4,000,000 barrels in 1914, just think of what a boost, a dumbfounding growth there has been! In 1896 the industry produced but a million and a half barrels. It has been mostly built up by advertising.

Advertising and the engineers have produced that wonderful growth. The advertising reached the engineers, and they are doing the rest. When I say "reached," I mean it in no slurring manner, nor is there any intimation that the engineers and cement producers divvy on the profits or do anything else illegitimate or unethical. I simply mean that the engineers quickly appreciated the possibilities of concrete that were so alluringly deployed before them by that judicious advertising, and they grabbed at it as if it had been a long-lost brother. It is bread and butter to them; it saved them, made them somebodies, and it is natural and meet they should swear by it. Why, they're obsessed with it and can see nothing else, and have actually gotten so that they kneel down and pray to it.

Steel and brick construction is simple. Those are standard materials, testable before using, of known properties and easily calculable strengths. The engineers had poor picking off of them. An architect could have all the engineers he needed at $30 a week, a very subordinate sort of minion in the office. But concrete came along. It is involved, mysterious; its processes go on during construction and afterwards, chemistry is mixed up with it and likewise mathematics. The average architect is afraid to tackle it. The engineer has come into his own; he is no longer an underpaid office man. He has to make the plans and wrestle with all the eccentricities and stresses and fussings with tests and what not, and then he, and several of him, have to superintend the job. Why, the engineers would be silly indeed if they didn't yell for concrete. They're as hot after it as surgeons are after appendicitis. Say "tummyache" to a surgeon, and he'll have your little dixy out in a jiffy; say building to an engineer, and he'll have you in a wonderfully complex, much strained-sheeted and most ingeniously reinforced concrete one before you can catch your breath. True, it may fall on you, but what does that matter; the design was perfect, there was something wrong with the weather, or the workmen, or the forms, the "act of God," something, anything; but it was not **their** fault, and they go sublimely on experimenting and theorizing on other people's money, and they are growing fat the while. I kept tab on concrete failures, collapses of concrete buildings under construction, for two years, and counted forty odd. Only the other day there was a bad one in Youngstown, a building being built by one of the biggest and best contracting firms in the country, and the most careful of engineers. Did it give the engineers a jolt and put on brakes a bit? Not at all. I tell you it's a craze; they've gone dippy on concrete, and it's you brick folks who are getting the worst of it. The steel people hardly care a rap. The engineers are using almost as much bar material as they would tonnage in a steel frame, so steel is not suffering; it is the brick and tile fireproofing people who are getting the small end of it from the engineers.

True, it's a craze that may wear itself out by-and-bye. And again it may last for years. The other concrete craze was of short duration. I mean the concrete block fad.

Do you remember that a few years ago everything had to be concrete blocks? They were making them at every crossroads jerk-town in America, and everyone with a spare penny was putting it into concrete block machinery. Brick was doomed; it was the honest belief of those engineers that inside of ten years the brickmakers would be manufacturing concrete blocks instead of brick. Do you ever see a concrete block being used now? And where is all that machinery? Someone estimated sometime ago that there was $15,000,000 worth of it on the scrap heap!

All this while what were you brick men doing? Your plants were running full, you were making money, you were satisfied. What was the use of advertising, what was the use of going after and fighting for contracts? You had been getting the best, the cream of everything, anyway. You had a staple, standard material, one that had stood the test of time and the elements for not one or two or ten seasons, but for thousands of years. Indeed, had it not been for your material, the history of three and four thousands years ago would not have been preserved to us. You had the only really fire-resisting material known. You didn't even think it worth while keeping together. If occasion seemed to warrant, you'd cut your competitor's throat and price without a qualm. You were satisfied, snug complacency befuddled you and you went to sleep, and while the other fellows were very much awake and working like blazes, especially at the job of putting you permanently out of commission, you are still asleep, and they mistake the symptoms and say you're dead!

Of late, things have been going a bit slowly. You cut down your prices, close down your kilns and blame it all on the times, and just roll over and take another snooze. Fie, men, fie! The enemy is flapping its wings and loudly proclaiming you're "dead-uns," and that the once great burnt clay industry is of the past. Are you going to let it be so writ in history?

Let there be the rumor of a building project, and what happens? The architect or engineer and the owner are flooded with concrete literature, testimonials for concrete from those who have gone on before and whose buildings didn't collapse, and there'll be attractive circulars and photographs galore of concrete buildings. The architect or engineer will be interviewed by fascinatingly plausible concrete boosters; they'll be wined and dined and entertained, just as far as they'll go, by cement experts, and these will offer help on their plans; in fact, the plans will be all made for them without cost, if they'll use this or that system of reinforced concrete. The beauties of that construction will be dinned into them and preached to them and loved into them 'til they can't dream of anything but concrete. Politics will be invoked and a procession of kindly intentioned friends will visit owner and architect and engineer with persuasive advice. O, the concrete crowd will be very busy. And the while, what will the brick people be doing? Echo answer NOTHING! When the job is designed all concrete and the contract is let and everything settled, they'll perhaps take a hand and sit up and kick a trifle and want to know why brick wasn't used. But, gentlemen, it's just a wee bit late.

Here is a typical case. Let me tell you about it. What happened in New Orleans is happening every day somewhere else. You have the cement industry solidly arrayed against you, and a very large majority of the engineers of the country, either as independents or as officers of concrete construction companies or systems, shouting themselves blue in the face as partisans of cement; and a large number of architects, who, loving to follow a fashion, add their little warwhoops to the din. Surely as a combined racket of some magnitude it must get you out of your too long stupor!

The state of Louisiana decided to build great warehouses, compresses and the other buildings of a huge cotton storage plant at New Orleans. All this war business and cotton slump showed the need of it. The plant involves an expenditure of several millions of dollars. The work is controlled by five commissioners, nice fellows and bright, but business men, not engineers, save one who is a mechanical engineer and does not profess to know anything about a building. They have put the whole matter into the hands of Messrs. Ford, Bacon and Davis, engineers of New York and New Orleans, men of very high standing and great plausibility. They are fairly representative of the better class of concrete-at-any-price enthusiasts in the profession and, moreover, I take off my hat to them for having put over as pretty a little cast-iron, copper-riveted contract with the board as anyone could wish.

Well, those engineers traveled over this country and abroad, studying and observing, and finally evolving plans for this wondrous plant. Indeed it should be very perfect. Lately a contract was let, and lo! all the buildings are of reinforced concrete. Brick hadn't a ghost of a show!

The Salmen Brick Company, representing the brick industry of Louisiana, protested. They averred that one of the state's great industries had been unfairly treated, ignored; and they petitioned—a little late in the day, but it couldn't be helped—the board that it reconsider the contract and give brick some little show. They were modest and didn't want everything, but asked that at least the division walls in the cotton sheds be made of brick; and even that was a matter of some millions of bricks. It was not so much for the profit involved, but as a principle, that they made the protest. With the buildings as planned, it would be advertised the world over by the Cement Trust that brick was indeed out of date; that in this wonderfully complete plant not a brick had been used, etc.

The board passed the petition up to the engineers. These gentlemen poo-poohed brick; it was no good, weighed too much, and all that sort of rot we've heard for these several years. They notified the board that if it compelled the use of brick, they (the engineers) would not hold themselves responsible for the buildings; it would relieve them absolutely, and there was much wagging of heads and spreading of hands to emphasize what a terrible mistake it would be to use brick, particularly in those poor little division walls. The board was properly impressed and scared, and didn't know what to do, and it was a dickens of a fix for a layman.

Yet it wanted to do the right thing by all parties, so it invited the brick people to present their side in a controversy with the engineers. The intention was good, but what could be expected as a result with the engineers acting as witnesses and also judges and jury? The board did not intend to decide in the matter, but the brick side was to present its case in order to try and convince the engineers they were wrong and thus have them change their decision! Large chance, wasn't it?

The brick manufacturers were represented by Engineer Crehore of New York, Engineer Shaw of New Orleans and myself. It was, I confess, a rather heated debate. Mr. Davis, the spokesman for the concrete side, started out to impress us with the same bugaboo he had thrown into the board. It was a line of talk I have heard a thousand times before, a song found in all the concrete text books, with a few added variations of his own.

They had traveled and studied for months; he knew all about warehouses; we knew nothing about anything. They had thought of tile and of brick, but the insurance people wouldn't hear of tile at any price (smoke that, you fireproof companies), and would allow brick only if a seventeen-inch wall were substituted for a twelve-inch reinforced concrete one. This, of course, would add tremendously to the cost of the wall, also to the weight on the foundation, and the vibration of the great mass of machinery (one poor little four-ton crane) would crumble the brick and just throw them out right and left.

We made them concede that even the seventeen-inch brick wall would weigh less than the twelve-inch concrete wall; that, therefore, there was not more weight on the foundation, but less, and that instead of being more costly, the brick cost actually over $4,000 less, and, indeed, we could save, by using brick with protected steel framing throughout, over $100,000 on their much reinforced concrete construction, besides also saving the little joker of a nice big royalty the contractor would have to pay the Ransome patent system that had been selected by the engineers to enjoy that tribute from dear old New Orleans.

Mr. Davis grew a bit heated and fired back that, even if we did save $4,000, it would cost that to make the change on plans. We contended that any $30 a week draughtsman could make the change in a day. Then Mr. Davis plunged into generalities. Brick was no good, anyway; it had gone all to pieces in the San Francisco fire; concrete was the only thing that had stood the test, and much more to that effect, that, unfortunately for his argument, couldn't stand up very well in the face of the evidence of the camera and reports of other engineers and the months of work and study I had given the building materials exposed to all the big fires of the past twenty-five years.

Mr. Davis stated it was his belief (and this is the point I want you brick folk to get well in mind) and also the belief of the best element of the engineering profession, that brick was a thing of the past. If he were building a residence or other small, unimportant building, he might use brick in the external walls for pretty effects in color, but in any worth-while building reinforced concrete was the thing. And as for brick being an important industry in Louisiana, it was not, nor was it so anywhere else; it was indeed a DEAD INDUSTRY!

It seems to me that the board concluded that at least there were some rather lively corpses interested in that industry. It suggested to the engineers that it thought the case for brick had been fairly presented and deserved their (the engineers') consideration, and wouldn't they please report their decision at the earliest. Oh, yes, they would; they had already, and out came a letter from them given to the board's secretary two hours before the meeting, their decision, their ultimatum! A court that hands down judgment before hearing the case. Some jurisprudence that. It amused me, but rather flabbergasted the board. Finally the board handed us the letter and asked us for a written reply, and it would take some action the next evening at a regular meeting.

The letter was substantially what Mr. Davis had talked, only, being in writing, a little more guarded. Our report was also substantially what we had said. The letters are interesting, and I think you would enjoy them, but it would protract this paper inordinately to reprint them here. Suffice it to say that I do not think you could find much fault with the presentation of your case.

The board met the next evening in executive session, read our report and resolved that the brick industry had presented matter that seemed to it (the board) to deserve the most careful consideration on the part of the engineers and they were to report upon it immediately.

I was well on my way home by that time, and have not yet heard what was done, but I can bet a good dinner that concrete sticks. Why, having taken the position they did, the engineers can't possibly recede. If I were in their shoes and had made such a bull and had been baited into saying what they did, I'd give up the job before coming down off the perch, foolish as that perch might be. It is not in the nature of engineers to confess that they make mistakes. They've gone too far, and now they must stick. And, on the other hand, the board can't very well compel them to use brick. Not only is there a question of responsibility, but one of money. The engineers' contract has a lot of financial frills to it, so that they control the payments, having to a degree financed the undertaking. So that I look upon it all as a "gone goose," and, once I knew the circumstances, felt from the very start it was a most forlorn hope, like butting one's head against an exceptionally strongly reinforced concrete wall. Though indirectly it may do some good. If it wakes you up, it will have done immeasurable good.

But see what is going on the while. The brick interests didn't get busy soon enough. This New Orleans affair is bound to go to concrete, and the cement folk will use it to the queen's taste, boom it and advertise it as a great victory for cement. They'll not say it was a pretty frame-up for concrete from the first and that the board knew nothing about it and couldn't help it if it had, however much it might have liked to use brick, and convinced though most of its members were that brick was best. Oh, no; that'll not be the lay of the song. It will be heralded to the world that the great state of Louisiana investigated and studied and finally decided that reinforced concrete was the thing for its mammoth warehouses, and incidentally, had also found that brick wasn't worth a thinker's damn; that it dissolved in damp weather, actually burned up in fire and couldn't support its own weight. The lies that will be told will be a plenty, and all aimed at you brick people. And then there'll be wheels within wheels, the Ransome crowd, so kindly selected by the engineers for that fat little bounty from the state in the form of a royalty on their patent, will proclaim to an expectant world that, not only was concrete selected by the state, but that it (the stae) had studied and delved and experimented, and after much prayer and fasting had pronounced it (the Ransome system) the king of them all, vastly superior, of course, to brick and steel and as vastly superior to all competitors in the seried ranks of concrete!

What occurred in New Orleans is going on everywhere else every day. People who intend to build have reinforced concrete dinned into them from every side; they are saturated with it; the papers are full of it. The propaganda, chiefly through the engineers, has spread its lines in every direction. It is thorough, it balks at nothing; one can't help but admire its audacity and insistence. The average layman, who doesn't know cement from oatmeal, prates glibly about the virtues of concrete, a parrot-like jargon that has been handed out ready made. And with it all goes the new slogan that brick is a thing of the past; the BRICK INDUSTRY IS DEAD!

Are you going to wake up or are you satisfied to go on sleeping and allow this sort of thing to proceed unchecked? It's a fad that will wear itself out in time. True, your splendid material may come into its own again some day, just through the natural evolution of things—its sheer, inherent excellence, the survival of the fittest. And then, again, if you make no effort to counteract certain preverse tendencies, it may not. One fool fad may follow another; we are always seeking novelty and change. However a good thing we have for sale, we must advertise it, we must make people talk about it, or it will be relegated to oblivion; it's the trend of the times, the accepted order of life.

You must get busy now, not later. It will be folly to wait until good times to take action; albeit, it is perhaps a natural tendency. People have more time to read and to consider and to listen to argument now, and it's the most propitious time to really start a worth-while campaign. By the time business has revived, as it certainly will do in a few months, and a building boom has started, that campaign will be well on the way, effective, producing results counteracting the enemy's moves.

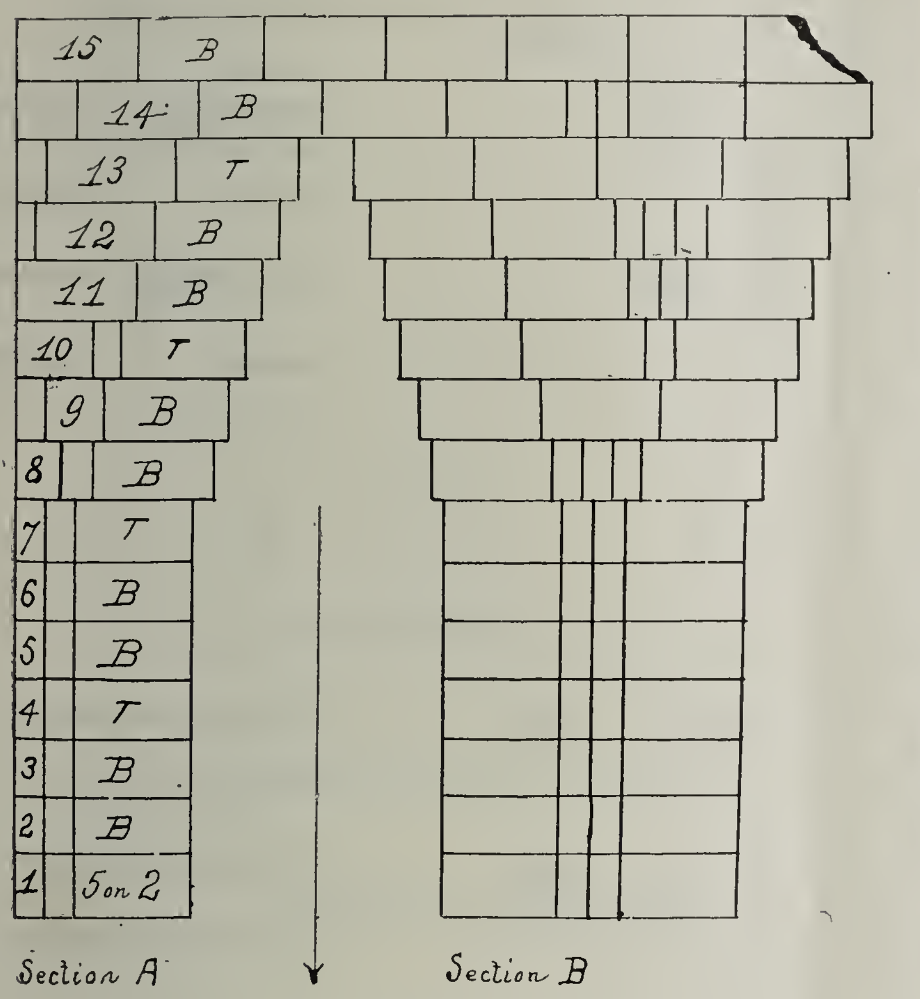
You have improved your product; some of you have made wonderfully beautiful brick, and others have produced splendid paving and specialized brick, even a floating brick; and your representative journals have done noble work in supporting your efforts. But more, much more, must be done to even approximate the Herculean efforts your enemies are making to down you. You must learn more about your own product, what it can do, what it is good for. The U. S. Bureau of Standards is ready to help you; you must enlarge upon the scientific end of your business. I venture to assert that half of you have only the merest guess as to the temperature at which you bake your bricks!

And then there's the commercial end that has been so sadly neglected. Get after the construction work that is projected early in the game. Don't wait until the plans are done; they may call for all concrete, and it will be too late to consider brick. Go before boards and managers of public works and put up a good fight for recognition; do it early and do it well. Keep together, help each other; lay your wires so that you know what is going on before it is too late to act. Flood the architects and engineers with attractively gotten up and reliable data—it'll take you years to catch up with what the cement folk have done. Get busy and start a propaganda, not a little two-by-four, half-hearted and childish effort, but a well-managed, worth-while affair. Your noble product deserves it, the money invested in your plants warrant it, the efforts of your enemies justify it. Turning the other cheek may be very Christian-like and all that, but in business—and I opine you are not making brick for strictly sentimental reasons—you'll find that you have to pay attention to the kicks you get; and the fellow who cannot or will not kick back, and harder than what he is receiving, is soon so bruised and banged that he goes into the discard, a dead-un, and, if an industry, a finished and very dead industry, indeed.

As in everything else, 'tis money that will make the mare trot—lots of money. Any little puny half measure will simply make the cement folk laugh and will be about as effective as was your $700 effort of 1908.

If I am right about the cement producers' 2-cent assessment, their fund for 1914 must have been over $1,500,000 on their eighty odd million barrels' production. If you had been fully awake and had put up even but 2 cents a thousand (and you can afford more for such a cause, your very life), the nine million thousand brick you produced in 1914 would have given you at least $180,000. How much did you put into a common fund to fight a common cause? Think it over.

Fig 1



Sheet 1.

Even $100,000 properly managed and placed where it will really do good, and supported by your local efforts and backed up with the record of what brick has done, is doing and can do, will make a show that will take some of the shine off of the enormous cement fund. One year's evidence of what a concerted, centralized and scientific campaign can do for you will show you the advantage and profit of that work so forcefully that, without urging, you'll enthusiastically double your assessment next year.

Don't go away and mull over it for a year. Talk it over at your Detroit meeting, decide upon it, remember the sanest words that were ever uttered by a philosopher, "DO IT NOW!"

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It is better to make extra efforts to supply all the needs of your customers than it is to let them go elsewhere when you are loaded with orders, for once they turn away they may not turn back to you again, and the time is likely to come when you will need them.

# QUESTIONS OF INTEREST TO CLAYWORKERS

BY J. J. KOCH.

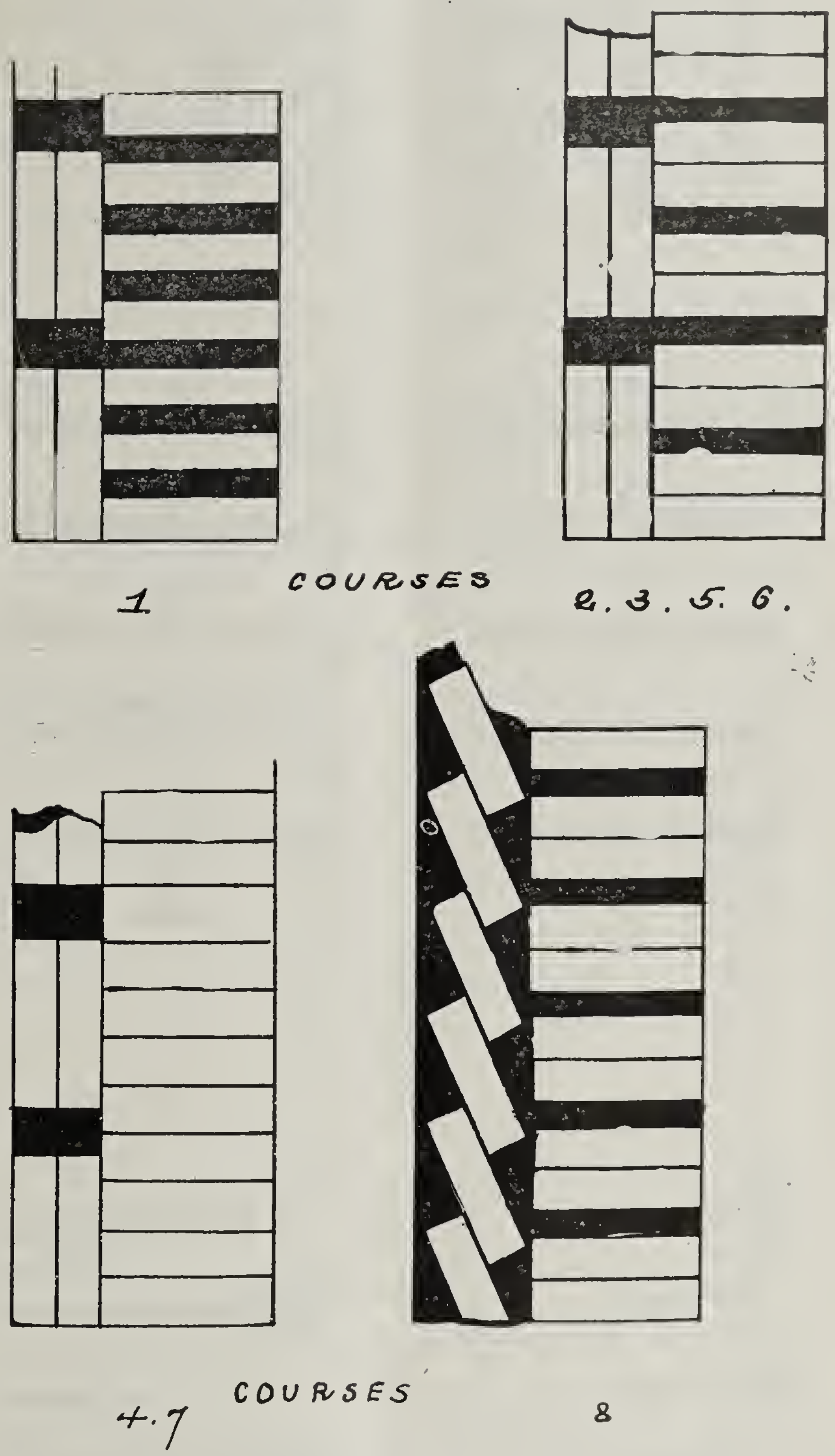
**Query:** In a recent number of the Clay-Worker we find a method described of setting brick in common up draft kilns, which is not very clear to us. Will you kindly go into further details, leading to a better understanding on our part and oblige.

Yours truly,
C. B. & T. CO.

Answer: In addition to October, 1913, article, the following date is supplied. The setting method is shown by "scheme" drawings and the ordinary practices or assumption that seven bricks set on their faces, side by side, will cover two stretchers is also retained. The first drawing submitted, sheet 1, Fig. 1, is divided into sections, A and B; section A referring to end wall setting, and section B to regular bench setting. Section A as shown, is of vital importance, as against the ordinary way of setting same, in which our provisions are made, to furnish adequate or proper means for getting fire and heat to the kiln walls, as far down to the kiln floor as possible; in turn, causing an excessive amount of soft burnt

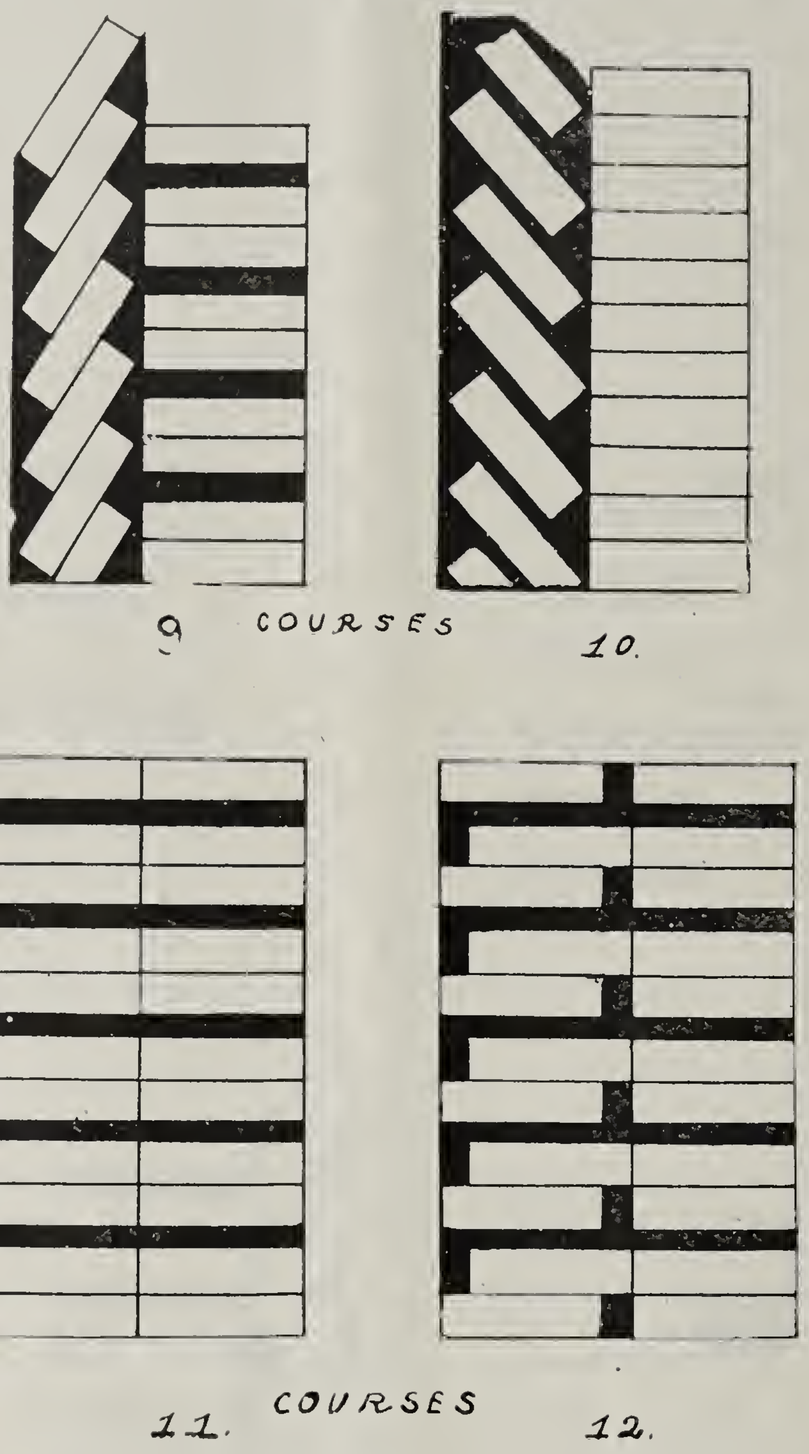
Fig 1

Section A

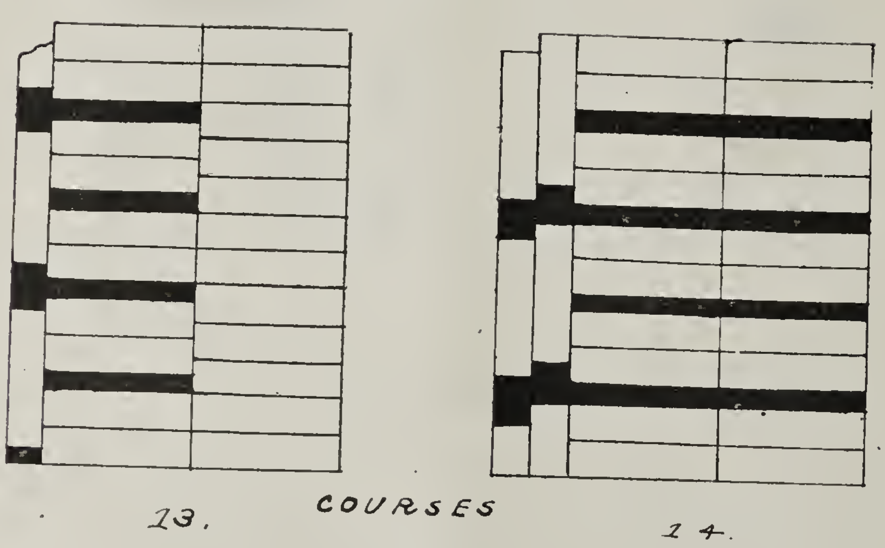


Sheet 2.

bricks, for it should be known, that the radiation loss from the end walls is excessive and provision must be made for easy travel and spread of the strong fires that must therefore be kept up in the end arches. For this purpose large, upright flues are provided at the end walls (see sheet 2, courses 1, 2. 3, 4. 5, 6, 7) in order to keep all this work standing up skintling setting is employed, reversing same on each course, so as not to choke off the above mentioned perpendicular flues. On sheets 1, 9, and 10 some courses are marked B meaning bunched, in two brick solid, and also some courses marked T meaning tight courses. A simple way of laying of B courses see sheet 2, courses 2, 3, 5, and 6, is to bear in mind that the end of the stretcher course comes just to the center of the second brick of each second bench. When once laid off, these benches follow up each other on all predetermined courses, thus furnishing regular flues for fire to enter the said perpendicular flues. The T, or tight courses, are laid up to what the brick will give and are used for a binder to hold the work together (prevent rolling) and also to lead fire into flues by

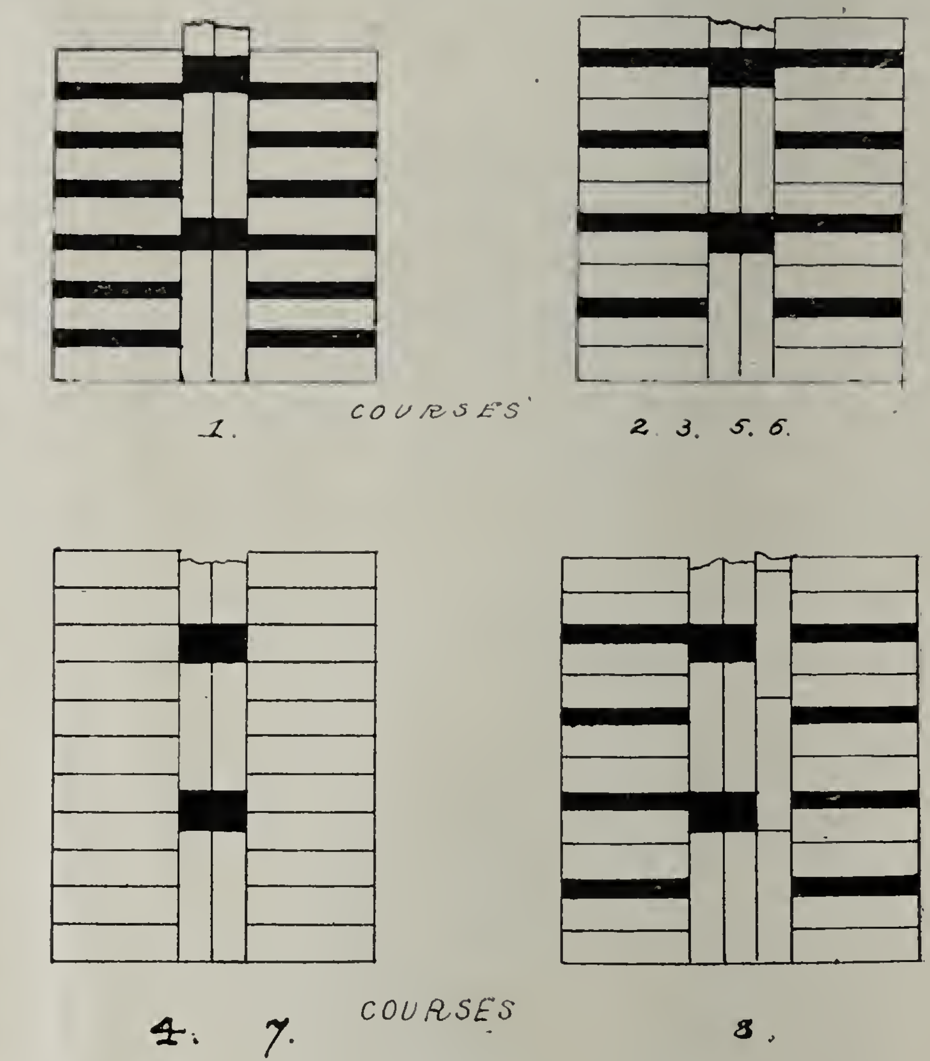


Sheet 3.

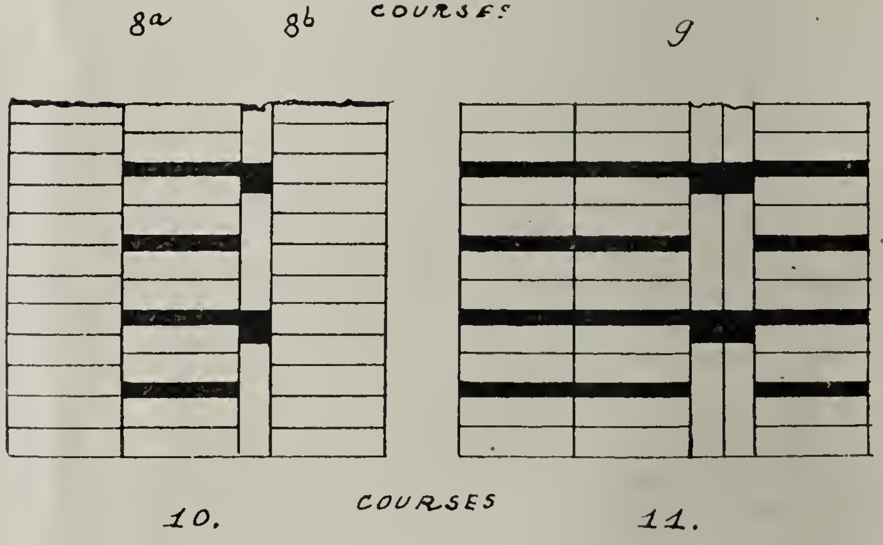


Sheet 4.

Fig 1
Section B



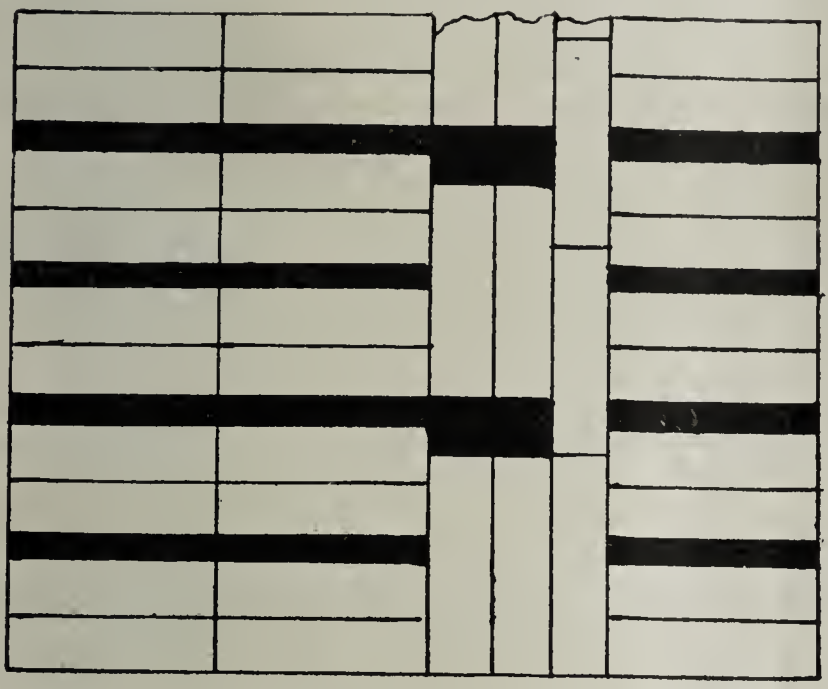
Sheet 5.



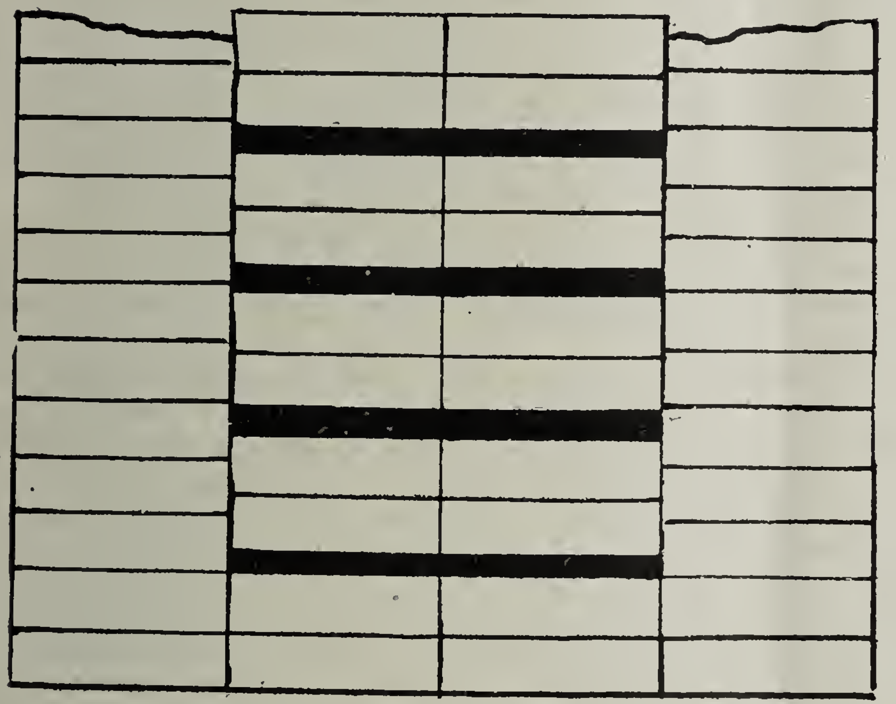
Sheet 6.

impeding the straight ascent of the fire. A tight course should always be placed on last course below first courses required to turn arch. However, it must not be overlooked that all tight courses are only placed adjacent to arch, as tight courses in the interior of the work would choke off the flues in the work. The rack covers for turning the arches are based on the thickness of our brick for each course additional, but sheet 2, course 8, sheet 3, courses 9, 10, 11, and 12, sheet 4, course 13, each rack over only ½ brick except sheet 4, course 14, which racks over more as the arch is closed on this course, sheet 3, course 11, shows flues running clear across, sheet 3, course 12, shows rear work drawn each alternate brick to bind work and not loose flue space, sheet 4, course 13, shows manner of retaining flue space with tight course located adjacent to arches.

Sheet 5, courses 1, 2, 3, 4, 5, 6, and 7, shows regular perpendicular flue and on courses 4 and 7 tight courses to lead fire to said upright flues. As course 7 is a tight course, it is the proper place to begin to rack over, which is done by a tight string course as shown on sheet 5, figure 8, working a rack over of ½ brick on each side of the arch setting. This

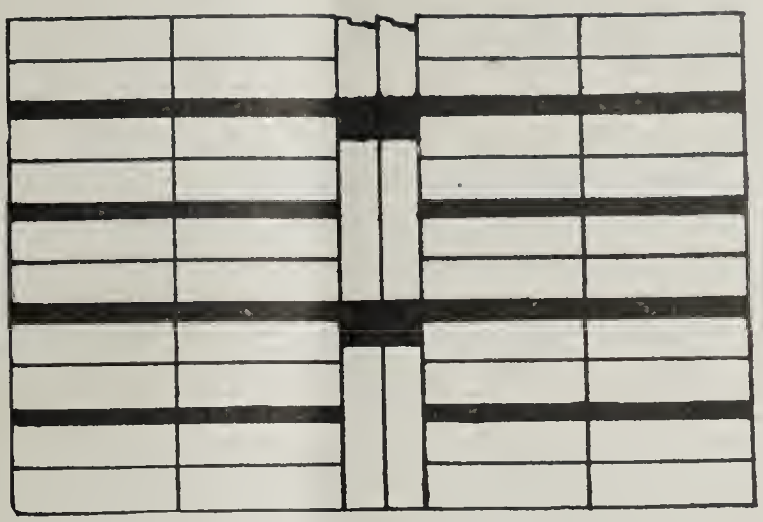


COURSES 12.

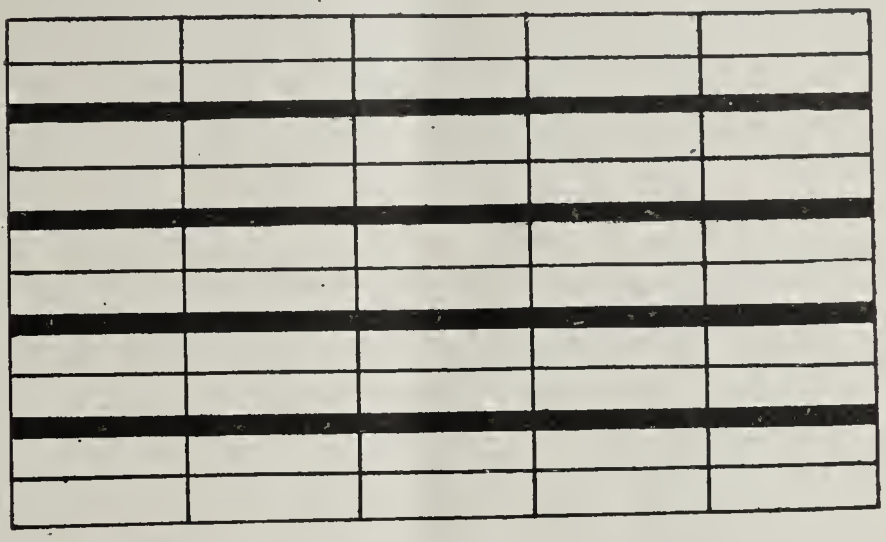


COURSE 13.

Sheet 7.



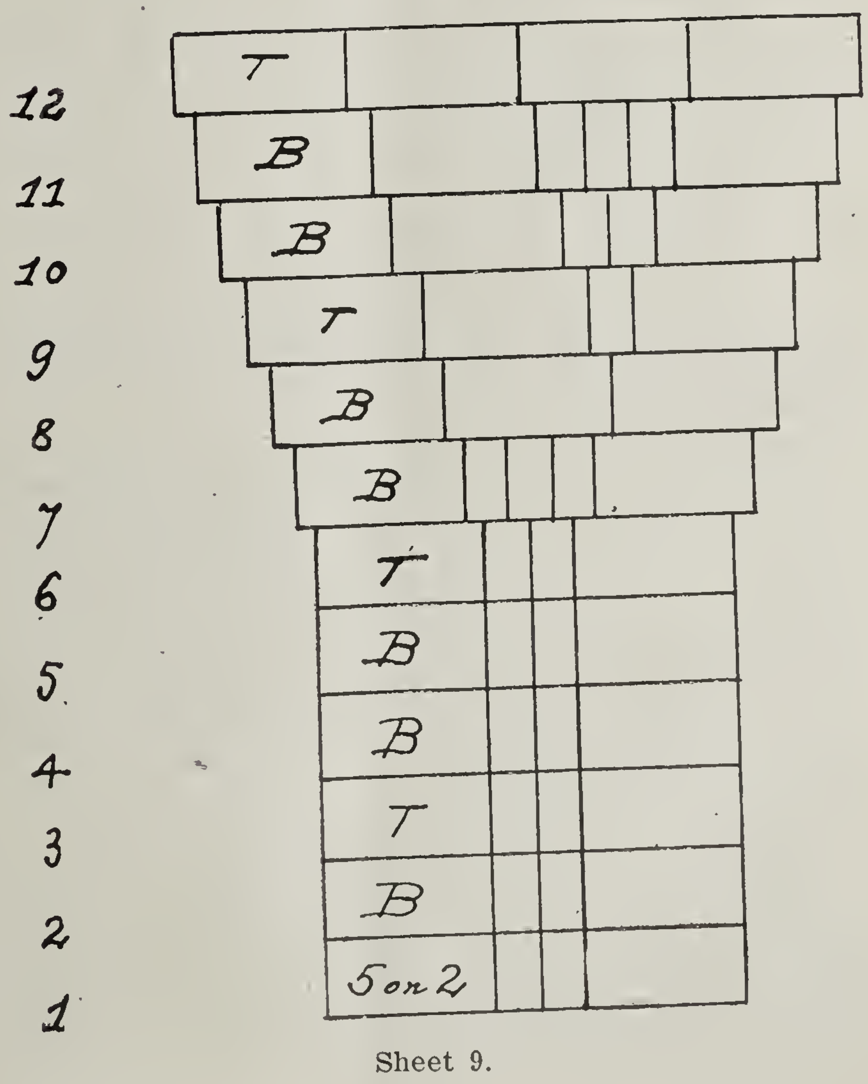
COURSE 14.



COURSE 15.

Sheet 8.

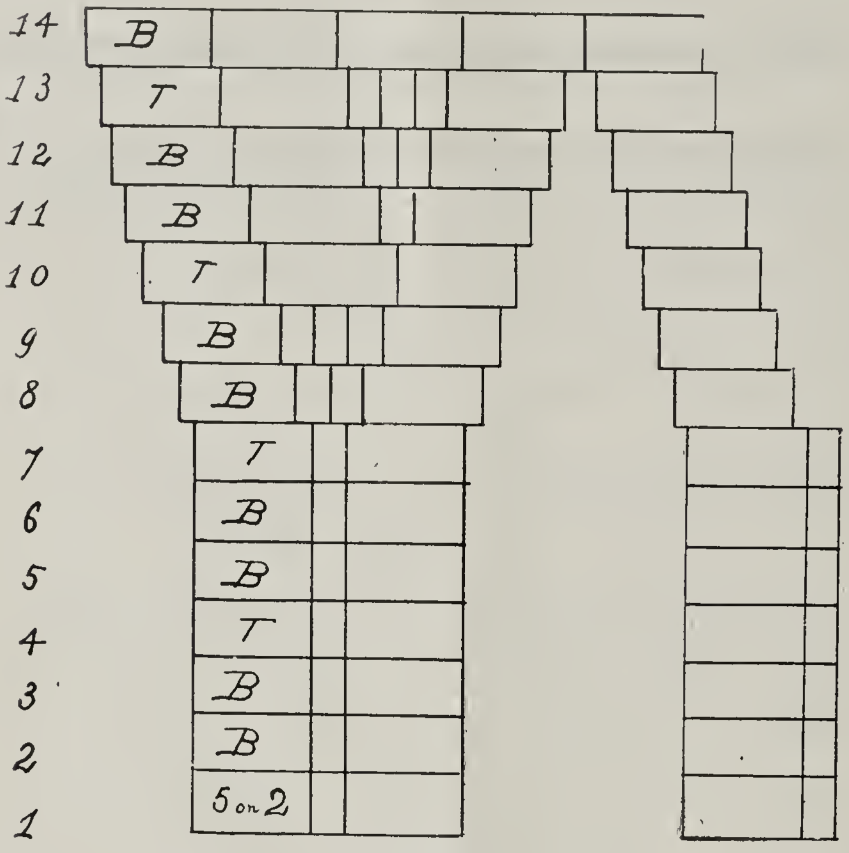
Fig 2.



Sheet 9.

tight string course is the one preferred by the writer, but this tight course may also be "thrown" as shown on sheet 6, courses 8a and 8b. However, this change may throw the upright flue out of adjustment with flues as shown on sheet 6, courses 9, 10, 11, and 12, especially so as, sheet 6, course 9, has flues running all the way across and thus being ready for a new rack over course as shown on sheet 6, course 10, also second rack over course 11 and third rack over course as shown on sheet 7, course 12. From all the above it can be seen that the rack covers consist of a system of one then two stretchers creating an upright draft flue finishing up with a third course with one tight string course leaving the two brick flues open. Shee 10 shows this very clearly, in that we have only one brick in the center of the bench yet the one, two and three brick rule for flue space is maintained. Sheet 7, course 13, shows tight courses for forcing or leading fire to the center of the bench where there is found adequate flue space. On sheet 8, course 14, we find centrally located, the two brick flue courses so as to distribute the fire evenly. Sheet 8, course 15, shows flues running clear across, allowing equal distribution of fires from arches and auxiliary flues formed in the setting. Some yard bosses at times change this setting, but when so done that it obstructs the flue space, then damage is liable to occur.

Fig 3



Sheet 10.

From sheets 1, 9 and 10 it will be seen that rack overs always are the next course above a tight course. This fact must at all times be looked after to prevent kilns from rotting. Sheet 9 shows how work can be changed to alter height of brick arch. Whenever possible always leave two branch courses underneath the tight course. One of the main features of this setting plan is: Be sure to keep the designated flue spaces open, so that the flues will not be choked off. Watch the setters. They may get in a hurry and forget themselves, and always recollect—

Uniform flue setting begets uniform burning results.

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Now and then we see some public utterance of criticism about lack of thoroughness in our technical and manual training schools. This is indirectly throwing a bouquet at trade schools. The way to get more thoroughness and training is to make the trade school a more conspicuous national educational system.

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Written for The Clay-Worker.

## AMONG PHILADELPHIA BRICKYARDS.

ORDINARY WINTER quiet has set in among the local building trades, with the result that activities of operation at many of the building brick plants of the vicinity have been correspondingly lessened. Notwithstanding this fact, however, the past few weeks proved conducive of a certain volume of business and are said to have been on a par with this same period of previous years.

Taken on the whole, 1914 with the building brick interests was hardly equal to 1913 with regard to the volume of business executed, but is considered generally satisfactory in view of the general business unrest which was prevalent in business circles generally. During this period building operations in the municipality fell off more than $3,000,000 in cost, as compared with that of the previous twelve months.

The annual report of the Bureau of Building Inspection of Philadelphia shows that there were 9,730 building permits granted during the past year, covering 15,686 operations, at an estimated approximate cost of $35,161,132. In 1913 there were 10,564 permits granted for 18,813 operations at an estimated cost of $38,763,850, which was a gain of $1,590,215 over the total cost of buildings erected here in 1912. The cost of building operations in 1912 was $37,173,635.

Appeals were taken by the Hamburg Vitrified Brick Manufacturing Company, of Hamburg, Pa., as defendants in four cases in varied actions, from the decisions handed down at hearings before Justice of the Peace S. K. Hoffman, at Reading, on December 18, all of which were rendered in favor of the plaintiffs.

Joseph Audesirk, who for the past several years had been associated with the Trenton Tile Works in the capacity of foreman, at the plant at Trenton, N. J., died recently at the offices of the company in that city, following an attack of heart disease. Mr. Audesirk had just hung up the receiver of the telephone in the office, when he was seen to fall to the floor. He is survived by his widow and five children.

Plans of organization are now in move for the formation of a company, under title of the Penn Clay Company, at Lock Haven, Pa., which will carry on the quarrying of clay on a large scale. The principal organizers of the new enterprise include Michael Dempsey and George Balz, of that place.

J. W. Bickford, treasurer, and S. M. Bickford, secretary, of the Bickford Firebrick Company, of Curwensville, Pa., have severed their affiliation with the firm. It is said that this action on the part of both the Mr. Bickfords is preliminary to their engaging in another line of business. The appointment of their successors have not been announced as yet, although John M. McKinley has been made manager of the works.

The Mount Eton Clay Company, of Saylorsburg, Pa., has been incorporated at a capital stock of $20,000, by William H. Kirkpatrick, of Easton; Rudolph J. Metzmiller, of Orange, N. J., and John H. Richards, of Jersey City. The company has secured holdings on many acres of land about one and one-half miles below Saylorsburg, and will conduct a general clay mining and washing business. The company has had work started on the erection of a plant, which it is expected will be ready for operation within the next few weeks.

Application for the appointment of receivers for the Nanticoke Brick Company was filed recently at Bloomsburg, Pa., by Fred T. Ikeeler, representing the members of the firm, on Monday, December 14. The petition disclosed the fact that the company had invested about $75,000 in its plant just outside of Mifflinville, while there is an indebtedness of $38,000 in addition to the $35,000 invested as capital stock.

The employes of the Crescent Pottery Company, as members of the Crescent Pottery Fire Brigade, an organization formed by the employes for the purpose of safeguarding the property of the company, held their second annual dinner at the Hotel Manze, Trenton, N. J., on Saturday evening, December 19. The gathering was presided over by John McCoy, president of the Brigade, assisted by Jacob Beck, chief, and James Campbell, assistant chief. A. QUAKER.

Written for The Clay-Worker.

# BUTTON HOLE TALKS.

## STILL JOGGING ALONG—No. 2.

FOR TWENTY-FOUR HOURS, a full day, we ran on, all the time going due west and all the time within the State of Montana. Level land again or slightly hilly. The great stock country. How much level country there is in the world, anyway. Most of it is of this character. The mountains are more conspicuous and hold our attention more, but they do not occupy so many square miles, and they are aggressive and commanding, whereas the level country is tiresomely uniform and hence uninteresting. Traveling across the continent it impresses you that you have the undulating, comparatively level country, then you cross the eastern mountains, then come the prairie states, the great Mississippi valley, the western plains, then the rugged backbone of the continent, the Rocky Mountains, then plains again, then the coast or Cascade range, and then on down to the waters of the Pacific. From the waters of the Atlantic to those of the Pacific is well on to four thousand miles, and you hit only three high spots. Very much like life, isn't it? The high spots we hit in life are few, though they stand out very noticeably, in high relief, like the mountains. Most of our lives, though, are spent on the level stretches, on the dead, monotonous, every-day, uninteresting, dead level. Just one scene like another scene, and one day like another day, and all the same, with a deadly and disgusting monotony and nothing to break its sameness. The high spots are so few that they necessarily stand out in high relief, are conspicuous and long remembered.

W. D. Gates.

Well, we slide down the western slope of the Cascades, down through ravines, thick with the tall, straight growth of the clustered Oregon pines, down the sloping valleys and into the wonder city of Seattle. Here the men not only built the city, but they remade the site. There were too many hills and too high hills, so they wiped them away—just wiped them off down into the marshes—and, having so done, they built on the hills and they built on the marshes, now remade into available, good building sites. Here they put up their warehouses and wharfs, while on the wiped-off sites they built business blocks, sky-scrapers and homes. Resting here for the night, I embarked in the morning for Victoria, in one of the "Princess" boats. Comfortably and luxuriously cared for, we pulled out from the bustling, busy city, out through the clustered fleets of shipping, northward over the deep waters of the Sound. Back of us, as the city dimmed in the distance, Mount Ranier loomed up gloriously. Cloud-like and blue, it towered up in the distance, standing, grandly majestic, above the city and the clustering hills. On and on we plow our rapid way through the deep waters, and, way to the west, we glimpse the snowy tops of the Olympic range, and as we lose Ranier at the south we pick up Mount Baker to the northward.

As I walk forward I turn a corner and run right up against the "Man-with-the-Square-Toed-Shoes."

I had first met him in the observation car, where I had seen much of him in the long hours of the jogging along across the plains. He was a square man all around, in every way, shoes and all, but what really attracted my attention to him at first, I think, was the way he shied away from the "Man-with-the-Lavender-Spats." For doing this he gained a strong place in my esteem, so that I offered him a really good cigar, which I happened to have, and we got chummy. Sitting in the two best chairs, with our feet up luxuriously at the rear window, he opened out on his views of the subject: "That fellow with the twisted nose can't help it; it's nature. That fellow with the worn clothes isn't to blame; it's pecuniary force makes him. That down-at-the-heel man isn't to blame; it's mother there, always at his elbow, that does the business for him. But that fellow exhibiting and parading those lavender spats is entitled to no excuse or apology. He is responsible for it all himself."

How could I help but like him after that, and then when we had finished our cigars, we lit up again, he, this time, fishing them out of *his* pocket, and better cigars, too, than the one I had given him. There were other things he had then said, but that is another story.

As we renewed our acquaintance we sought out a quiet and sheltered spot looking out toward the Olympic range, and, pointing out toward them and with a sweeping motion, that included all that vast territory between the Puget Sound and the Pacific, he proceeded:

"But for accident, all that territory would be to-day a British possession. When old Juan de Fuca was prominent in the discovering business he came up along this coast and attached his name, permanently, to the straits that still bear it and that are still interposed between Vancouver Island and that part of the United States that upholds those mountains over there. He left behind him also some reference to a river that he had seen, or thought he had seen, somewhere along the coast. Afterward, Magellan, then in the discovery business for England, and having heard of this reported river, carefully searched out and combed the coast without finding it. He finally ran into the Straits of Juan de Fuca, and through them, without knocking off a letter. He then went in and did a thorough job there, whatever he may have done elsewhere. He just took the right-hand bank and cuddled it, and hugged it, and snuggled up to it, and followed it up, wherever it went, until he had it all hunted out, traced out, and knew all about it. So he followed the Straits down to the Sound, and then he "nosed in" into every little and every big bend, or bay. He followed way down one side and back the other of "Hood's Canal," and then on, and still on, until he had defined this Sound and also that one to which he gave his own name, as he did to Vancouver Island, which he then, for the first time, proved to be an island.

"But if he had found the Columbia river, he would have placed the British line right down there, as I said, and this all would be British ground. We would now be within a country that is at war, and they might be inclined to call us out to fight their battles; might, indeed, put on us the uniform of a 'Tommy Atkins' or a 'MacDougall.' Really, we wouldn't want to be slaughtered in that attire; indeed, I'm not anxious to be slaughtered in any. I wouldn't even want to be killed wearing spats, though I ought to if I should wear them.

"Speaking of the Scotch outfit, though, just before I met you I overheard a discussion regarding them, one party asking the other 'Why the Scotchmen didn't wear trousers,' then stating he knew: 'It was because they couldn't get their feet through them.' I left before the hostilities were declared."

We had turned more to the westward and were in the Straits, passing between islands and approaching Victoria. We watched the city grow upon us; drew nearer and nearer, half circled, twisted up the narrow channel, into the little inside harbor, where the great Empress Hotel impressively stood out on the bank with its green lawns and shady walks. We bumped gently on the wharf and stepped on a foreign shore, and passed into the hands of the customs officers, in the jamb of the crowd. We hastened to disclose the contents of our grips, struggling to get to the officer and get his cabalistic mark on our baggage, so that we might be allowed to go on our way. But there was a fussy man just ahead of us, who had stroked the officer the wrong way, and, consequently the officer was taking special pains with him and the whole parade was stopped. The first look made the "Man-with-the-Square-Toed-Shoes" and myself stand aghast, with open mouths, for it was the "Man-with-the-Lavender-Spats." GATES.

# FREE PUBLICTY SERVICE FOR OUR READERS.

A Department Inauguarated in The Clay-Worker to Assist the Busy Manufacturers in Their Local Newspaper Publicity Work and for Other Advertising Methods. The Advertisements Together With Articles Published in This Department Should Bring Splendid Results if Placed in the Proper Mediums.

## IT PAYS TO ADVERTISE.

BRICK MANUFACTURERS, jobbers and dealers who are interested in pushing the "Build with Brick" campaign will have their faith in the efficacy of newspaper advertising strengthened by reading an interesting article, entitled "What Is Advertising?" prepared by Ralph Starr Butler, associate professor of business administration at the University of Wisconsin. Prof. Butler says that this type of advertising is a modern necessity which no merchant can do without.

"'I don't believe in advertising,' some merchants say when they are asked to tell people about their goods in the columns of the local paper. They think they mean it. But do they? What is advertising? So far as the retail dealer is concerned, advertising is anything he says or does to help in the sale of his goods, apart from his direct personal, face-to-face solicitation of the business of those who come into his store. Consider for a moment the store of Mr. Dealer who 'doesn't believe in advertising.'

"Above the door is a big sign, with the name and business in bold gilt letters. What is it for? To tell the people that this is Mr. Dealer's store and that he handles a certain kind

## Brick Adaptability

HAVE YOU EVER noticed the wonderful ADAPTABILITY and broad range of USEFULNESS to which BRICK is put nowadays?

Between the BUNGALOW with its BRICK porch columns, porch floors and steps, garden walls and walks, and the imposing and durable OFFICE BUILDING, there is a wide GULF, yet it is readily BRIDGED by the versatile BRICK.

(Firm Name)

(City) (State)

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## LET THE MARCH WINDS HOWL

Your Home
**BUILT WITH BRICK**
will keep you and your children warm. Its the
**BEST PROTECTION**
Safe from all the elements. Then too—you have the best investment possible, for it never deteriorates.

**Improves With Age**

REMEMBER
A Home
**BUILT WITH BRICK**
is the cheapest in the end.

LET US TELL YOU WHY

(Firm Name)

(City) (State)

of goods. Advertising? Certainly, and a most efficient form of advertising. Next, examine the show windows. They contain displays of goods carefully arranged to attract the eye of the passerby. Why? In order to give public notice of the goods carried in the store and to suggest the buying thought to those who see the display. Once more Mr. Dealer is advertising most effectively.

"Step inside the store. The goods are arranged attractively on the walls and in the showcases. And for one obvious reason: to show to store visitors what the store has in stock and to tempt the money out of the visitors' pocketbooks. This is advertising pure and simple. It can go by no other name. Note, too, the signs, banners, wall hangers, cut-outs, and other notices of various kinds displayed around the store. What is their purpose? To help in the sale of the store's goods. Advertising—nothing else.

"And why this atmosphere of service, these evidences of cleanness, these courteous clerks, and the other things that make people like to trade in the store? Is it possible that they all have an advertising purpose? The truth is that every man who sells a dollar's worth of goods is an advertiser, whether he knows it or not.

"The man who says he doesn't believe in advertising doesn't know what he is talking about. If he really believed what he says, he would tear down his sign, board up his windows, cover up his shelves, make kindling out of his store fixtures, and do business with intending customers through a hole in the wall.

"Newspaper advertising is only one form of advertising; all forms are good and they all work together to one end—the sale of goods.

"The merchant who is looking toward the largest success can no more do without newspaper advertising than he can do without his sign, his store windows, his display of goods, his service, his courteous clerks, his reputation, and the thousand and one other things that go to make up advertising.

"Newspaper advertising is a modern necessity, and the merchant who refuses to limit his business horizon doesn't try to fool himself by thinking that he can get along without it."

# Why

Do people build a frame house?

It loses in value each year.

And is a constant source of expense.

WHEN A
**FRAME HOUSE BURNS**
there is nothing left but the brick chimney.

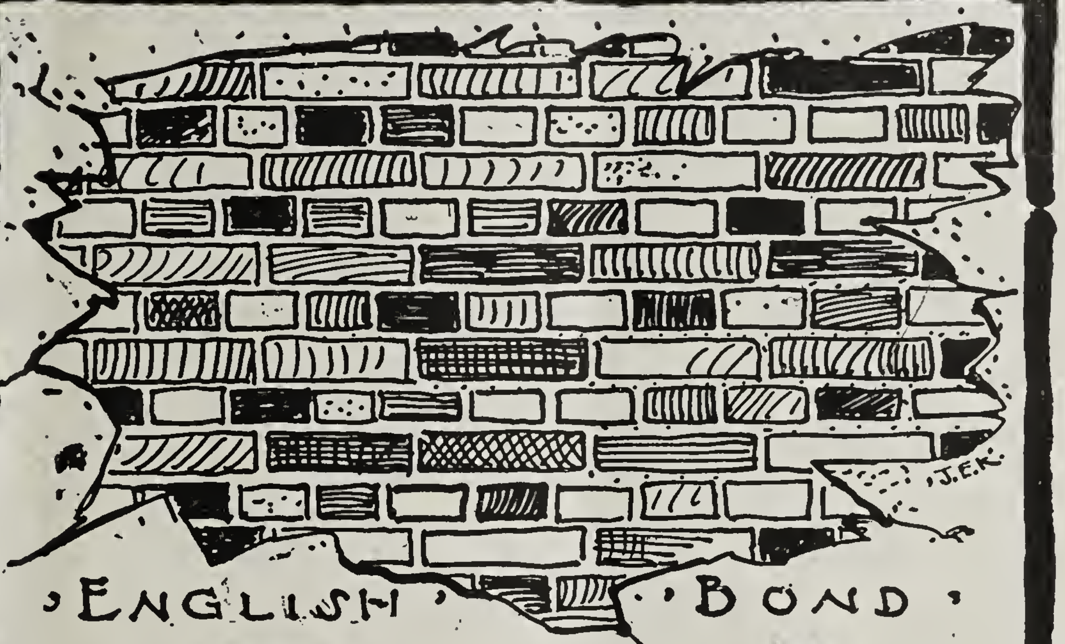
When a brick house catches fire nothing burns but the woodwork.

Which construction is the cheaper?

Let us give you many reasons why a Brick House is the cheapest and best.

(Firm Name)

(City) (State)



# Brick "Bonds"

One of the fascinating features of modern brick Craftsmanship is the great variety of effects obtainable by the employment of "wall bonds."

There are numerous interesting brick wall bonds possible, which any mason can lay, such as the English, Garden Wall, Flemish, Dutch Cross, besides an endless variety of brick patterns and other combinations of variegated brick.

They are inexpensive to lay and add hitherto undreamed of beauty to the wall of brick.

(Firm Name)

(City) (State)

# BUILD WITH BRICK.*

## What Brickmakers May Accomplish by Keeping This Slogan Before the Prospective Builders in Their Own Vicinity.

THE SLOGAN, "Safety First," brings forcefully to the mind thoughts of protection to the individual. It has become famous because of its brevity, its adaptability and popular usage. A synonymous slogan of more importance to the people of the nation, because it stands for the protection. comfort and safety for the entire family, is "Build with Brick." What is there that touches the heart of the American citizen more keenly than the home—the children and the helpmate, for his life's struggle is for their happiness, protection and future well-being. No other building material affords the protection, gives the satisfaction and brings the happiness that does well-burned clay products. Therefore, the slogan, "Build with Brick," has even a deeper meaning than "Safety First."

The "Build with Brick" slogan originated and advocated by The Clay-Worker in its campaign of publicity for larger and better sales for the entire clay trade is of more importance to the clayworkers of the land than any other feature of his business. For with the adoption of this slogan, the clay product manufacturer can produce by constant, persistent, conspicuous usage, returns far greater than any of us realize. Rightly used and boosted, it will increase the demand to such proportions that ultimately it will entirely eliminate the cut price evil.

Before going into the fundamentals of the campaign, let us analyze the conditions which brought it about.

### The Clayworkers Problem.

The chief problem before the clayworkers of the land today is the selling of their product at a price commensurate with its worth and the capital and labor used to give the people the best building and structural material possible.

What has been the main source of trouble in this respect? Why, keen competition, of course, between clay product manufacturers themselves creating cut prices and also strong competition with the cement and lumber interests. With the slashing of prices and the lumber and cement competition, the clay product industry was in a most critical condition. To be sure, we are producing and selling more than ever before, but the same is true of the cement and lumber interests, which have invaded our field and taken orders that rightly belong to us. Why? Not because they are better materials, nor because it is cheaper to build with them, for that is not the case in the long run, and time must be a factor in securing history-making statistics. The whole thing in a nutshell is, that they have stimulated their business by educating the public to believe that theirs is the most economical material, while ours is a luxury.

### The Cut Price Evil.

What had the clayworking industry done to counteract this stealthy foe that was eating into the vitals of the trade before the "Build with Brick" campaign was started? The industry in the main was trying to cure this cancerous growth of inactivity by cutting its own throat with cut prices. The individual turned a scornful finger at his competitor and said that he had caused him to do this destructive cut price business, while the seat of the trouble was in the back of his own cranium. He had been working for today and letting tomorrow take care of itself while his clay banks were disappearing and his machinery depreciating. A dollar today is worth two tomorrow, had been the theory, but paying two dollars for one never filled the coffers for the future generation nor strengthened his business. In other words, he squeezed what he could get and cut prices when competition was keen, not considering the effect on his trade. His sole idea was to beat the other fellow, even if it did give him a black eye.

### Apply the Law of Supply and Demand.

What will eliminate the cut price evil? Simply the law of supply and demand, i. e. the creation of a demand that will overbalance the supply. In that case, a price should be maintained at a substantial figure to assure each of the profit commensurate with his investment and labor, but not exorbitant, just suitable for the stability of a permanent "Build with Brick" business.

What is the best method for creating this demand? A campaign of education. There, gentlemen, you have the foundation for the "Build with Brick" campaign.

"Build with Brick" is taken figuratively, for while it is the slogan in the brick trade, "Tile Your Farm" takes its place in the drain tile field, "Pave with Brick" in the paving brick line, "Tile Your Roof" in the roofing tile division and "Build with Hollow Tile" in the hollow tile branch, etc. In the beginning, we did not wish to complicate matters, therefore we selected the largest field and the broad, comprehensible term and started the "Build with Brick" campaign, anticipating that its success would mean a more general use of all burned clay products.

J. E. Randall, Indianapolis, Junior Editor of The Clay-Worker and Instigator of the "Build With Brick" Posters.

### A Campaign of Education.

The "Build with Brick" campaign is strictly one of education, and must be considered a publicity movement covering every possible angle of the same.

A campaign of education may be made in hundreds of different ways, but the most effective is the kind that will receive the greatest co-operation. To get the greatest co-operation, the method of appeal to all must be inexpensive. That is the reason we based for the beginning of a nation-wide publicity movement an inexpensive advertising method, simply the placing of cheap tack card posters in conspicuous places, along the highways, in vacant lots, on telephone poles, on dilapidated frame buildings, on automobiles, on wagons, in street cars and in each and every place possible where "Build with Brick" would reach the eye of the prospective home builder and start him to thinking and talking about burned clay products.

Our first problem was to show the clayworkers of the land that there was a need for such a campaign, and it didn't take long, for there was absolutely no negative side to the question. It was purely a matter of how much emphasis to put into the affirmative.

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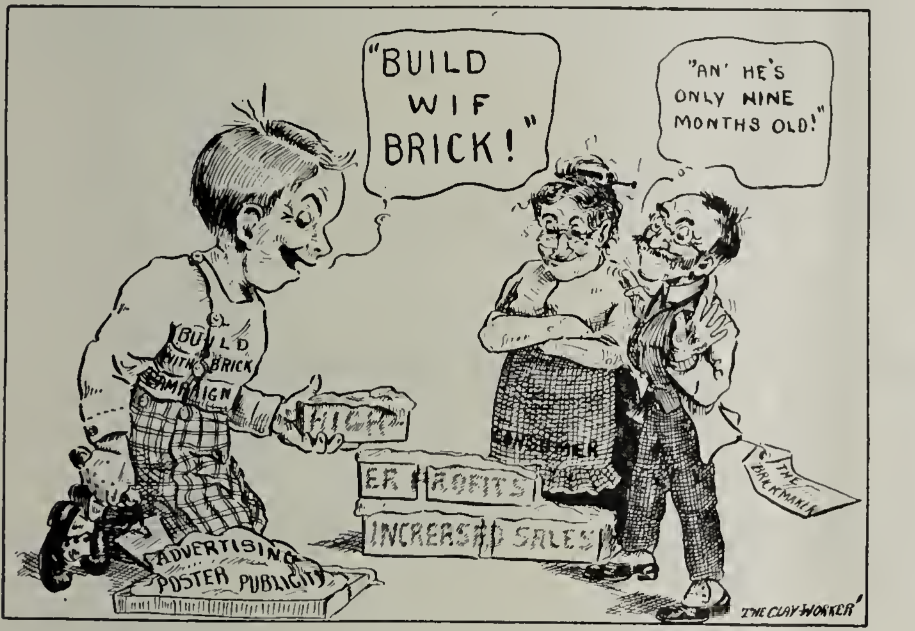
*A paper read before the Wisconsin and Illinois State Associations, 1915, by J. E. Randall.

Is it possible that any clay product manufacturer is so hard-shelled that he cannot realize that the general public does not really know the artistic, protective and economical values of burned clay goods? If there is, let us show him the hundreds of thousands of fire traps that are being erected today with lumber and cement.

### The Public Has Not Been Educated.

It is a proven fact that the public does not know the advantages and economy in building with burned clay products. Our vision has been blurred. We studied the history of burned clay products; it was meat and drink to us. We thought of it by day and we dreamed of it by night. We knew that burned clay products were the most durable materials made; we had proof thousands of years old; we knew that we were making the finest building material in the world, an everlasting material, one that contained beauty, strength, convenience, economy and all qualities desirable; yet we had kept it to ourselves for the most part, not appreciating the fact that the public was busy with other things and studied only the arguments put forth by our competitors. They really believed ours a luxury, and only obtainable by a large expenditure of money.



That Eugenic Baby, "What Will He Be When He Grows."
Drawn for The Clay-Worker, by George E. Miller,
Mt. Holly Springs, Pa.

The average clay product manufacturer did not educate the prospective builders. "It doesn't take a cannon to kill a snowbird," yet the cement and lumber people fired off their publicity matter in such a manner that there wasn't even a snowbird left for the clay product manufacturer to shoot at when their competitors' hunting season was over. Now that the clay product manufacturers have been through a few disastrous seasons of this sort, they are looking for more than snowbirds. They are loaded for bear. They have entered the "Build with Brick" campaign with a vim. They are educating the public. Along the country highways in many states are scattered the "Build with Brick" posters and metal signs. They are using the "Build with Brick" slogan in all the many ways suggested, have used it in their street car and local newspaper advertising, their circular work, on their envelopes, calendars and letter heads. The "Build with Brick" slogan has become a by-word; even the lumber people have adopted one of their own, "Build with Lumber," but they cannot begin to impress the public with it as the brick man can with our "Build with Brick."

### A World Wide Campaign.

The "Build with Brick" campaign is becoming more than a national affair. They are waging it in Sweden and other foreign countries. It is not a campaign operated by a special committee. It is a campaign, world-wide in scope. There are no funds collected, there are no fees assessed. Each clayworker boosts the campaign in his own way, but uses the slogan, "Build with Brick," to assist in the good effect it will have all over the country. He spends his own money, in his own way, in his own territory, where he will get direct returns and can watch his business grow with the increased demand he has created.

### Build With Brick A Permanent Campaign.

It is not a temporary campaign, it is a permanent campaign and it will grow, and those who boost the hardest will be the ones to profit the most. The movement is in its infancy, but it is swinging along with gigantic strides. Are you doing your share to stimulate the business, to educate the public, to increase the demand which ultimately will eliminate the cut price bugaboo? Safety first, therefore "Build with Brick," for it is the everlasting material, makes the structure beautiful, is time-proof, vermin-proof, fire-proof, frost-proof, element-proof, cool in summer, warm in winter, lowers the insurance rate, cuts the fuel bills, no cost for painting, no cost for repairs, only 6 to 10 per cent. higher in first cost, but the finest investment possible, for it improves with age. Remember, "Build with Brick."

We have this to say to the clay product manufacturers who have not entered this campaign.

A single skilled hand can do splendid needlework, but the large machine today takes the place of a thousand hands. That's what co-operation will do for your business. It is well enough to do your work well, but don't stick to your knitting while the house burns down around you. Lend a helping hand, devote some time apart from your manufacturing to put the fire out to which competition is adding fuel. Be a cog in the big machine. Look beyond the thin veil of your own surroundings, study the great movement and understand that it is of vital interest to you; that it will dissolve the fog of uncertain business and reach your office ladened with the spirit of greater co-operation that brings health and strength to any enterprise. It is not alone an individual benefit, it means the uplifting of the entire trade. If you study its fundamentals, you become a more interested manufacturer; if you become a part of the movement, you are not only doing yourself a great service, but you are aiding the trade in general. You are making America a better place to live in, for you are safeguarding the lives of our people by giving them fire-proof, sanitary homes.

Fellow Clayworkers, don't hide your light under a bushel, but let it be seen by all. Let every prospective builder, large or small, throughout our land know that it is to his interest and profit to **Build with Brick.**

## A TEMPERANCE LESSON.

There is one of the greatest temperance lessons of the day to be found in the demand for foremen and in the requisition of foremen for men. Take up any trade paper of the country and make a study of the help wanted columns, and many of them (all of them who think about it) insist that the applicant must be a sober man, while others carry the statement that no booze fighters need apply. This is not only true of advertisements for help in general, but it is especially true of the calls for foremen and men to hold positions of responsibility, positions that require the use of their brain. Many of those who are otherwise good men lose their positions simply through the intemperate use of strong drink, and so many captains of industry have been so seriously hampered and harrassed by the periodical sprees of men that today the one point insisted on more than any other is sobriety. It is a day in which no booze fighter need apply for anything that is much worth while in the industrial lines, and this very thing makes up a stronger temperance sermon than could be made out of all the pulpit preachings of the country boiled down together.

# DRYING OF CLAY WARES.

## By Ellis Lovejoy.

### PART XV. TERRA COTTA DRYERS.

IT IS A QUESTION whether we are justified in describing a dryer as typical of terra cotta. We have seen terra cotta modeled in a single piece over 40 feet long and 10 feet high. After the modeling the piece in question was cut into sections to be dried and burned, but each section was so complicated that the drying had to be watched and controlled. For such ware, and there is a great deal of it, a dryer of any type is obviously out of the question.

Monumental pieces of terra cotta can only be dried on the modeling floor, and the drying process involves the use of wet cloths here and there on each piece to insure uniform drying without damage.

This is equally true of other delicate wares, such as glass pots, flattening stones and retorts, some of which exceed a ton in weight, and the manufacture of which from start to finish requires several months.

Smaller terra cotta products, such as moldings, etc., which can be cut into small pieces of uniform size, can be dried more quickly, and such pieces may be and usually are removed from the modeling floor to some type of dryer.

One prominent terra cotta plant has the modeling floor (press room) underlaid by flues from the kilns, and all the heat from the burning kilns passes under this floor. At night, arrangement is made to force into the press room hot air from cooling kilns. This method is economical, but lacks sufficient control.

In two, perhaps more, installations the press room is underlaid by steam pipes in sections, each section being controlled by valves.

In several instances special dryers are provided for ware which will stand more rapid treatment than that of the press room.

Fig. 57 shows a dryer used in the manufacture of terra cotta. It is of the tunnel type and two-storied. The lower tunnel receives the terra cotta on cars. In the upper tunnel is a fan and set of steam coils.

The fan forces the air through the heating coils, thence the length of the upper tunnel, from which it passes into the lower tunnel and returns to the fan. With no outlet for the air there would be no incoming air, and the fan merely creates circulation. When the air becomes fully saturated no drying can take place.

In one instance the practice was first to continue this circulation until the ware became fully heated up, then to open a door, "A," in the end of the upper tunnel leading to the fan, also open the exit door, "D," of the lower tunnel, and close the opening, "C," between the upper and lower tunnels at the fan end. With these changes the fan would draw air from the outside, force it through the coils and to the end of the upper tunnel, then down into the lower tunnel and returning to exhaust at the delivery end of the latter.

In two other installations a small relief or escape hole, "B," is placed at the end of the upper tunnel opposite to the fan. Part of the air, forced through the coils by the fan, escapes through this relief hole, while the remainder passes through the ware and returns to the fan.

The quantity of air which escapes through the relief hole must be replaced by outside air through "A." The lower tunnel doors are kept closed all the time except in filling and emptying, and after the inlet and vents are adjusted to the ware no changes are necessary.

In this dryer we have the most satisfactory conditions for drying difficult ware—a rapid circulation of hot, nearly saturated air.

In two factories which have come under our observation all ware that has reached the stage of rapid drying and can be removed from the press rooms (which have steam-heated floors) is taken to drying rooms which have slotted floors and through which air is forced by a plate fan. The air is drawn from the outside through heating coils, or from cooling kilns. It is also provided that hot air, after passing through the dryers, may be forced into the press room to maintain the temperature of the latter and provide a nearly saturated air, which is desired for the initial drying stages of freshly molded wares, and also during the modeling.

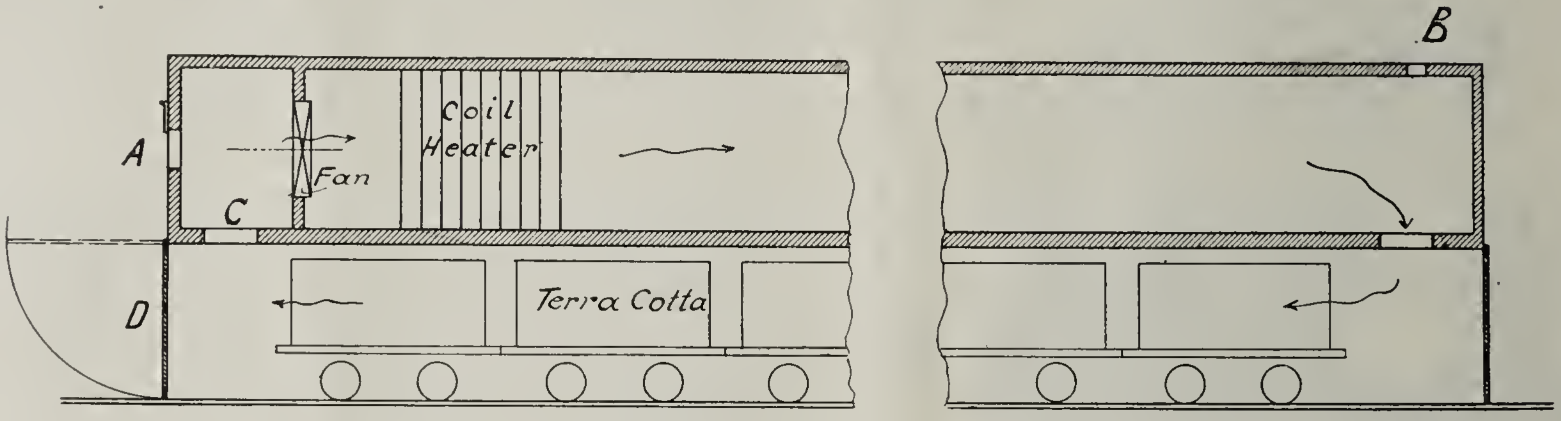


Fig. 57 Longitudinal Section

### The Scott System.

The Scott system is a method of drying, rather than a dryer, since the purpose of the system is to eliminate the dryer. It is applicable to stiff-mud bricks. Dryer cars, trucks, etc., are replaced by conveyor belts.

The take-off belt from the cutter is extended along the fronts or ends of the kilns. Opposite the entrance of each kiln a cross-conveyor takes the bricks from the main conveyor into and through the kiln, and from this belt they are taken off by the setters.

The bricks are set six to eight courses high, or to whatever height they will carry the weight. The floor of the kiln is completely covered to this height, and it is the aim of the system to have the kilns of such size that they will hold one day's run of machine.

The kilns have a system of under-floor flues, and after the kiln floor is fully covered with the first setting of bricks, hot air by means of a fan is forced through these distributing flues and up through a perforated kiln floor, among the bricks, and escapes from the top of the setting.

If the clay will stand rapid drying, the bricks so set can be dried during the night sufficiently to carry the weight of a second setting on top of the first lot.

In this case the cross-conveyor is raised to the proper height for a second setting, and the total height at the end of the second day is twelve or more courses. At night the heat is again turned in, perhaps completing the drying of the first setting, and hardening the second setting sufficiently to carry the weight of a third setting. The operation is repeated until the kiln is filled to the proper height, and the burning begins with the advantage that, except the last setting, the bricks are dry, or nearly so, and heated up.

If the clays will not stand such rapid work, two kilns are used alternately, thus giving thirty-six hours for drying each setting.

The take-offs, dryer transfer men and tossers in the kiln are eliminated, except one man is required to remove the waste cut from the belt where cutters making a waste cut are used, and one man is required to transfer the bricks from the main belt to the cross-conveyor.

Before introducing the hot-air system of drying, it was attempted simply to set the bricks in the kiln as high as they would stand and dry them during the night by means of light fires in the furnaces, but this method of drying failed because it was impossible to properly distribute the heat, and the system only became practical with the introduction of hot-air drying as worked out by Mr. Scott.

In one instance, where natural gas was available, gas pipes with a series of jet flames were placed through the arches, and at night these were kept burning to provide heat for drying. We do not know how successful this gas firing method proved to be, but it has not been duplicated so far as we know.

The gas-pipe method of drying is very simple, but it is only applicable to up-draft kilns, while the Scott system in its entirety is equally applicable to up-draft, rectangular, down-draft and chambered continuous kilns, and is in operation in yards equipped with these several types of kilns.

The Underwood system of burning up-draft kilns with producer gas would give a wider use of the Scott system of conveying and drying, provided it is practical to dry the bricks in kilns with a direct flame, as in the natural gas flame method mentioned above.

Among brickmakers, especially those using continuous kilns, there has been some discussion in regard to the possibility of drying the bricks regularly set in the kiln, thus eliminating the dryer.

The practicability of this is doubtful. In the first place, few clays will in the green state support the weight of regular setting.

Next arises the difficulty of regulating the rate of burning to that of drying, and this has been found a difficult problem, and an unsolved one in this country, by those who are trying to introduce car tunnel kilns for drying and burning, in which the bricks are set on cars at the machine and the loaded cars travel successively through the several stages of drying, burning and cooling in a tunnel kiln. The discussion of this operation belongs under the head of progressive dryers and will there be considered.

However, if drying in the continuous kiln becomes practicable, it will lead to a decided change in the construction of our kilns, and in this event a kiln along the lines of the German zigzag kiln, with its low crowns and convenience for mechanical setting, would likely be developed.

Among the economies suggested by those discussing the problem is that of fuel, the claim being made that the drying could be done entirely with waste heat. This is a mistake. The only waste heat in a continuous kiln is that which escapes through the stack or draft fan, which is very little, and that lost by radiation, which is not recoverable.

If we succeed in utilizing the continuous kiln for drying we must increase the present burning fuel consumption from 50 per cent. to 100 per cent., which in itself is a problem in many continuous kilns at present operated. In our present knowledge, and with the present continuous kiln development, drying stiff-mud products in the kiln is not feasible, except possibly in some type of car tunnel kiln, of which there are now one or two promising prospects being worked out.

(To be continued.)

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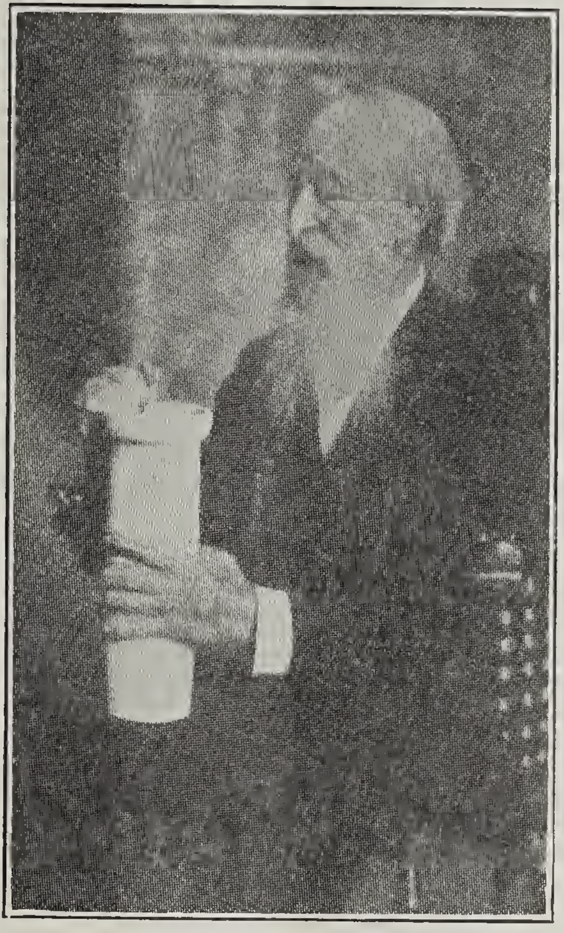
## ANCIENT TILE TELLS A STORY.

### Test of 55 Years Sustained by Product of City's Oldest Manufacturer.

FIFTY-FIVE YEARS AGO M. Ohnhaus ran a pottery in Whitewater, Wis., and his small plant was located south of the railroad, where the Wisconsin Dairy Supply warehouse now is. A few weeks ago J. G. Werner, of the Whitewater Brickyard Company, learned that Mr. Ohnhaus had laid some tile in 1859 to drain the water from his pottery into the pond. The clay that Mr. Ohnhaus used came from the brickyard pit, and it occurred to the gentlemen interested that some of that tile, if it could be located, could tell the story of Whitewater clay's wearing quality better than a volume of affidavits on expert tests.



A Drain Tile Laid in 1859, Recently Exhumed and Found None the Worse for Age or Use.

Although Mr. Ohnhaus is now ninety-two years of age, he went down to the site of his old industry and pointed out where he believed the tile to be. John, his son, protested that the place was twenty feet away, and that the old gentleman had forgotten. Remarkable as it may seem, the tile was struck within three inches of the point designated by the old gentleman and about four feet underground.

Five sections of the tile, which Mr. Ohnhaus had turned out by hand and baked under extreme difficulty, were unearthed, and one of them is now on exhibition at this office. We want every citizen of Whitewater to see it, not only for the workmanship, which was splendid, but as a positive evidence of the none-better quality of Whitewater clay for tile purposes. The section in question is still white. The frost has not chipped it nor heaving ground broken it. It rings like a bell and there is absolutely no sign whatever of deterioration.—Whitewater Register.

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The best way to put real beauty in a concrete structure is to face it with brick and trim with terra cotta.

# OFFICIAL ANNOUNCEMENT.

## THE TWENTY-NINTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION TO BE HELD AT DETROIT, MICH., FEB. 15-20, 1915.

### The American Ceramic Society, the National Paving Brick Manufacturers' Association, the National Clay Machinery Association and Other Auxiliary Organizations Will Hold Separate Sessions During the Week.

The Twenty-ninth Annual Convention of the National Brick Manufacturers' Association will be held at Detroit, Mich., February 15 to 20, 1915, a cordial invitation having been received from the brickmakers of that city, who have formed a local association, the aims and purposes of which are to encourage and promote the use of brick and other clay products by all proper means. To enable them to do this effectively, they have employed an experienced publicist and have opened an office in the Dime Savings Bank Building, where the officers of the association meet at frequent intervals and from which they will issue bulletins and other printed matter, setting forth the superior qualities of brick as a building material. This is the modern idea of promoting industrial interests, which is well worthy of emulation by the entire craft.

Detroit is a modern city in the best sense of that term. Perhaps in no other community is the spirit of progress more predominant than in the Michigan metropolis. For this reason and the added fact that Detroit is one of the most prosperous cities in the nation, it is meet and proper that the brickmakers of the land should gather there in response to the cordial invitation from her local manufacturers who have been actively interested in the national association from its first meeting twenty-nine years ago. It will be the second N. B. M. A. meeting in Detroit, the convention having been held there in 1900.

### No Reduced Railroad Rates.

The custom of granting reduced railroad rates to conventions has been abandoned by American railroads generally for the reason, railroad officials state, that the prevailing passenger rates are so low that no appreciable reduction is admissible. Those coming from beyond state lines can use their local mileage, which will be practically the same rate as heretofore made under the certificate plan, and will offer the added advantage of admitting stop-overs at any point, or variable routes either going or returning. The latter is of decided advantage to those who may want to visit clay plants en route, or to extend their trip to points beyond the convention city.

### Hotel Headquarters.

Detroit is so centrally located that it may be reached quickly and comfortably by a very large majority of the members of the association, hence it is anticipated that there will be a large attendance, all of whom will find unexcelled accommodations at the new Hotel Statler, which will be headquarters during the convention.

The new Statler Hotel is a beautiful brick structure, containing 800 guest rooms, each with private bath. Considering the accommodations and service, the prevailing rate at the Statler will be reasonable. It has 400 rooms equipped with shower bath, toilet and running ice water. For these the rate will be $1.50 to $2.00 per person, according to location. The other 400 rooms are equipped with both shower and tub bath and the rate for these rooms are $2.50 to $6.00 per day per person. Those wanting parlors for entertainment purposes will be accommodated with facilities seldom found anywhere, at home or abroad. Those desiring to make reservations in advance are requested to address Hotel Statler, Detroit, stating character of accommodations desired, number in party, and date of intended arrival.

### No Public Exhibition of Machinery.

There will be no public display of machinery, etc., as the manufacturers have themselves expressed a preference for private displays in their own rooms at the Statler. However, there will be an exhibition room for the display of specimen brick, trade literature, etc., in a room adjoining the convention hall, where those having private displays may announce the location of their rooms, etc., through placards or bulletins.

The Statler Hotel Which Was Thrown Open to Guests February 5, With Fitting Ceremonies.

### Entertainment of Ladies.

A special local committee has been appointed to look after the comfort and entertainment of the visiting ladies. The latter are requested to register on arrival with the assistant secretary, so they may be given program of entertainment and souvenirs, tickets to theater parties, etc., etc.

### A Night of Good Roads.

Tuesday evening there will be an informal reception and musical entertainment followed by an illustrated lecture on "The Importance of Minor Details in the Construction of Brick Paved Roadways," by Professor Frederic N. Menefee, of the Michigan State University, Ann Arbor, Mich., and an address on "Good Roads and How to Get Them," by Jesse Taylor, editor of Better Roads, Jamestown, Ohio. The latter function will be under the auspices of the National Paving Brick Manufacturers' Association, and any and every one interested in this all important subject is cordially invited to participate.

### A Reception and Smokerette.

Wednesday evening the delegates to the convention and those accompanying them will be the guests of the local committee on entertainment, including the ladies (it's a smokerette), at an informal smoker in the banquet hall of the Statler. The chief feature of entertainment will be musical in character, during which the members will have an opportunity of renewing old acquaintances and extending the glad hand to new members.

### The Annual Banquet.

The annual banquet, or association dinner, will occur Thursday evening at 7:30 o'clock in the beautiful banquet hall of the Statler Hotel. It will be preceded by an informal reception on the mezzanine floor beginning at 6:30 p. m. Following the rule which has prevailed for several years, it will be a subscription banquet under the direction of the N. B. M. A. executive committee, assisted by the local committee. The Honorable A. J. Groesbeck, of Michigan, will serve as toastmaster, and a number of eloquent speakers will respond to appropriate toasts. The ladies will grace the occasion, as usual, and full evening dress will be in order, though by no means necessary.

### A Trip to the Brick Plants.

Friday there will be a trip to the brick plants, a special train for that purpose being furnished by the local committee. One of the great automobile plants will be visited, and as these represent the highest type of modern industrial equipment and as Detroit is the chief center of this great industry, it should prove exceedingly interesting.

### Souvenir Badge and Number Button.

An appropriate souvenir badge and number button will be presented to each visitor with the compliments of the Detroit executive committee. The badges and buttons will be distributed by the secretary of the N. B. M. A. at his headquarters on the mezzanine floor of the Statler Hotel, where visitors are requested to call and register on arrival.

All sessions of the national convention are open to the public. Those who are interested directly or indirectly in clay work of any character or the use of clay products of any sort are invited to join the association and participate in the proceedings of the convention. Members and their families or friends who may accompany them will be expected to participate in all the entertainment and proceedings.

### Rules of Procedure.

All formal resolutions shall be presented in writing.

At the close of each essay or address an opportunity will be afforded for a full discussion of the subject under consideration.

No papers or essays not included in the regular program will be heard unless previously submitted to and approved by the executive committee.

Papers and addresses delivered during the convention become the property of the association, and, in accordance with the rules of the association, may not properly be given out for publication except by or through the secretary.

The proceedings of the convention will be copyrighted to prevent piracy, but the greatest publicity will be given all the convention papers and discussions at the proper time, after the report is complete, not before, when copies of any and all papers and discussions may be had free of charge on application to the secretary.

Interior of Michigan Central Depot, Which is a Fine Example of Modern Brick Work.

### Convention Sessions.

As in former years, convention week will be divided by the

N. B. M. A. and affiliated bodies, including the American Ceramic Society, the National Paving Brick Manufacturers' Association and the Clay Machinery Manufacturers' Association. Any other kindred associations desiring to hold meetings will be afforded facilities for doing so.

## PROGRAM.

### First Session—Wednesday, February 17, 1915, 2:00 P. M.

Opening prayer, Rev. W. E. Sayres, Detroit.
Welcome to Detroit, Hon. Oscar B. Marx, Mayor of Detroit.
Response, A. R. D. Johnson, Raleigh, N. C.
President's Annual Address, Eben Rodgers, Alton, Ill.
Report of Treasurer, John W. Sibley, Birmingham, Ala.
Election of officers and members of standing committees.
Installation of officers.
Reports of standing committees.

1. "Progress in the Education of Clayworkers" (Illustrated), Prof. Edward Orton, Dean College of Engineering, Ohio State University, Columbus, Ohio.
2. "Fire Prevention," Floyd E. Waite, Society Advocating Fire Elimination, Cleveland, Ohio.
   Discussion led by......................................

### Second Session—Thursday, 9:30 A. M.

3. "The Other Fellow in the Brick Business," Thomas E. Wilson, Pittsburg Clay Products Co., Pittsburg, Pa.
   Discussion led by......................................
4. "The Up-to-Date Method of Boosting the Brick Game," Robert C. Mitchell, Sales Manager The Farr Brick Co., Cleveland, O.
   Discussion led by S. B. Dobbs, Philadelphia, Pa.
5. "Meeting Competition," F. W. Fitzpatrick, Consulting Architect, Washington, D. C.
   Discussion led by Fritz Salmen, New Orleans, La.
6. "Modern Brick Architecture" (Illustrated), Robert Spencer, Jr., Architect, Chicago, Ill.
   Discussion led by Herman L. Matz, President Panama-Pacific Clay Products Association, Chicago, Ill.

### Third Session—Thursday, 2:30 P. M.

7. "Unsolved Problems in Clayworking," R. T. Stull, Director Ceramic Department, Illinois State University, Urbana, Ill.
   Discussion led by......................................
8. "Kiln Expansion and Bracing" (Illustrated), Carl B. Harrop, Assistant Professor Department of Ceramic Engineering, Ohio State University, Columbus, Ohio.
   Discussion led by......................................
9. "The Testing of Large Brick Piers" (Illustrated), J. H. Griffith, Bureau of Standards, Pittsburg, Pa.
   Discussion led by......................................
10. "The Modern Idea of Encouraging the Larger Use of Building Brick," Wm. J. Bowen, President International Brick Co., El Paso, Texas.
   Discussion led by......................................

### Fourth Session—Friday, 3:00 P. M.

11. "Simplified Brickyard Accounting," A. Pritchard, President The Adams Clay Products Co., Indianapolis, Ind.
   Discussion led by......................................
12. "Modern Methods of Controling Kiln Temperatures," J. W. Robb, Manager Clinton Paving Brick Co., Clinton, Ind.
   Discussion led by......................................
13. "Producer Gas, Some of Its Advantages and Disadvantages as Applied to Periodic Kilns," James P. Williams, Clayworking Engineer, St. Louis, Mo.
   Discussion led by......................................
14. "Some Things Southern Brick Manufacturers Desire," J. M. Jenkins, Montgomery, Ala.
   Discussion led by......................................
15. Reports of committees and miscellaneous business.

### Questions for General Discussion.

In addition to the foregoing addresses and papers, various papers pertaining to brickyard practice will be discussed. Any member desiring information on any specific detail of the business, may obtain same by submitting questions in writing to the Secretary.

### Affiliated Associations.

The National Paving Brick Manufacturers' Association will hold its sessions Monday and Tuesday in the convention hall, Hotel Statler. For program and further particulars, address Will P. Blair, secretary, Engineers Building, Cleveland, Ohio.

The American Ceramic Society will meet Monday and Tuesday and Wednesday forenoon in Hotel Tuller, which is just across the street from the Statler Hotel. For program and information as to membership, etc., address Edward Orton, Jr., secretary, Columbus, Ohio.

The National Clay Machinery Association will hold its formal sessions Monday and Tuesday in the convention hall annex, Hotel Statler. For further particulars, address R. C. Bennett, Wellington, Ohio.

Those desiring further information as to requisite of membership in N. B. M. A., formal program, etc., are requested to communicate with the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE.
Eben Rodgers, President.
Theo. A. Randall, Secretary.

General View of One of Detroit's Old Time Brick Plants,

# WITH DETROIT BRICKMAKERS.

## Some of the Interesting Things Visitors Will See Convention Week.

THOSE WHO ATTEND the coming national convention are going to have a fine time with the Detroit brickmakers. The latter know from experience, having themselves attended many conventions, what is required to make a successful convention, and they are going to demonstrate that they need no assistance in that connection. A program of entertainment has been mapped out that will make the twenty-ninth annual convention a memorable event.

The convention city is pretty generally credited with being the most prosperous city in the United States today. This is due, in a great measure, to the immense automobile industry, which brings a golden stream of the coin of the realm to her people from all quarters of the globe. This tremendous inflow of wealth has naturally affected all lines of industry. Every Detroiter, whether rich or poor, feels the uplift. The prosperity of the automobile manufacturer is passed along to his employe, and he in turn passes it on to his neighbor, and so the golden stream courses on, carrying cheer and plenty to every one.

Prosperity in any community always leads to more and better building, and so the brickmakers of the convention city have enjoyed a series of busy seasons, for there have been constructed within the city limits of late years immense factories, great commercial buildings and many permanent homes, most of which have been built of brick. In consequence, there has been a steady demand for good building brick that has kept every yard in the vicinity running full handed, and every "hand" has received good wages that have provided him with a full dinner pail. Good prices have prevailed, thus providing the means for improvement and enlargement of plants, most of which, while of the same type, will appear quite different now from what they did when visited in 1900 when the N. B. M. A. met there before. Detroit birckmakers are progressive, and the present-day equipment is much better than it was even a decade ago. More substantial buildings have been erected and better facilities have ben providd for very detail of the work. This will be quite manifest to those who make the trip around the belt scheduled for Friday.

The name of Clippert has been conspicuous in the brick business of Detroit for two generations or more. Father Conrad Clippert was a good brickmaker in his day and his sons, George and Charlie, are worthy successors to the name and business. Their plants are located on the main line of the Michigan Central railroad, as are a number of others. During the past few years the old frame buildings have been replaced with handsome brick structures. Their yard office is now a model structure for the purpose; a handsome red brick building, near which are equally substantial brick structures for housing their horses, of which they have a large number, mostly fine draft horses, for they haul a goodly portion of their output by wagon. These wagons, like those of the other plants, are decorated with The Clay-Worker's "Build With Brick" metal posters. It's a good way to advertise locally.

### The Clipperts and Their Plants.

The business is carried on under the firm name of George H. Clippert and Brother Brick Company, and they make, all told, 65,000,000 brick per annum, operating the plants throughout the year. They have, all told, some 200 acres of clay property, which is worked to an average depth of 20 feet. They use a Thew steam shovel, Davenport locomotive and bottom dump cars. The clay is hoisted by cable, dumped into a pug mill, fed into a disintegrator and to the machine. They use Wellington, Potts, Martin and Bartlett & Snow machines. The latter is a new candidate for trade favor with novel features, notably an automatic off-bearing attachment. At first glance, it looks very complicated, but it runs seemingly with very little attention and has proved quite satisfactory, "Charlie" says. The brick are dumped onto metal pallets, and automatically carried by cables to the steam rack dryer. The cable carrier, in conjunction with the Matthews carrier system, works as if actuated by human intelligence, and is certainly a great saving in labor. The brick are dried in twelve hours and are taken to kilns in cars. They are burned with fuel oil in six days, two of which are required to do the water-smoking.

Not far from the Clippert Brothers' plants is that of William Clippert. Here, too, the Bartlett-Snow machine is used and much the same method of manufacture prevails as at the other plants. In fact, all of the Detroit soft mud brickyards

Fuel Oil is Used by the Detroit Brick Manufacturers. Note the Tank Cars on the Siding.

are much alike, so that a description of one answers in a measure for all.

### The Plants of the Mercier-Bryan-Larkins Co.

The Mercier-Bryan-Larkins Brick Company, formerly the Lonyo Brick Company, is but a short distance away. Mr. Charles Bryan, who has been a conspicuous figure at many of our conventions of late years, is the active manager of the plant and is always ready to extend the glad hand to visiting brickmakers. They are now erecting a new plant half a mile beyond the old one, which will embody the most modern ideas and improvements for a soft mud yard.

### Jno. S. Haggarty's Side Line.

Another of the old-time plants, the brick from the kilns of which have been used in many of Detroit's best buildings, is that of John S. Haggerty, who is a born brickmaker, his father having operated the plant before him. Near the plant is a substantial brick home, erected by Haggerty, senior, many years ago. Its neat appearance is an object lesson in the durability of brick as a building material. Mr. Haggerty is now a man of affairs and identified prominently with the city's civic life, but he will never entirely give up his first love, the brick plant.

### Detroit's Drain Tile Plant.

Another pioneer clayworker who has been identified with the business from boyhood is Fred J. McDonald. His plant is not devoted exclusively to building brick. Instead, the major part of the output is drain tile, in which he has done an extensive business for many years. He, too, is the son of a brickmaker and his father is still a factor in the business, though he has not been actively in the business for some time. In making the run out to his plant, we passed over some concrete roads, for which Detroit has become somewhat famous. There were some good and some bad. We give a picture of one of the latter sort. We were told it was less than three years old and the reader can see with his own eyes that it is very much the worse for wear.

### The Pewabic Pottery.

Ceramists need not be told that Detroit is the home of the Pewabic pottery. It is an unpretentious pottery, but it has produced some very artistic faience, an excellent sample of which may be seen in the chancel of St. Paul's church on Woodward avenue. Another attractive bit of art work will be found in the buffet of the Griswold Hotel. Visiting ceramists may take their choice between the two. Each is distinctive in design and are monuments to the artistic conception and technical skill of Miss Mary Chase Perry, under whose direction the pottery has been conducted since it was established, a decade or more ago. Miss Perry, while modestly disclaiming any features of particular importance in and about the pottery, has expressed the willingness to welcome visitors, especially those engaged in ceramic work. The pottery can be reached in a few moments, being on the direct line on the Jefferson street trolley line.

### The Ajax Brick Co.

The one and only stiff clay brick plant in Detroit is that of the Ajax Brick Company, which will be visited during the trip around the belt. It is the child of the brain of Mr. C. K. Davis, who has his own ideas as to what a modern brick plant should be. Consequently, the plant is original in many respects. For one, the clay is partially calcined before going to the pug mill. This is accomplished by passing the raw material through a heated revolving cylinder. Thence it goes to a disintegrator and a Fate combined pug mill and brick machine. They have a twin equipment, consisting of two Premier machines, one with a side-cut automatic brick table for side-cut brick, and the other equipped with an end-cut automatic table for hollow brick, all from the Fate shops. The plant was started July 1, 1914, and has a daily capacity of about 150,000 common wire-cut brick, 70,000 hollow brick, and 33,000 soft mud brick. They have an unlimited extent of blue clay, which they are at present working to a depth of 18 feet, but they have a considerable depth of clay beneath that. The material is handled from the bank to the machine by means of an electric drag line and special dumping cars.

The brick manufactured are standard in size and are dried in about twelve hours in a producer gas direct fired dryer. The brick are handled from the machine to the dryer and

Factory Office of George H. Clippert & Brother Brick Company.

Fine New Brick Stable of the George H. Clippert & Brother Brick Company and Some of Their Fine Draft Horses.

In One of the Clippert Clay Pits.

from dryer to kiln by means of steel pallets carried on cars propelled by air-driven locomotives. The brick are handled from kilns to cars or wagons by hand loading. They are burned in one up-draft kiln with the Underwood patented producer gas-fired system. This kiln is operated continuously and progressively, and it requires about four and one-half days to water-smoke and burn the brick. The hollow brick are made and handled, dried and burned by the same process. The plant will be attractive to visitors because of the unusual features.

The Old Haggerty Brick Home in a Fine State of Repair, Though It Has Housed Three Generations.

Emptying a Kiln of Common Brick at the Haggerty Plant.

Power and Machine House, Haggerty Plant.

### Detroit's Building Brick.

The annual output of building brick by the Detroit brick plants totals nearly 300,000,000. These are made by thirteen firms, those not mentioned above, including dealers, being: A. & W. Cooper, The Jacob Daniel Brick Company, Delta Brick Company, Detroit Vitrified Brick Company, Dresden Brick Company, Fairview Brick Company, F. B. Holmes & Company, F. Long & Son, Lonyo Bros., Lonyo-Harsha Brick Company, McDonald Coal and Brick Company, Michigan Pressed Brick Company, Porath Brothers, Puritan Brick Company, Robinson Clay Product Company, F. B. Stevens & Larned, Thomas Bros. & Co., Walker & Frank Brick Company, F. H. Wolf Brick Company.

### Face Brick Exhibits.

Several of the face brick dealers have very attractive displays of front and ornamental brick in their offices, some of which we have pictured in the columns of the Clay-Worker, and at any and all of which the glad hand will be extended to visiting brickmakers convention week.

The latter is also true of "Trade Missionaries," among whom are the American Blower Company, whose initials alone, A. B. C., are known to every clayworker in the land. They have an immense manufactory, which can be reached in five or ten minutes by trolley line, and where everything up to date in the way of ventilating, heating and cooling devices may be seen in the making. Their ad may be found on page 154, this issue.

The Baird Machine & Mfg. Company manufactures pottery machinery, see page 283, and will show their latest improved flower pot machine, under belt at their office and ware rooms, 34 and 36 Jefferson Ave.

The office of the Detroit Manufacturers and Dealers Association is located in the Dime Savings Bank Building, Room 2016, where the clever, indefatigable manager, William B. Wreford, is on the job during business hours ordinarily, but during the convention he and the officers of the Association and all the brickmakers of Detroit, will make their headquarters at the Statler Hotel, where they would like to meet and greet every brickmaker in the land, from Maine to California and from the Lakes to the Gulf.

### The Ford Motor Co.'s Plant.

We have already remarked that a goldren stream flows to Detroit. The volume of this stream may be imagined when it is known that the annual revenue of the Ford Motor Co. alone exceeds $150,000,000, or $12,500,000 per month. That such an enormous enterprise could spring from one man's brain and initiative in but little more than a single decade is past belief, but there it is and those who attend the N. B. M. A. convention, February 15-20, will be given an opportunity to go through the great factory where they make on an average three complete automobiles every minute of every working day in the year. The record day's run in the Ford factory is said to be 1,635 machines in eight hours. There are 20,000 employes in the Detroit factory. Just think of a daily pay roll of one hundred thousand dollars, and, too, what the distrition of that vast sum among the people of a city means in buying power. The plant encompasses 65 acres. The foundry is said to be the finest foundry in the world, a dustless foundry, as clean as a tidy housewife's pantry. The same may be said of every department of the great factory.

Perhaps the most remarkable thing about the Ford factory is that it is innocent of anything like a mortgage. The Ford business is run on a cash basis, so far as the purchase of supplies and materials is concerned—spot cash 'tis said.

Wonderful! Yes, it is the marvel of the age. Perhaps the visiting brickmakers may gather a hint, when going through this vast establishment, that will aid them in pushing their own business more energetically. The train for the trip around Detroit will leave the Michigan Central station at 9 a. m., Friday. No tickets will be necessary, just an N. B. M. A. badge, that's all. Lunch will be served on the train, with the compliments of the local entertainment committee.

### Detroit Roofing Tile.

Another unusual clay plant is that of the Detroit Roofing Tile Company, which was established in 1906. It is operated the year round and turns out six different patterns of roofing tile, in colors to suit the user. The mechanical equipment was furnished by the American Clay Machinery Co. and The J. D. Fate Company. The tile are dried in tunnel driers and burned in permanent kilns, the yearly output averaging eighteen thousand squares. The company's office is 308 Hammond Bldg., where the manager, John D. Stege, is always glad to welcome visitors. Delegates to the National Convention will be doubly welcome and those sufficiently interested will be shown through the factory, which is located at Springwells, a suburb of the city.

Stock Pile and a Portion of Factory of the Detroit Roofing Tile Company.

## NEAR-BY POINTS OF INTEREST.

### Across the Border Line.

Detroit, bordering on the Detroit river, has for its neighbors the prosperous neighboring towns of Windsor and Walkerville and just to the south of Windsor is the site for the new steel city of Ojibway. In the bordering Canadian towns are many large manufacturing plants, including the Canadian branch of the Ford Motor Car Company and Walker & Co., distillers. Walker & Co. are among the largest distillers in the world. Visitors are always welcomed at either of these, and, incidentally, Windsor has one of the best equipped racing tracks in the world, where annual spring and fall races are held for both runners and trotters. It is but a short distance across the river from Detroit and ferries leave every three minutes from the foot of Woodward avenue.

### The University of Michigan.

Ann Arbor, home of the University of Michigan for seventy-five years, has been more widely known throughout the United States than almost any other institution of learning, Harvard and Yale excepted. Its equipment is worth $4,000-000, which does not include seventy-six fraternity and club houses, which are the same as dormitories in other colleges. There are 471 teachers and professors and last year there were enrolled over 6,500 students. Its museum is one of great interest, containing a valuable exhibition of birds, animals and curios. It also contains a very valuable Chinese exhibit, donated by the Chinese government. The library and art galleries of the University of Michigan are quartered in the Hall Memorial Hall, donated by Arthur Hall, of Saginaw, costing $3,000,000. Its athletic grounds, known as Ferry Field, seats 45,000, and is a point that can be visited with interest. It requires but one and one-half hours on the electric railway and one hour on the Michigan Central to reach Ann Arbor.

### Michigan's Famous Spa.

Mount Clemens, known as the "Bath City of America," is twenty miles from Detroit or fifty minutes' ride on the electric railway cars which operate every half hour. There are fifty hotels in Mount Clemens and they are modern in every way. The water used in Mount Clemens is a natural sulphur mineral water and its medicinal purposes are known throughout the United States—an excellent place to recuperate for a day or so following the convention.

### The Y. M. C. A. Swimming Pool.

Those who are fond of gymnastics will find ample opportunity to gratify their fancy at the Y. M. C. A. Hall. It is one of the best equipped institutions of the character in America. Its swimming pool is especially attractive and its steam baths unexcelled. The local committee on entertainment will furnish tickets of admission to visitors desiring same.

## BACK TO MICHIGAN, TO FISHAGAN.

The above is the title of a parody on a popular song, written by local talent for the coming National Convention. Other similar and equally clever parodies will be included in the songbooks used, both at the smokerette and at the banquet. Harmony will be the keynote at Detroit, and will find expression in many happy ways.

General View of the Detroit Roofing Tile Company's Plant.

## I WANT TO BUILD ONE.

### Tune—Back, Back, Back to Michigan.

### By H. Campbell and V. Tucker.

I want to build one,
I want to build one,
I want to build with solid brick,
Walls twelve inches thick,
Get 'er started mighty quick,
For I'm a booster,
Although I us 'ter
Build with wood and other stuff,
But now I know it isn't good enough,
Nevertheless—I want to build one,
I want to build one; I want to build one
That will sell,
That's why I wish again I lived in Michigan,
Where they build well.

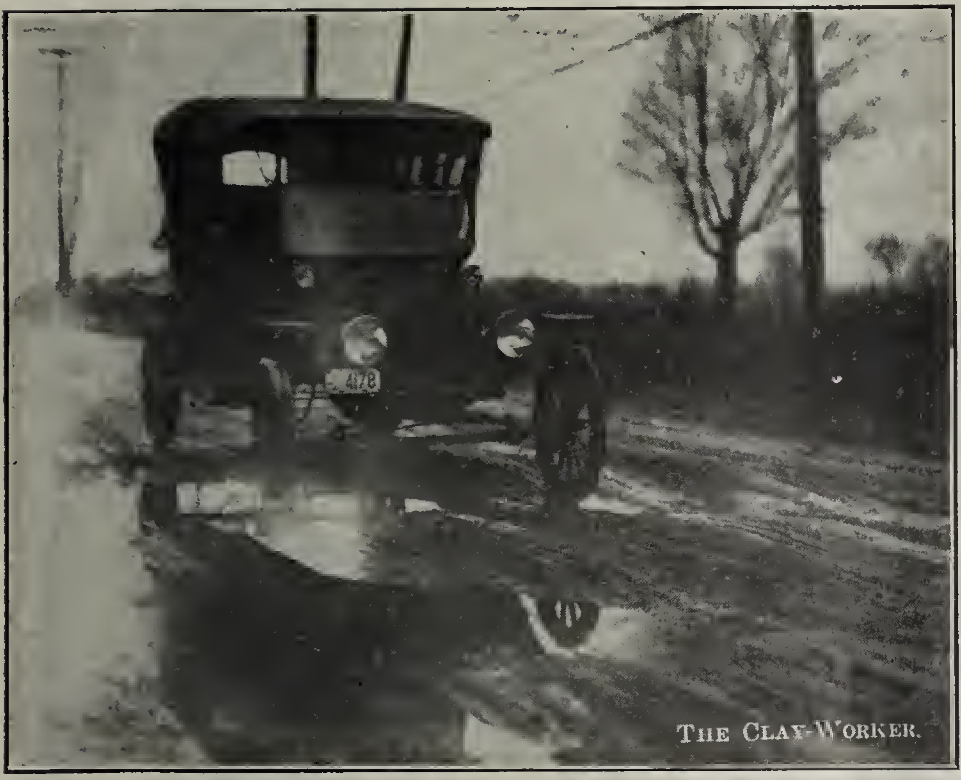
## WHY BRICK PAVEMENTS ARE BEST.

### Teamsters Use Car Tracks Because of Better Foothold.

To the Editor: No doubt you have tried to walk on a slippery, icy pavement. It is considerable of a strain on a man to keep his balance and occasionally, when his feet begin to slip out from under his body, the struggle to regain his footing is of such a nature as to upset his mental poise for the balance of the day.

How much greater is the strain on a team of horses when they have to haul a heavy load on a pavement that affords them absolutely no foothold.

The asphalt and creosote block pavements at present in use in the city of Detroit are dangerous for vehicular traffic in the winter season, and it is not surprising that teamsters use the space between the car tracks when the opportunity presents itself. There are two reasons for so doing:



A Concrete Pavement on One of the Main Thoroughfares Leading Into Detroit, Very Much the Worse for Wear, Though It Was Laid But Two or Three Years Since.

First: The brick pavement between the car tracks gives a good foothold for the horses.

Second: It is an established fact that once a wagon gets started on a brick or stone pavement its momentum is more easily maintained than is possible where the pavement is not so favorable for teaming purposes.

I venture to say that there is not a teamster in this city that would not rather use the streets without car tracks than those with them, provided the same headway could be made on the former; but when the streets are a sheet of ice it is a matter of necessity, for the welfare of his horses, to take advantage of the only safe footing that is available, and unfortunately the space between the car tracks is about the only place where horses can walk comfortably and safely.

Teamsters do their best to avoid delaying street cars but occasionally it happens that it takes longer to turn off the tracks than anticipated, owing to the slippery condition of the pavement alongside the car tracks which makes it difficult to get straightened away once the attempt is made to leave the space between the tracks.

We are glad to see that you appreciate the fact that teamsters do not wilfully delay the cars, and hope that you will go a little farther and help us secure a pavement on the streets of Detroit that will make it possible for teamsters to use the side streets for teaming purposes and avoid as far as possible the use of the railway tracks.

J. LAYTON ALLYN,
President Teamsters' Union No. 14.
In "Detroit Electric Service."

## SOFT BRICK A SERIOUS PROBLEM.

THE SOFT BRICK is to the brick manufacturer practically what the low-grade board is to the lumber manufacturer. It is a product that costs about the same for production, but will not command the full price and bring the same returns as higher grade products. There is this difference between brick and lumber: The low-grade lumber comes from defects in the log which are beyond the power of the manufacturer to correct, while the soft brick is made of the same raw material as the hard brick and the percentage of soft brick may be considerably reduced by proper care in kiln design and in firing. In other words, the percentage of soft brick is not a question of raw material so much as it is a problem in kiln work. We are at a point in the progress of the brick industry, too, where this problem should be wrestled with to the end that we may have the smallest percentage of soft brick. The soft or salmon-colored brick is to some extent being crowded out of wall construction. Hollow tile blocks are taking the place of it in some work and in other cases the preference is being shown for a thinner wall made of hard brick, and between these crowding influences the use of soft brick is being so seriously restricted that the welfare of the common brick industry centers largely on reducing the percentage of soft brick to the lowest possible figure. Some day we will perhaps attain the point where soft brick is only a small incidental factor instead of an important one in brick burning, and the sooner we attain that point the better it will be for the brick manufacturer and for brick values in general. There is perhaps no other point in connection with the manufacture of clay products that the trade may concentrate its attention upon with promise of better results than that of the practical elimination of the soft or salmon brick by reducing it to a hard burned brick.

One of William Clippert's Delivery Wagons.

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One of the interesting exhibits at the Panama-Pacific Exposition will be furnished by the United States Geological Survey. In this exhibit there will be shown everything from the ore to the frying pan. In other words, many familiar household articles will be shown, together with the material as it comes out of the mines and the different processes through which it goes between the mine and the finished product.

## NORTHWESTERN CONVENTION AT MINNEAPOLIS.

### Bigger and Better Meeting Than Ever—Association Developing Strong Symptoms of Being a Live Wire.

THE SEVENTH ANNUAL convention of the Northwestern Clay Association was held in the West Hotel, Minneapolis, Tuesday and Wednesday, January 19 and 20. There was a better representation of actual brick dealers than has been the case at any previous convention. A stronger effort was also made to get up a program of the character desired by the members, and the result has been a greater interest shown than ever before.

The election of Ferris B. Martin as president for the new term is a deserved recognition of his efficient services as secretary for over a year past. Mr. Martin took hold of the work as secretary a few weeks before the 1914 meeting was held, and in a short time formulated a program and went through the preliminaries toward getting a convention under way, acquitting himself with great credit. During the past year, he has issued letters in a campaign for securing additional members and for outlining the wants and work of the association. He has been indefatigable in his efforts, and his services have been keenly appreciated.

The illness of Mrs. Madsen, wife of President M. C. Madsen, Hutchinson, detained him at home, and B. F. Pay, of Mankato, Minn., was called upon to act as president. Mr. Pay was an excellent executive and kept to the schedule of the program in a remarkable manner. The program was carried out in full, and at no time was the work far from schedule.

The first session started with the registration of members and a little renewal of acquaintances, after which there was a call to order. The president's annual address was read by Vice President Pay, as follows:

"Gentlemen of the Convention—It gives me great pleasure to be able to greet you at the opening of this session of the seventh annual convention of the Northwestern Clay Association.

In looking back over the history of this organization, I can say that while we have not accomplished much, yet we have formed a nucleus around which to build a larger and more powerful organization. Times, attitude of men's minds and business conditions have not warranted the forward march that is now at hand. Our sister states have done much for the brick and tile manufacturers and dealers in their state organizations, and the hand-writing on the wall now shows that the time is ripe for a definite organization, one whereby we know exactly who our members are and if any stay out, why they do so. The good work done in Wisconsin and Iowa has been accomplished because their representative associations and organizations are not of a loose type but one of definite membership; and to me this has seemed one of the crying needs of this association.

A movement was started in the last convention to remedy this evil which I trust will be carried out during these present sessions; whereby the work of the president and secretary and such committees as are necessary, then can properly be held in line.

Being able to meet one another, both in conventions and in between sessions, is of great value and to talk over our difficulties of manufacture and competitive selling, should wipe out some of our troubles. A heart-to-heart talk will time and again show us that the other fellow is not such a terrible being after all.

Use the question box freely and be just as free to help answer the questions. No names are expected to be signed to the questions, so no embarrassment will be caused.

It is gratifying, indeed, to see that our members are increasing and that the standard of our program has risen and that we are all pointing towards a practical solution as well as a closer brotherhood of the clayworkers and distributors."

F. B. Martin read a report as secretary-treasurer, outlined the work of his office and the campaign which had been made for additional members. He admonished the members that they should not fight with each other, but for each other, for the benefit of the trade as a whole. He urged the get-together spirit, and working to determine costs of manufacture and what constitutes a fair profit. The treasury had a modest balance on hand.

On motion, a committee was named to confer with the Northwestern Lumbermen's Association with reference to threatened changes in the Minnesota lien law.

W. F. Chapman, with the Minneapolis Improvement Bulletin, spoke on "Advertising for the Brick and Tile Maker," basing his talk on answers received to a set of questions sent to one hundred manufacturers, as to whom they advertised to, and what they thought of the media used. Only ten responded, of which six advertised to the architect and the builder in trade publications; five in trade publications, and others by novelties, such as pencils, purses, calendars, blotters and other similar items. One followed up reports of owners in his vicinity intending to build frame residences, by showing for what the same house could be built of brick, without changing the plan.

"Surprises of Fire Insurance Policies," by John L. Thomas,

One of the Clippert Plants, Overlooking the Clay Pit.

of Chicago, proved most interesting and instructive. He pointed out that the fire insurance policy is a contract in which each party agrees to do certain things, and which, if the insured neglects to carry out his own part, he is cutting into his own chances of recovery in full, in case of fire. In determining the value of the plant, he explained that it consists in the cost to replace it in the present market, less wear and tear as represented by depreciation. But to recover, the insured must be able to show a set of verified plans and a bill of costs for the equipment. The plans must show the fire walls or the fire units as established by the fireproof separations of the different buildings. The machinery must be described in detail, so that the same inquiry can be made of the manufacturer. In figuring the value of the plant, if it is built by the owner, with his own force, he is entitled to figure the market cost of material and the market price of labor, and to include architect's fees, the cost of the machinery, plus charges of installation and freight, all being a charge in connection with the plant which would have to be met in replacing it.

An interesting address was that of Wm. C. Koch, of the Twin City Brick Company, St. Paul, on "Cost Finding and Accounting." He outlined the essentials to finding costs, being a careful separation of all charges into their respective departments, and a reassembling of the items in order to make up a proper assignment of the charges. The imperative need of a complete accounting is to determine that the capital invested shall not be impaired through a failure to make proper entries and charges of changes, improvements and depreciations. Depreciations must be determined and charged, and this may vary, since the development of improved devices may render a machine of far less value than its condition would justify. The overhead charges must be carefully figured and apportioned over the operating months of the year, in order to determine the cost of production. Certain fixed charges, such as taxes, which go on whether the plant is running or idle, must be spread over the twelve months, but productive charges must be applied to the operating periods, since they are to determine the cost of production. Depreciation of the claybank should be figured by an estimate of the probable length of time it will serve at the regular rate of production, and the annual reduction be charged off in the proportion shown. The depreciation rate should be figured on the basis of a uniform rate of depreciation per annum, less the value as scrap at the end of the time. In figuring costs, they must be figured upon the net production after the waste has been figured off, otherwise the cost per unit will be wrong. For purposes of comparison, it is better to keep time in hours rather than in wages, since it permits comparisons to be more easily made. The same should be done on coal or wood, being kept in quantity rather than in price, for the latter fluctuates, but the consumption per unit of measuring should be exact as showing increase or decrease. Selling costs should be figured from all manufacturing costs, delayed payments, bad accounts, legal advice and other charges. The total divided by the production will show the cost per thousand, over which a profit must be made, if the establishment is to make any money. And the sooner all hands in the brick manufacturing business find out what it actually costs to manufacture their wares, the sooner there will be a stop to price cutting, and competition will turn upon quality and service. Answering a question as to a policy of the company to pay men in charge of machines a bonus to keep down repairs, Mr. Koch explained that the men were allowed a fair amount for keeping the machines in shape against minor repairs and overhauling, they to do the work upon their own time. If they handle the machines and watch them so as to keep them from having small accidents, and did not have to put in any time in repairs, they made the amount paid clear. They have every inducement to keep the machines in shape and never let them go to the point where a serious breakdown will occur.

### The Banquet.

The banquet was well attended. A quartette of ladies sang the popular songs. The principal speaker of the evening was to have been George M. Gillette, president of the Minneapolis Steel & Machinery Company. Mr. Gillette was detained, but was represented by Mr. Merrill, of that company, speaking upon the Minnesota lien law and the attempts now being made in the legislature to amend and change it. Mr. Merrill stated that lien laws are of purely American origin, differing from all other laws, which are based in general upon the English law and practice. Maryland had the first lien law in 1791 and the law spread until all states have lien laws, except Arizona and New Hampshire. The basis of the law is that the property so used, loses its individuality and cannot be reclaimed, while it benefits the realty. The chief objection to the lien law is that it sometimes works a hardship to the owner and results in charging upon him for bills incurred and wrongdoing by a contractor. The present law has ample protection for the owner, if he will but avail himself of it.

F. B. Martin, Minneapolis, President of Northwestern Clay Association.

All present were urged to express themselves to their senators and representatives upon the matter.

### Second Day.

"The Application of Electricity to Brick Plants," by W. C. Drake, of Pittsburgh, proved an interesting story of saving accomplished through the use of motors, with the saving of line shafting and belting, over the steam drive, with the shafting to be turned and the friction losses. From the growth of electric power in brick plants, he anticipated that in a few years electric power would pass both steam and gasoline power.

G. A. Morrison, of South Milwaukee, Wis., gave an illustrated lecture on the use of steam shovels in brick plants, for handling material from the clay bank. This address showed numerous plants, working in various kinds of material, from soft to hard. He showed how they reduce the dependence upon labor, reduce the cost of delivering the material to the machine and serve to give a better handling of the material than can be done in other ways.

C. M. Avery had an interesting address on "Clay Storage, Its Advantage and Methods Employed Under Various Conditions." He described a number of different methods and plants using storage and mixing systems employed.

The nominating committee reported the following, who were elected by acclamation:

President—F. B. Martin, Twin City Brick Company, Minneapolis.

Vice President—B. F. Pay, Fowler & Pay, Mankato, Minn.

Secretary-Treasurer—L. G. Rose, Minneapolis Clay Brick Company, Minneapolis.

The new president subsequently named the executive committee as follows: M. C. Madsen, Hutchinson, Minn.; Jacob Voelker, Winona, Minn.; A. C. Ochs, Springfield, Minn., and E. H. Cobb, Minneapolis.

A very interesting account of the "Economic Application of the Pyrometer" was given by J. W. Lazear, of Chicago, of the Brown Instrument Company and the Keystone Electrical Instrument Company, Philadelphia, which aroused a number of questions as to the worth of the device, and its advantages.

Another interesting address was by Jacob Voelker, a brick manufacturer of Winona, Minn., on power scraping. Mr. Voelker had a scraper devised but had to rebuild it when delivered, and has perfected it. A half yard scraper, on an endless cable, operated by a 25-horsepower motor, will supply material to make 40,000 brick a day, on 200 feet drag and on 150 feet drag, it will supply enough to make 67,000 brick a day. Two men are required, one to operate the motor and one to work in the bank. They move the platform where the clay is delivered and the winding drum once a year. It will work up a bank or on a level, but will not deliver down a slope with satisfaction. The scraper can be set to take off any thickness from two inches to greater depths.

Charles T. Harris, of New York, secretary of the Hollow Building Tile Manufacturers' Association of America, had come up from Chicago for the last day, and addressed the convention upon the work of the scope proposed by the association. He predicted that there is a tremendous field for brick and tile in this country. He related the history of the paving brick association and what it had accomplished for its members, and of the face brick association, and predicted the same for the hollow tile. He anticipated a standardization of materials, a test of strains, test of fire resistance and other steps to be undertaken.

## The Question Box.

Much interest was taken in the question box. The questions had been multigraphed and distributed, so that there might be a full understanding of the questions when the answers came. Some of the questions are given.

Question: Is there any known standard of erecting round downdraft kilns that can be renewed on the inside only, while the outside remains as good as when erected, except kiln bands, etc.?

Answer: Yes, by building the crown about 8 inches and resting upon the outer wall. It is necessary to reline the interior to about 4 inches. The interior should have a little space from the exterior wall, to allow for expansion, otherwise the wall may buckle under heat. The bands have to be renewed from time to time.

Question: How can limestone pebbles be eliminated from clay and if by grinding, how fine should it be ground so as not to be a detriment.

Answer: There were several answers which did not wholly agree. One said to grind to powder, while another declared that the powder gave more trouble in weakening the whole piece than if left in a single pebble which would pop when slacked and that would be all. One recommended washing the clay, which adds a cost of 50 to 75 cents, and the clay must go through a winter of freezing before it can be used. The concensus of opinion was that limestone is a good thing to let alone and to keep away from.

Question: Is producer gas used successfully in firing downdraft kilns and how about economy between producer gas fired kilns and coal fired kilns.

Answer: Yes; producer gas is successfully used at the plant of the Legg Brick Company, Calhoun, Ga., and economically. An instance was cited of a plant proposed, which figured coal fired cost of production at $7.18 and producer gas fired at $4.98. Some question was raised as to there being as much difference between the two, but none objected to the answer that producer gas was more economical, if the plant were laid out for economical arrangement. One answer stated that it required Illinois washed nut coal for the producer, and burning cost about 70 cents, against $1.00 for coal fired.

Question: Who uses gravity conveyors for loading brick and tile, and are they a success?

Answer. They are a fair success if the brick or tile do not have to be sorted, but if there is sorting to be done, it interferes with the loading. Hollow block can be loaded better this way than by wheeling.

Question: What is the best method of burning common brick in a square updraft kiln with coal for fuel and outside firebox?

Answer: Mr. Schroeder, of Shakopee, Minn., stated he uses the Boss system with 4½-foot walls, laid up the entire wall with clay. They use mine-run coal and screenings and put the blower on the second day. They first had trouble getting the heat to the top but corrected that by proper setting and proper water smoking. Their cost for burning, without including the labor charge, is 82 cents per thousand for sand mold brick. They water smoke for five days and burn from seven to ten days. They figure the labor cost from 15 to 25 cents per thousand. The fan or blower is run by electricity, secured from the General Electric Company, and costs about $6.00 a kiln of 300,000. They soak the coal thoroughly to get a better color for the brick, and a darker shade, and use mortar color in the molding sand. They figure the cost of burning with labor around $1.00. Others stated they had used mortar color in the fire, to improve the color of the brick, and found it helped, but this was not a general experience.

Question: Have rough texture brick come to stay and is the demand as good as for end-cut and side-cut brick; has the stiff mud brick come to stay; given a fully equipped dry pressed brick plant, is it advisable to change same to a stiff mud process in view of the present demand for the rough brick?

Answer: The rough texture brick has come to stay, because it has produced a new method of interesting architects and owners and of offering them something different with which to work out their problems. It has done away with the troubles formerly had in getting exact shades, whereby anything less than the exact shade favored had to be sold as seconds, and has cut prices because of affording a market for a full kiln of good stock.

Question: Can a silo be built of common standard sized brick, laid up with an air space between inner and outer course with the addition of a pressed steel device to answer the purpose of a reinforcing rod and tie, and if not, why not?

Answer: Such a silo does good work, though it should be lined with hollow block and common brick outside. Proper reinforcing should be provided. One brick manufacturer has sold such silos, payment to be made when the owner admits being satisfied, and has not lost anything by this offer.

Question: Is 10 per cent. over the cost of frame construction a fair price?

Answer: Yes, for solid brick construction.

Appropriate resolutions were adopted thanking Secretary Martin, Vice President Pay and other officers for their work for the association, as well as those who had contributed papers, and also a resolution impressing on the members the wisdom of educating the public to the advantages of brick as a fireproof building material.

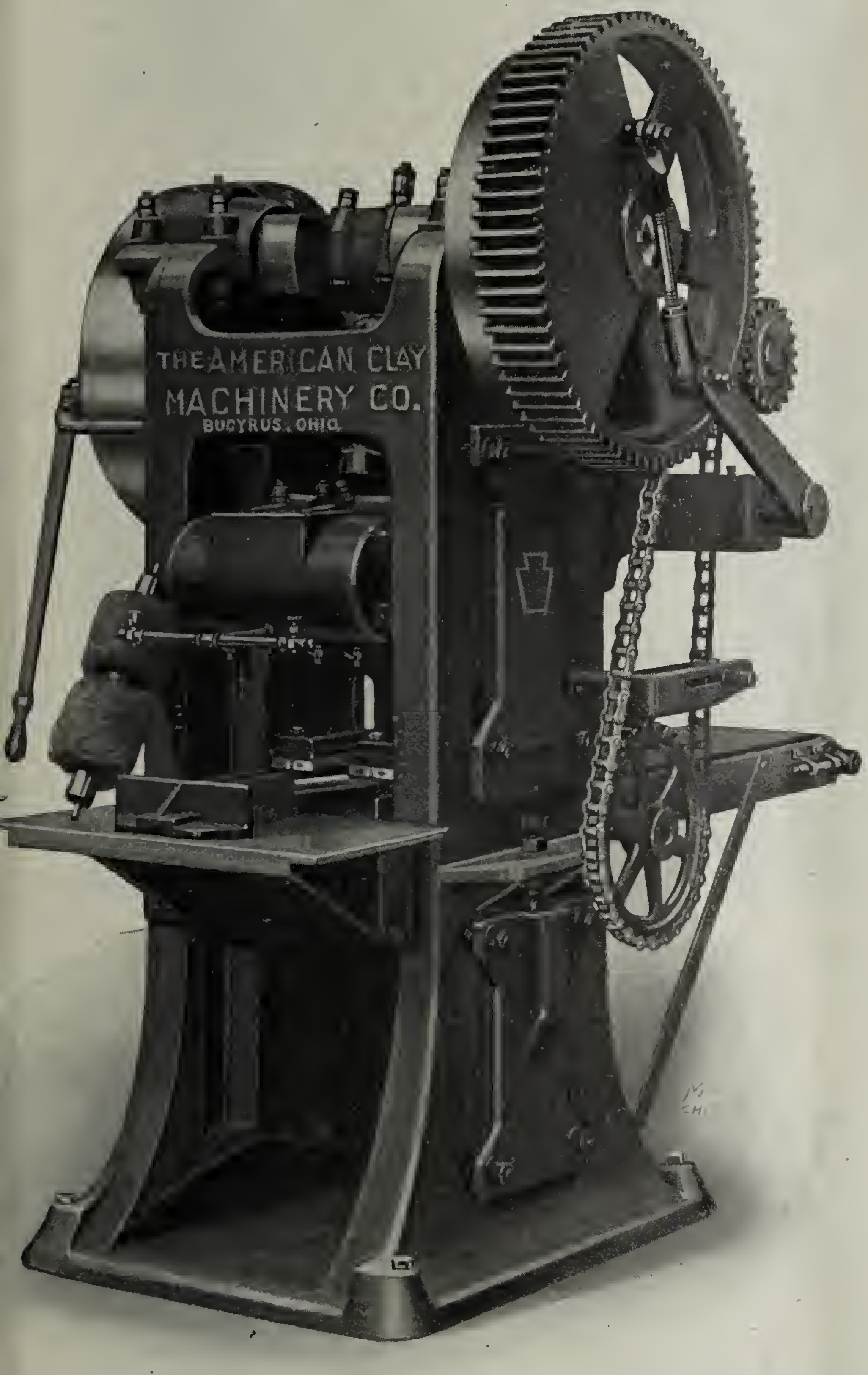
A final action was taken to correct the standing of the association technically by a motion to establish a permanent organization, with all those who had paid dues as the nucleus of a permanent membership, to be expanded as rapidly as possible, after which the convention adjourned.

## A GREAT IMPROVEMENT IN REPRESSES.

### Says C. P. Mayer, First Vice President of the N. B. M. A.—Does the Work of Two Presses.

Recognizing the demand for a better repress, the American Clay Machinery Company has conducted exhaustive experiments with the object in view of meeting present and anticipating future requirements in this line.

Accordingly, the necessary time was taken for building and testing three different designs of represses, and the No. 292 has been selected as best answering all requirements.



The American Clay Machinery Co.'s Latest Repress.

It has stood up under severe service, does good work, the mechanical movements are very simple, the number of parts cut in half by dispensing with those that are wholly unnecessary and combining the base, side frames and cross ties in one piece, resulting in a machine that is proving highly satisfactory from every point of view.

The first machine from these patterns was shipped to the C. P. Mayer Brick Co., Bridgeville, Pa., November 20, 1913. It was promptly installed and inspected from time to time. Soon after putting the machine in service, Mr. Mayer noted the smoothness of all the movements and the idea occurred to him that it was capable of being run at a faster speed, accordingly he made satisfactory arrangements with the men who operate it, and to the present writing has done all his repressing on the one machine instead of the two older machines formerly used. The machine has been in constant use and has a daily average of around 30,000 paving blocks. One day's record was noted recently, in which 32,805 paving blocks were made in nine hours and forty minutes.

With men capable of keeping it supplied with material, it is equal to still greater speed, but it is likely that the limit of speed at which men can work has been reached.

There are now a number of these presses in operation, sixteen thus far having been sold.

Write for complete specifications to American Clay Machinery Co., Bucyrus, Ohio, whose ad appears on page 253.

## RIVER TRAFFIC IN THE UNITED STATES.

Statistics gathered by the Department of Agriculture show that the river traffic in the United States, business on our inland water ways, is now generally local and long runs by fast steamers is rather a thing of the past. The report of our river traffic in detail is published as Department Bulletin 74, Inland Boat Service, and deals in particular with freight rates, time of transit and length of routes.

A run of 400 miles or more by freight boats is the exception rather than the rule. On only 25 of the 102 routes for which speed information was available was the average rate of speed over 10 miles an hour and on 37 it was less than 6. An average of from 6 to 10 miles an hour amounts to 75 or a hundred miles in a night's run which is a good rate of speed for local freight traffic.

The department was more concerned with the freight service as related to farm products than anything else, but the information gathered should prove valuable to all other shippers.

In the east the principle routes of steamboat line include those of the Hudson River and the Chesapeake Bay. On the Hudson the brick traffic though not treated specifically is an important factor; there is a through service from New York City to Albany and a number of short routes. Then there is the through traffic of boats carrying cargoes from the Erie Canal to tidewater. In Chesapeake Bay the traffic radiates principally from Baltimore, Washington and Norfolk.

The largest inland water routes are found in the Mississippi Valley. From Cincinnati regular lines run down the Ohio and Mississippi as far as Memphis, a distance of 749 miles. From St. Louis, on the Mississippi, there are regular lines run as far north as St. Paul and as far south as Memphis. Other lines reach Kansas City over the Missouri, and Peoria, Ill., and on the Tennessee as far as Waterloo, Ala. From Memphis through boats run from the Mississippi where they connect with boats from New Orleans.

New Orleans is the center of several important runs in addition to the direct one up the Mississippi. One line follows the Red and Black Rivers to Harrisonburg, La., and various other routes traverse the network of rivers, bayous, and canals and there is also considerable traffic on Lake Pontchartrain.

A large common brick plant, of the Chicago type, is being erected at Bernice, Ill. John P. Hatch and others are interested.

The Hardstone Brick and Tile Company, Chicago, Ill., has been incorporated by Frank Enwecke and Alois Wende, and has purchased a site at Fifty-sixth avenue and West Sixty-third street, on which they will at once erect a plant for the manufacture of sand-lime face brick, with a daily capacity of 40,000 sand-lime brick and 100 squares of sand-lime roofing tile, enameled and plain.

# CORRESPONDENCE.

**THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.**

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## When is a Kiln a Kiln?

Editor The Clay-Worker:

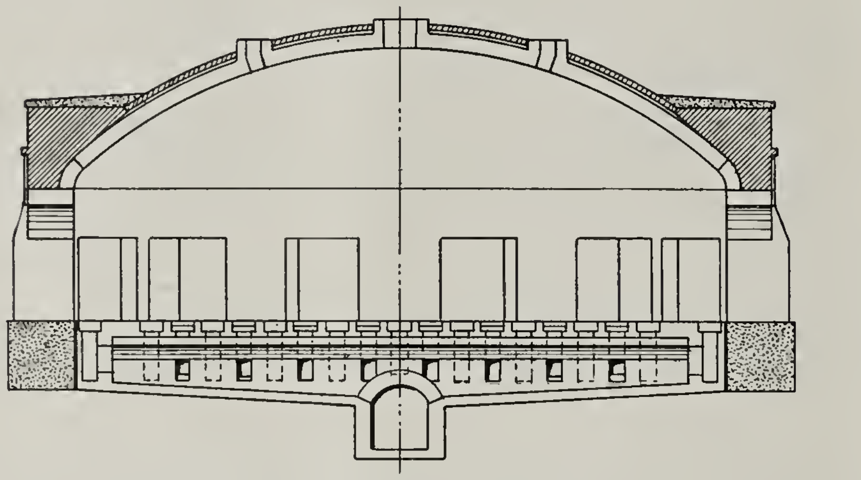
By courtesy we call any old brick enclosure, with or without a crown, with openings for fuel, a kiln, but it is not a kiln unless it will do one or more of several things.

It must burn with a minimum fuel consumption; it must burn an all hard ware; it must produce the best possible color; it must burn with a minimum range; it must be easy to clean and economical in labor and maintenance. A kiln may be a kiln for one line of ware and not a kiln for a different line.

The Chicago scove kilns are pre-eminently kilns in Chicago but would not be entitled to the name in Galesburg.

A kiln is a kiln and so is a wagon a wagon.

All kilns have walls of some kind, and fire holes, and draft provision. All wagons have wheels, and axles, and bodies, and power application. One can ride in a hearse quite as comfortably as in an automobile, but he would hardly select it for regular traffic. It has the bad fault that it is headed toward the bone yard, besides being expensive.



Section of Typical Brick Kiln.

We can ride in street cars for a half a cent per mile, in trolleys for one and one-half cents, in steam cars for two to three cents, in automobiles for fifteen to forty cents, and each is cheapest and best in its proper sphere. So with kilns.

There is no kiln adapted to all purposes and few people realize how limited the range is.

Take for instance the kiln herewith illustrated. It is merely an illustration and not a correct drawing, as any one familiar with drawings, can see. It is not a one-man idea but the development of a type by many clayworkers in all parts of the country.

The bottom is semi-solid and best adapted for bricks, but not equally good for sewer pipe, and other hollow ware.

For common bricks it should be built large and high even at the risk of some soft bricks in the bottom, but for face bricks and paving bricks it should be built low, and especially so if the clay has a short burning range. In the first mentioned product we sacrifice the product for economy in fuel and labor, while in the second the quality of the product is the prime factor. For hollow ware it should have a different bottom and should be built high and large.

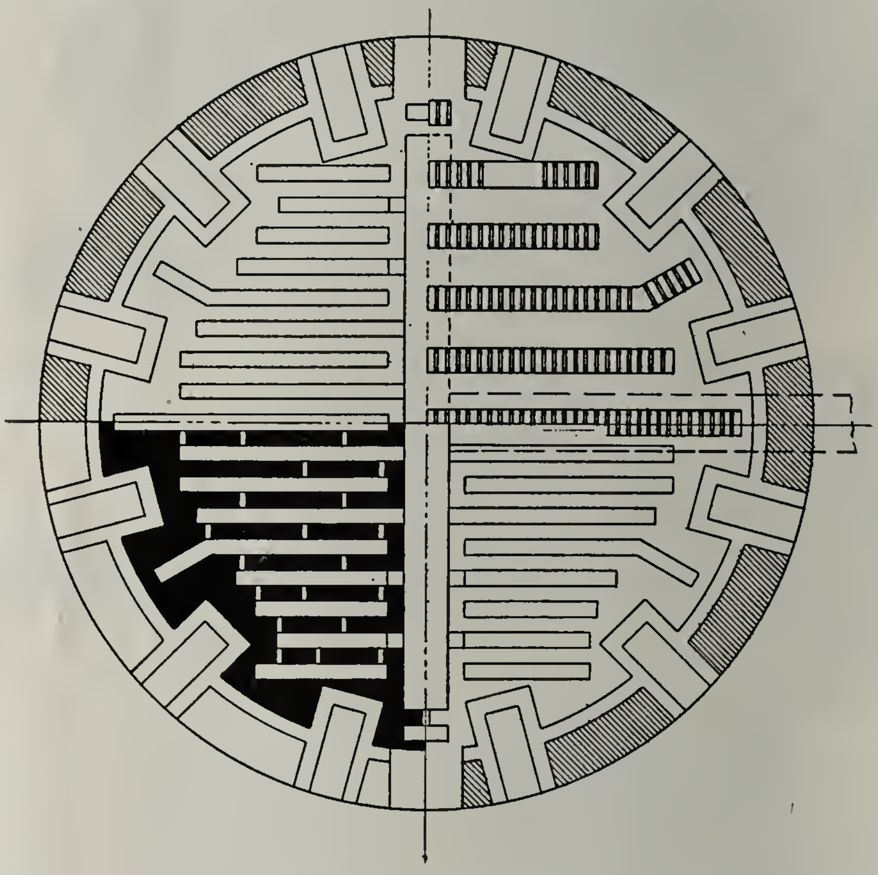
It is laid out for thirty-two feet in diameter and has twelve furnaces. John Doe will say it has too many furnaces while his brother will say it has not enough. Both are right.

Fewer furnaces will be required for a ware finishing at cone 010 while more may be needed for cone 10. It was designed for cone 8. Then again the furnace power depends upon the fuel, a bituminous coal with 10 per cent. ash and 14,000 B. T. U. will require less furnace room than a brown coal with 20 per cent. ash and 6,000 B. T. U.

Another mistake often made is that of imitation.

John Doe has a good kiln in Arcadia and his brother copies the idea for a plant in Helvetia but builds it larger and modifies it on "general principles." The trouble is with the "general principles." It may be the use of an old stack, improper proportioning of the flues and gas outlets, wet ground, poor fuel.

The kiln illustrated is the highest development of a continent wide practical kiln but upon its proper adaptation or that of any kiln depends whether it may be likened to a hearse leading to the grave yard or to an automobile headed toward a mansion of prosperity.



Floor Plan of Round Kiln.

Many clay plants are in the discard and chiefly for two reasons: The clays were not properly investigated before going into the enterprise and the kilns were not adapted to the clay and ware.

CAREY P. ELLIS.

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## Approves N. B. M. A. Program.

My Dear Randall:

I am just in receipt of your favor of the fourth, with official program for the Detroit convention, which I am very glad to have. The program seems to me unusually attractive, both as to convention papers and entertainment. You were extremely fortunate in securing such a great go-ahead city for our annual meeting as Detroit. Probably no city in the country is better advertised, through its being the first city in the world in the manufacture of automobiles. Mrs. Rogers and I expect to attend the convention and look forward with pleasant anticipation to greeting our association friends whom we have met annually for so many years.

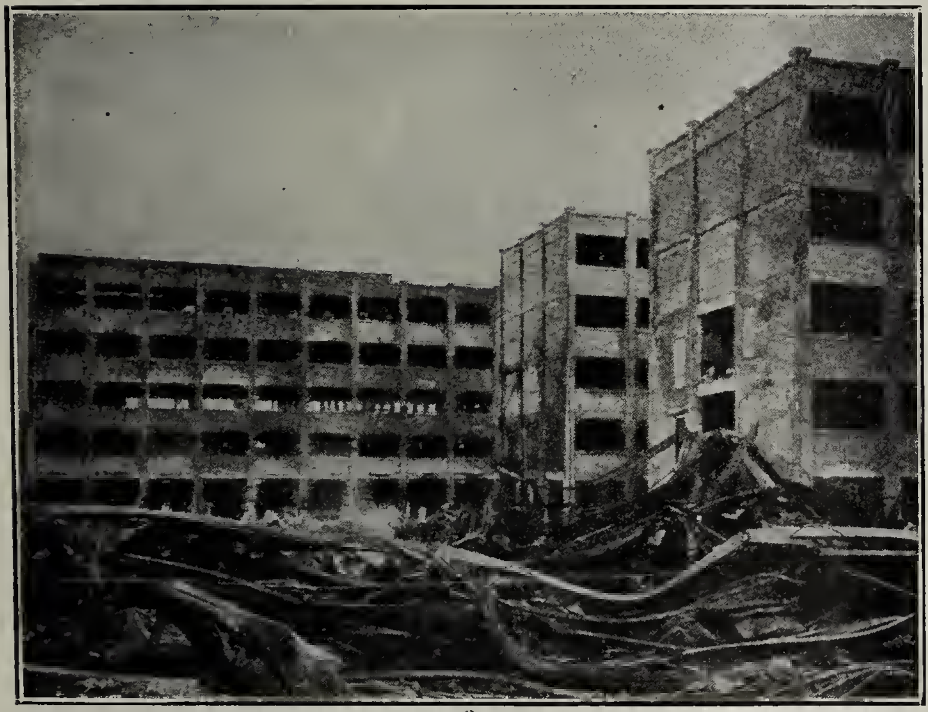
Rochester, N. Y. W. H. H. ROGERS.

### Unconscious Propagandists.

Editor The Clay-Worker:

I am a reader of and have had the greatest respect for the "Literary Digest," and believe it honestly seeks to cull interesting features and facts from all other sources and present them in tabloid form, ready for the busy man to absorb. Yet it sins in indiscretion, or in lack of technical knowledge of certain subjects, or it has been "flim-flammed" by scheming publicity bureaus that are willing to sacrifice the Digest for the advertising they can secure for their patrons through the news columns of the Digest. I prefer to believe this rather than that the Digest is a subsidized organ of the cement interests, as has been intimated and with some color.

In the Digest of January 30th, ancient history is dug up to depict the wondrous feat—described in a "Scientific American" of ancient vintage—of righting a concrete grain elevator that had toppled over. It is described as an Industrial Masterpiece, etc., etc., and several illustrations and a column of text go to show how the righting was done and the inference is that nothing but reinforced concrete could have stood the strain. It might be added that only a concrete engineer would put up a building on so poor a foundation that it would topple over.



A View of a Section of the Edison Ruins Which the Literary Digest Says is the Remains of a Brick Structure, but a Careful Inspection with a Magnifying Glass Fails to Disclose the Semblance of a Brick in the Wreckage.

In the Digest of January 16th, the Edison fire is described. It is a eulogy on concrete, rather an inspired eulogy it will be found. The "New York Commercial" says that the Wizard evidently knows more about electricity than he does about building, albeit he has yelled himself hoarse for concrete. He and his concrete engineers had so much confidence in concrete that they foolishly refrained from using wire glass, fire walls, a sufficient supply of water and the other fire protections an intelligent man would have used, and as a result at least $2,000,000 of property was wiped out of existence. Nearly all the concrete work that is standing must have lost at least 50 per cent. of its efficiency and probably will all have to be torn down, a complete loss, for there is no salvage in concrete.

One wall that was left standing and was supposed to have so well resisted fire was leaned against by an all too-confiding workman the other day. It and he toppled over and he's in the hospital.

But, worse and more of it, the Digest of page 95 of recent issue shows an illustration of part of the Edison wreck, labeling it as that of a brick building, but the illustration itself belies the label, for there is not a single brick to be seen in the wreckage. The latter looks more like the wreck of a reinforced concrete structure, and I am asking myself whether the Digest was deceived by some designing promoter of concrete, who hopes in this way to give the impression that brick is no better as fireproof material than concrete, which the editor of the Digest ought to know is not true.

Ye gods! fellow brickmakers, think of a brick building wrecked by fire and the brick literally consumed, not one nor a piece of one being left to tell the tale; just a pile of steel and possibly what was once concrete but by the effects of the heat turned back into dust. As any sane man knows, no brick wall was ever so destroyed, as the walls of Rome will bear witness, or the remains of the Baltimore fire, which was checked by a brick wall. The same is true of nearly every great conflagration of either modern or ancient times. Can it be that the editor of the Digest is ignorant of these facts, and will he acknowledge it? U. L. SEE.

Washington, D. C., February 2, 1915.

### Considers The Clay-Worker Best Paper Published.

Publishers The Clay-Worker:

Enclosed please find $2.00 for subscription another year. I think The Clay-Worker is one of the best papers that is pushed away from the press; only one fault I find with same, that is because it is a monthly magazine. Why not weekly, to keep us poor mud handlers posted better. I know I am in the harness (or mud, rather) from morning to night.

Well, we just closed with a prosperous year, and do hope the year 1915 will treat us in the same way. Were kept very busy manufacturing Schuyl-tex brick, pressed smooth and also single and double black headers, for which we had a ready market. Any architect or contractor is welcome to samples for the asking. Very truly yours,

SCHUYLKILL PRESSED BRICK CO.,
Schuylkill Haven, Pa. Daniel A. Greennwuld, Mgr.

## DELEGATES TO THE DETROIT CONVENTION INVITED TO INSPECT THE HUPPRICH POTTERY PLANT.

BAIRD MACHINE & MFG. CO., of Detroit, Mich., recently incorporated under the laws of the state of Michigan for $20,000, and are contemplating enlarging their line of pottery machinery so as to be able to fill a demand for a certain class of machinery that is difficult to obtain from American manufacturers.

W. J. Baird, president of the concern, has been carrying on the business for a number of years under the above name and has supplied most of the leading potteries who manufacture plain ware with the patented molding machines. At the same time he has been developing other apparatus that are great labor savers and as soon as arrangements can be made these will be offered to the trade.

In the meantime, they are in a position to take orders for molding machines, pug mills, etc., and will be pleased to receive samples of clay with which to make tests; in this matter a full report of the test is sent to the inquirers and nothing is left undone to give them an honest and impartial opinion as to the value of their clay for the purpose intended.

All visitors to the National Brick Manufacturers' Association convention, to be held in Detroit, February 15-20, are cordially invited to visit the Hupprich Pottery Co.'s plant, 2161 Michigan avenue, where several of the Baird molding machines can be seen in operation on the manufacture of flower pots.

The officers of the corporation are W. J. Baird, president; A. Baird, vice president, and C. Manzelmann, secretary. Offices, 54-56 Jefferson avenue; factory, 1366-68 Beaubien street.

## REVIEW OF THE CONVENTION OF THE WISCONSIN CLAY MANUFACTURERS' ASSOCIATION.

THE FIFTEENTH annual convention of the Wisconsin Clay Manufacturers' Association was held February 4 and 5 in Milwaukee, with the St. Charles as headquarters. It was a most interesting meeting in many respects, so that the faithful were well repaid for attending.

Thursday morning was given over to registration, at which time the secretary presented each delegate with an attractive BUILD WITH BRICK button, a reproduction of same as shown herewith. The BUILD WITH BRICK movement was one of the most important points discussed at the convention, for all realized the great benefits that can be derived from this boosting campaign. The button was made the official button of the Association and a resolution declaring that each and every one would do all in his power to promote the BUILD WITH BRICK campaign in Wisconsin was unanimously adopted.

Another subject of vital importance which was discussed at length and on which definite action was taken was that of cost accounting.

The convention was called to order by President John Ringle. The regular order of business consisted of the reports of the secretary and treasurer and the several standing committees, following which the president read his annual address.

### President's Address.

Gentlemen of the Wisconsin Clay Manufacturers Association:

We are met in our fifteenth annual session in conformity to modern industrial custom, to see that our product not only remains on the map, but as becomes the cream of building materials, that it also retains its position at the top.

Our secretary has prepared an interesting program, designed to make this annual gathering profitable to those members in attendance. In addition thereto, it must be borne in mind that each individual member owes a duty to the association to add according to necessity subjects of interest.

Associations of clay product manufacturers are so different in purpose from that of the usual custom of trade associations, that our work is largely misunderstood by the general public. When we say that the principal object of our gathering is to improve the manufacture of the best building material and to urge the more extensive development of the industry in our state, for the benefit of this and future generations of builders, I can see the suspicious man in the corner wink with the left eye, and yet there is no "if" in the statement.

The clayworker is the only practical conservationist of natural resources. In our line, there is no waste of raw material; on the contrary, we produce an absolute remedy, to prevent the waste of hundreds of millions of hard-earned dollars each year by fire. To this annual loss we all contribute either directly or through the cost of fire protection and insurance. A visit to older countries in Europe, where the outside of every building is constructed of brick or stone, and the roof of tile, can not fail to remind us that the time is also at hand in our country, when the home of man must be built of permanent material. In contemplating the situation we are confronted by the fact, that the manufacture of clay products in our state is largely undeveloped.

The development of the natural resources of our state is in the public interest and deserves serious consideration. Our state has not been niggardly in other directions, but we are far in the rear of our sister states in the development of our clay resources.

The clay testing apparatus of our state university should be placed in a condition of practical utility not only by providing a research or testing laboratory, but also a ceramic engineer is an absolute necessity.

In conclusion, I cannot refrain from urging the members of this association to persist in 19th century methods, to take advantage of improvement in manufacture and inform the public of the fact, that the clay product is the best of materials.

Let us not become weary of well doing and a just reward is inevitable.

The first paper on the program was on the subject, "The Need of Drain Tile in Wisconsin," by Prof E. R. Jones, of Madison. He described the farm lands and drainage districts of Wisconsin and he gave the sizes of tile necessary for different requirements in various kinds of soil, together with information relative to laying of same. The paper dealt at length with the selling end of the business and showed reasons why Wisconsin drain tile makers should advertise.

This was followed by an earnest discussion, after which Prof. D. W. Morton, of the University of Wisconsin gave an informal talk on the subject, "How a Cost Accounting System will Help the Brick Manufacturer." In the course of his remarks he told of his experience as bookkeeper on a brick yard, and the information he secured while there as to the average clayworkers lack of knowledge in the actual cost of their product. He stated that the true cost could be secured with little expense and trouble and required only one man to handle the books if a simplified, accurate method was used. The discussion brought out several interesting points, one on the advantages of piece work over day work. Later in the convention a committee of three was appointed whose duty it is to invesitgate the various cost accounting systems now in vogue in the clay industry and to make a careful report on same at the next state convention.

"My Experience With Brick Kilns and the Kind of Fuel," was a most interesting paper by J. D. Pratt, of Menomonie, Wis. He described in detail the various kinds of kilns used in Wisconsin and methods of firing same, declaring that the most important man around the plant is the man behind the shovel at the kiln. He cautioned the members to study their clays carefully and watch with eagle eye the details of the burning. This was followed with an hour's discussion at the end of which time there was a recess for dinner followed by a round table which was a decided feature of the day's work, for here the discussion lead to heart to heart talks, the frankness and earnestness of which made it a decided innovation. In all probability this round table session will be a permanent part of the program in all future conventions.

John Ringle, Wasau, Wis.

The evening was spent in enjoying a splendid vaudeville show after which another round table, but of a different sort, delighted the clayworkers at the Palm Gardens.

Friday morning the session was opened with the reading of paper by J. G. Hamilton, of Grand Rapids, Wis., on "The New Building Code and the Clay Manufacturer." This dealt with the specifications for brick and cement work and the several items of construction of interest to the clayworker.

Following the reading of this interesting paper two members of the local brick mason's union came before the association and gave appealing talks for harmonious action between the clay product manufacturers and the bricklayers to further the interests of both organizations and to render the people of the state a service by eliminating the damp, disease creating houses built with unprotected concrete walls. A committee of three was appointed to meet with a committee of three from the brick masons union to discuss the building code and to secure such legislation as they deemed important to the organizations and the people in general.

The convention then listened to a paper by J. E. Randall, junior editor of The Clay-Worker, on "The Build With Brick Campaign." This is published in full on pages 180 and 181 of this issue. A lengthy discussion followed which showed how keenly the clayworkers appreciate the value of the movement. In the discussion the author of the paper suggested that the clayworkers of Wisconsin institute prize competitions in the schools of their cities offering nominal cash prizes for the best essay written on "The Advantages and Economy In Building With Brick" or "The Need for Draining the Farm with Clay Tile." His contention being that it will create an immense amount of publicity, for the children will go to their parents for information and will discuss it among themselves and there will be instilled into the child brain arguments in favor of burned clay goods that will have a splendid effect in after years. After an extended discussion on the many ways and means of boosting the Build with Brick movement in Wisconsin, a resolution was drawn and unanimously passed that the association fully appreciating the great good the Build with Brick campaign was doing in not only increasing the demand for clay products and decreasing the cut price evil, but also making the clayworkers the ones who were safeguarding the lives of our people by making it possible for them to build fireproof, sanitary homes, for those several reasons, the members resolved to boost the worthy proposition in every manner possible.

Samuel Weidman, Madison, Wis.

Mr. Lambert Haigh, representing The American Clay Machinery Co., offered the members free of charge the use of their moving picture films on the recent fire test and any other films in their possession that the members might desire to borrow and run at their local picture houses or before any special body of local people.

This was indorsed in the resolutions.

The Auditing Committee then approved the reports of the secretary and treasurer after which the Resolution Committee submitted the following resolutions.

## REPORT OF THE RESOLUTION COMMITTEE.

Mr. President and Gentlemen of the Wisconsin Clay Manufacturers Association:

Your Committee on Resolutions begs leave to submit the following resolutions:

Whereas, The Association has been greatly benefited by the splendid papers read at the various sessions of this, our fifteenth annual convention, therefore, be it

Resolved, That we extend our most sincere expression of appreciation for the work and time taken by the authors of same.

Whereas, The services rendered by the officers of this Association during the past year have been invaluable to the interests of the clayworkers of Wisconsin, therefore, be it

Resolved, That we give them a vote of thanks for their untiring efforts in our behalf.

"Whereas, It appears that there is urgent need of completing the equipment of the clay-testing laboratory at the University of Wisconsin for the purposes originally urged by this organization in 1911, namely, to test clays and clay products, to investigate and assist in the further development of our clay resources and to give a course in ceramic engineering, therefore, be it

Resolved, That the Wisconsin Clay Manufacturers' Association respectfully request that the University Regents provide for the completion of the equipment of the laboratory for research work in clays and for instruction in ceramics, and that copies of these resolutions be sent to the Regents of the State University and to the Senate and Assembly of the State Legislature."

Whereas, The "Build with Brick" button selected by our secretary and distributed to the membership has been so well appreciated by the delegates not only on account of its attractive appearance but also for its value in connection with the "Build with Brick" campaign, therefore, be it

Resolved, That we adopt it as the Associations' official button.

Whereas, On the 27th day of last June a fatal accident occurred on the plant of Gunther Bros., costing the life of the father and an injury to a son of Sam Gunther, the news of which shocked the members of this Association, therefore, be it

Resolved, That we extend to the Gunther Bros. our heartfelt sympathies and that the secretary be instructed to forward to them a copy of these resolutions.

Whereas, An accurate, condensed, uniform cost accounting system for common use among the clayworkers of Wisconsin is of vital importance to our industry because by such a system each manufacturer could determine definitely the absolute cost of his product and since this associations' main efforts are along the line of assisting the members of the craft and the upliftment of the industry in general, therefore, be it

Resolved, That a cost accounting committee be appointed and that the duties of same will be to investigate carefully the many different systems now in vogue in the clay industry and make a careful report on same at our next annual convention and that a paper dealing with this matter together with cost accounting form sheets be submitted.

Whereas, We appreciate fully the great good the "Build with Brick" campaign can do for the clayworkers of the nation, not only by increasing the demand and ultimately decreasing the cut price evil, but also making us instrumental in safeguarding the lives of our people by furnishing them fireproof, sanitary homes, therefore, be it

Resolved, That each and every one of us boost this worthy proposition in every way possible by using the "Build with Brick" slogan in all the ways suggested and that we take advantage of the splendid offer of the American Clay Machinery Co. to use without cost their moving picture films of the recent fire test and such other films we may desire.

Respectfully submitted by the committee,
CHAS. E. PAESKE, Chairman,
SAMUEL GUNTHER,
J. E. RANDALL.

The following officers were elected: President, A. W. Hilker, Racine; vice president, Oscar Zimbal, Sheboygan; secretary, Sam'l Weidman, Madison, and treasurer, Sam'l Gunther, Port Washington.

The following standing committees for 1915 were appointed:

Legislation and Railway Rates—Sam'l Weidman, J. G. Hamilton and A. O. Wachter.

Cost Accounting and Insurance—Ed. Fricke, Oscar Zimbal and J. P. McLean.

Publicity—Edwin Fricke, F. Vogt, and John Ringle.

After a short informal discussion on several minor matters the convention adjourned.

## THE LAND OF THE FREE.

A politician, by name Casey, was enlightening his wife as to political conditions in his ward.

"There's eight nations represinted in this ward of mine," said he, counting on his fingers. "There's Irish, Frinch, Eyetalians, Poles, Germans, Roosians, Greeks an'—"

Here he stopped and began again.

"There's Irish, Frinch, Eyetalians, Poles, Germans, Roosians, Greeks— Ain't it queer I can't remimber the other wan? There's Irish, Frinch—"

"Maybe 'twas Americans," suggested Mrs. Casey.

"Sure, that's it," said Casey. "For the moment I couldn't think."

## CANADIAN CLAYWORKERS HOLD SUCCESSFUL CONVENTION.

ACTING ON THE principle of business as usual, the Canadian National Clay Products Association held their annual convention in the King Edward Hotel, January 26 to 28. The register was equal to that of last year in spite of the poor conditions of the building condition in Canada at the present time. There were a great many happy gatherings around the dinner table of the King Edward and in the corridor. Papers were followed with close attention, and each one was thoroughly discussed.

Dr. A. C. McKay, principal of Toronto Technical School, outlined what had been done to provide for a ceramic course in the fine two-million-dollar Technical School. A full equipment, with a ceramic course, will be supplied by this association, and a course in ceramics will begin in the autumn of this year.

Mr. Greene's paper on the "Standardization of Clay Products" showed that both architects and brick manufacturers were alive to the advantage of a standard, and he commended the Canadian National Clay Products Association for adopting a standard size brick, same as the N. B. M. A. He also read letters from the Alberta and Manitoba associations, showing that the question was a very live one with them. Letters from various associations showed that the question was being discussed, and we are sure that before long the standard will be adopted, which will be universal for Canada and the United States.

Gordon C. Keith, Toronto, Ontario, Canada, Secretary-Treasurer Canadian Clayworkers' Association.

Mr. Pearse, city architect, stated that in New York state, brick set in lime mortar is allowed to carry eight tons to the square foot, and in cement eighteen tons to the square foot; whereas in Toronto, brick set in lime mortar is only permitted to carry four tons to the square foot, and in cement only six tons to the same area. It will be readily seen that this allows of a very inferior brick being allowed in Toronto buildings. The speaker said that there was something amiss somewhere, for the Toronto by-laws allows four tons to the square foot on clay soil, or as much as is allowed for bricks laid in lime mortar. And, again, eight tons to the square foot is allowed on coarse gravel, or two tons more than is allowed for brick laid in cement. It is quite clear, said Mr. Pearse, that either the by-laws are wrong or the brick manufactured in Toronto are very bad. "I am going to determine which is wrong," he said, "and if, as I expect, the by-law is wrong, I will do my best to have it changed."

The following officers were elected, and, together with Charles A. Millar, the past president of the association, and Gordon C. Keith, the secretary-treasurer, will form the executive committee for 1915: President, John Ed. Frid, Hamilton; first vice president, A. F. Greaves-Walker, Toronto; second vice president, Thomas Kennedy, Swansea; third vice president, Wm. Burgess, Toronto; councilors, C. B. Lewis, Angus German, W. McCredie, D. A. Lochrie and John S. McCamnell.

## A NEW BRICK MACHINE.

THERE IS NO CONCERN in the manufacturing of clay machinery that is quicker to see the needs of the clayworker in new and improved methods, machines, and appliances than the Arbuckle & Company, of Rushville, Ind.

Their offering of the Powell clay and shale planer to the trade has been of inestimable value. Clayworkers who are familiar with it assert that this has been the most important and the greatest step forward in cost reducing of anything offered to the trade in fifty years.

Another machine they are building which is considerably ahead of its kind is their 8-E auger mill. This mill is designed to meet the requirements of plants of exceptionally large capacity where a vast amount of raw material is used up in a day's run. The question of upkeep has been a prominent factor in the design of this machine. The shafts are all forged steel, auger shaft 6 inches in diameter, intermediate shaft 5 inches, drive shaft 4 inches. The bearings are "removable," fitting into machined housings in gear frame. The augers are made up of a mixture carrying an alloy that gives extreme toughness and hardness. The auger runs in removable liners, so designed that there is free exit of clay without its "swimming" with auger or its heating up machine. The size and design of augers are such that there is practically no "doctoring" of dies necessary in the making up of the largest sizes of fireproofing. This auger's superiority is particularly noticeable in the drying of ware. Experience has proven that machines with smaller augers running at a high rate of speed gives an endless amount of trouble in die adjustment necessary to obtain a uniform flow of column. Excessive speed of auger is recognized as being a dominant cause of improper bonding of column with its attendant results of large loss in cracked ware in dryer and kilns.

By the use of a different auger and auger liner, the 8-E is converted into a paving brick machine of large capacity. One of the recent orders for this machine, a cut of which appears on page 289, is from the Zumbrota Clay Manufacturing Company, of Zumbrota, Minn.

## A VALUABLE SERVICE FREE.

Service is the keynote to success in modern industrial enterprises and it is ofttimes service of a minor character which counts for much. Appreciating this, the C. W. Raymond Co., of Dayton, Ohio, have added to their other departments an employment bureau, the purpose of which is to bring competent workmen, looking for employment, in reach of the desired job. It is their purpose to supply those wanting experienced workmen in the different departments of clay plants with a list of competent and reliable applicants. It is an important service and is rendered free of charge, either to the employer or employe, and carries with it no obligation, other than the information is given in strict confidence. Those wanting the services of a superintendent or any kind of a man are invited to write to the C. W. Raymond Co., Dayton, Ohio. They also solicit correspondence relative to their extensive line of clay machinery, kilns, dryers, etc., as illustrated on pages 300, 301, 302, 303, 304, 305, 306 and 307 of this issue. Turn to them and you will find what you want.

## THE FIRST ANNUAL CONVENTION OF THE HOLLOW BUILDING TILE MANUFACTURERS' ASSOCIATION OF AMERICA.

THE FIRST ANNUAL CONVENTION of the Hollow Building Tile Manufacturers' Association of America was held at the Hotel La Salle, Chicago, on the 19th of January. The morning session was called to order at 11 o'clock by the president, Mr. J. A. Maahs, who stated that the meeting was a "get together one," and after some preliminary remarks as to prospects of the association, he introduced as permanent secretary, Mr. Charles T. Harris, who, in a talk of some length, "sounded the key-note" of the organization, its present plans, and hoped-for prospects. The talk of Secretary Harris covered a wide range, was fertile in suggestions, and eloquent in places, as to the possibilities of hollow tile as a fire-resisting material, and in the prospects of the association for future benefit to all its members and to the using public at large. The meeting was then opened for general discussion, and a "get together," and interesting talks were made by Mr. Johnson, of the National Fire Proofing Co., of Chicago; Mr. Whitacre, of the Whitacre Fireproofing Co., of Waynesburg, Ohio; Mr. Renkert, of the Metropolitan Paving Brick Co., Canton, Ohio; Mr. Keeler, of the Mason City Brick & Tile Co., Mason City, Iowa; Mr. Denison, of the Ohio Clay Co., Cleveland, Ohio; Mr. Hale, of American Clay Co., Terre Haute, Ind.; Mr. Darling, of the Clay Products Co., Chicago; Mr. Randall, of "The Clay-Worker"; Mr. Donahoe, of the "Brick & Clay Record," and others. At noon the convention adjourned to lunch furnished by the association, and served by the hotel, at which there was a fine opportunity for "getting acquainted" and "finding each other out."

The lunch was a very sociable and enjoyable occasion, and at 2:30 the meeting was again called to order by the president, Mr. J. A. Maahs, and the business of the association was taken up and the executive committee was elected for the coming year, consisting of Mr. Maahs, Mr. Allison, Mr. Denison, Mr. Keeler, Mr. Darling, Mr. Whitacre and Mr. Camp, and a general discussion was had regarding the detailed work of the association, dues based on tonnage, publicity and promotion, etc. At the close of the afternoon meeting, Mr. Johnson, of the National Fire Proofing Co., invited the association in a body to go to the "Permanent Exhibit of Building Materials" in the Insurance Exchange Building, where a very interesting display of all kinds of materials entering into building construction was on exhibit, and was especially an exemplification of the use of hollow tile in various constructions erected by the National Fire Proofing Co. Later, the members were treated to a moving picture show, descriptive of how to build a skyscraper, and use hollow tile therein. At the evening meeting of the executive committee, the following officers were elected for the coming year: President, Mr. J. A. Maahs, Pennsylvania Fire Proofing Co., Erie, Pa.; vice president, R. W. Allison, of the National Fire Proofing Co., Pittsburgh, Pa.; treasurer, R. E. Whitacre, of the Whitacre Fireproofing Co., Waynesburg, Ohio.

At the meeting of the association, the following companies were represented: American Clay Co., Mr. Frank R. Hale; American Clay Products Co., Mr. W. J. Burke; Buckeye Clay Products Co., Mr. F. W. Stuart; Clay Product Co., Mr. H. H. Tittsworth and Mr. F. W. Darling; Camp Conduit Co., Mr. H. H. Camp; Illinois Terra Cotta-Lumber Co., Mr. A. W. Beidler; Metropolitan Paving Brick Co., Mr. H. S. Renkert; Malvern Fire Clay Co., Mr. H. C. Downer; Mason City Brick & Tile Co., Mr. B. C. Keeler; National Fire Proofing Co., Mr. R. W. Allison, Mr. E. V. Johnson, Mr. J. W. Rollinson, Mr. E. R. Beidler, Mr. C. C. Baird; Ohio Clay Co., Mr. W. C. Denison; Ohio Fire Proofing Co., Mr. J. H. Perley; Pennsylvania Fireproofing Co., Mr. J. A. Maahs; Whitacre Fireproofing Co., Mr. R. E. Whitacre and Mr. C. C. Whitacre. As a beginning of the work planned, the manufacturers felt that as it regards the pushing of their product, and the serving of the public, the spirit of the meeting was prophetic and of good results. Secretary Harris expressed himself as well pleased with the beginning, but anticipates an immense amount of detailed work and educational effort before increased results can be made apparent.

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## NORTHWESTERN OHIO BRICK AND BUILDING NEWS.

THERE HAS NOT as yet been much impetus given the brick business, but it is believed by local manufacturers that trade will be better in a month or two, and from indications in architects' offices, there will be considerable building in this section with the coming of spring. The weather thus far has been extremely bad and has made all out-door projects a matter of the future rather than present activity. An early spring, especially in a business way, is being predicted. There are many building projects of a large nature under way, plans now being made in the various architects' offices. Among the more notable of these are a number of school buildings which it is planned to build in this city this year. Toledo has been active in school building for several years and has some of the finest structures between New York and Chicago, all brick. There will be at least one bank building, the Willys-Overland Automobile Company is planning an increase in capacity which will involve several thousand dollars, while indications point to a renewed activity in residence building in Toledo this summer. This will mean a good brick business, as brick is being more and more extensively used in Toledo by home builders as the months go by. There are probably twice as many brick constructed, medium-priced homes being built now as there were two or three years ago. Prices remain practically the same, but an improvement is anticipated whenever weather conditions are such that building can be resumed.

Paving brick is a little dull just at present, also, owing to the extreme inclemency of the weather, but there is every reason to believe that Ohio will resume its activities in road building this summer and it is also fair to presume that brick will continue to be a favored material not only for small town streets, but for country roads as well. There will be a number of streets in Toledo proper paved with brick this spring, for which legislation has already been enacted.

Recently elected officers of the Toledo Builders' Exchange are: President, L. E. Fishack; first vice president, A. Kelsey; second vice president, S. J. Pickett; directors, W. J. Albrecht, J. G. Bullinger, P. H. Edgnan, Jacob Jacobs, N. A. Milmine, E. H. Voss.

George Rats, a kiln burner of the Robinson Clay Products Co., of Akron, Ohio, had an exciting experience recently, when he was held up at the point of a revolver and robbed of 50 cents in money and his pay check. Two men were of the attacking party and while one held a gun to his ribs the other rifled his pockets.

The Sandusky County Automobile Society recently went on record as favoring paving brick for the paving of a road between the cities of Freemont and Clyde, Ohio, a distance of nine miles, with brick.

Local brick concerns are much interested in the recent announcement that $750,000 will be spent the coming season in Lima, Ohio, for five new business buildings. There will be an apartment building, a four-story business structure and an eight-story hotel building.

The annual meeting of the Ohio State Builders' Association was held in Columbus, recently, at which time officers were elected as follows: President, C. Taylor Handman, Cincinnati; first vice president, L. E. Fishack, of Toledo; second vice president, J. A. Dalwell, of Youngstown; third vice president, R. A. Thomas, Lima; secretary-treasurer, E. A. Roberts, of Cleveland. It was determined to hold the 1916 convention in Toledo. T. O. D.

In the Heart of Detroit, the City Where Life is Worth Living.

## THE AMERICAN CERAMIC SOCIETY.

### Seventeenth Annual Meeting, Detroit, Mich., Feb. 15-18, 1915.

THE AMERICAN CERAMIC Society will again meet in conjunction with N. B. M. A. at Detroit beginning Monday the 15th. The sessions will continue through Tuesday and into Wednesday, if it is required, and it probably will, as the program comprises sixty-six formal offerings. If there is any time left on Wednesday for the purpose, the members may visit one of the local ceramic plants, or some other point of interest in the city, or they can attend the sessions of the N. B. M. A., the first of which is scheduled for Wednesday at 2:30 p. m. The members of the Society and those accompanying them will be welcomed to all sessions and functions of the Association, either as members or guests as they themselves may elect. The sessions of the Society will be held at the Tuller Hotel which is just across the street from Hotel Statler, the headquarters of the parent body. They are one and all invited to call at N. B. M. A. headquarters and register as soon after their arrival in Detroit, as they can conveniently do so. For particulars as to membership in the Society and complete program, the reader will please address Prof. Edward Orton, secretary, A. C. S., Columbus, Ohio.

## CLAYWORKERS OF THE STATE OF OREGON ORGANIZE.

Through the efforts of the Bureau of Mines and Geology, a conference was held at the Oregon Agricultural College in Corvallis, on February 3, of the brick and tile manufacturers. The meeting was well attended, and Prof. Ira A. Williams, of the Bureau, was made chairman of the conference.

A very interesting paper was read by Dean J. A. Bexell about "The Advertising and Marketing of Clay Wares." A lively discussion followed, and the fact was strongly brought out that the Oregon clayworkers wanted co-operation in order to obtain a broader field for their clay ware. The next paper was by Mr. T. S. Mann, member of the Oregon Bureau of Mines and Geology, on "Success in the Clay Business." Prof. Williams gave a very interesting talk about "Factors Deterring the Quality of Building Brick." He called special attention to the tests made by the Bureau on samples collected of the various Oregon clay plants. "The Use of Steam in Clay Plants," by Dean C. A. Covell, was an interesting paper, in which the fact was brought out that low pressure vacuum system for exhaust steam was the best method of utilizing the radiating heat of exhaust steam.

After a general discussion, it was the sense of the clayworkers present that the time was ripe for a permanent organization. A committee, consisting of C. Warner, of Salem; P. T. Harbour, of Weston, and W. E. Fields, of Eugene, reported at the afternoon session, and the permanent organization to be known as the "Oregon Clayworkers' Association," was perfected. The officers elected were: Mr. W. E. Wilson, of the Salem Tile and Mercantile Company, president, and S. Geijsbeek, of Portland, secretary and treasurer. Directors: W. E. Fields, of the Fairmount Brick and Tile Company, of Eugene; Philip Withycombe, of the Yamhill Tile Works, Yamhill, and T. S. Mann, of the Pacific Stoneware Company, of Portland. It was further decided that a meeting should be held the latter part of March, and Salem was selected as the place of this meeting.

## FACE BRICK DEALERS ASSOCIATION.

The Executive Committee of the Face Brick Dealers Association will meet at the Statler Hotel, 10:00 a. m., Wednesday the 17th. Members will participate in the sessions of the other affiliated organizations as their individual fancy dictates. Those having any matters they desire to bring before the Association are requested to communicate with R. L. Quiesser, secretary-treasurer, either at his office, Cleveland, Ohio, or at the Statler Hotel, on and after Wednesday the 17th.

## ILLINOIS CLAYWORKERS MEET AT SPRINGFIELD.

As The Clay-Worker is going to press with this issue, the clayworkers of Illinois are in annual session at Springfield. It is the first time they have met in the state capital for many years, and as was anticipated a large attendance has been registered. Several of the old time members are again conspicuous. Dr. A. L. Converse, who is to serve at the annual banquet as toastmaster is naturally the hub about whom the social functions revolve. Secretary Huckins has arranged a most interesting program including a number of papers on important subjects touching on various phases of the industry, all of which will be reproduced in our columns later on.

### A Heavy Plunger.

She was very rich and he was very poor. She liked him, but that was all, and he was well aware of the fact, relates the Pathfinder. One evening he grew somewhat tender, and at last he said:

"You are very rich, aren't you, Helen?"

"Yes, Tom," replied the girl, frankly. "I am worth about $2,000,000."

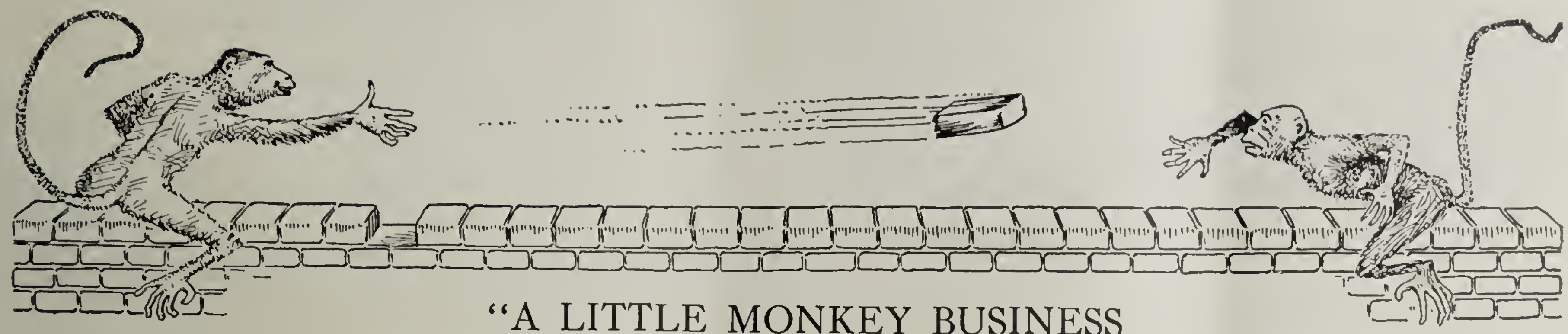
"Will you marry me, Helen?"

"Oh, no, Tom, I couldn't."

"I knew you wouldn't."

"Then why did you ask me?"

"Oh, I just wanted to see how a man feels when he loses $2,000,000."



# "A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

### Bad Bite.

"Well, I see the Germans have taken Lodz."

"I'll bite. Loads of what?"—Buffalo Express.

### Cause and Effect.

"It must be great to be a man! One dress suit lasts you for years and years, and a woman must have a new gown for every party."

"That's why one dress suit lasts a man for years and years."

### The Sins of the Father.

Tommy came home from school very morose.

"Well, my son," observed his father cheerfully, "how did you get on at school today?"

Tommy said that he had been whipped and kept in.

"It was because you told me the wrong answer," he added. "Last night I asked you how much was a million dollars, and you said it was a 'hell of a lot.' That isn't the right answer."

### Snubbed.

Several medical men and a newspaper man were visiting an insane asylum. The employe who was showing them about pointed out a man who considered himself the Lord.

The newspaper man, true to his instincts, seeking to have an interview, asked the insane one whether he really made the earth in seven days.

The latter gave him a look of utter contempt, and said, as he passed on, "I'm not in the mood to talk shop!"

### On Schedule Time.

The line of carriages containing the members of the "personally conducted, seeing Europe in 30 days" had come to a stop before the Excelsior hotel in Rome, and this conversation was overheard in one of the carriages containing two women:

"Mother, is this Rome?"

The answer came in a tired, "toured-to-death" tone of voice. "What day of the week is it, my dear?"

"This is Tuesday. Why?"

"Well, if it is Tuesday, it must be Rome."—Everybody's Magazine.

### It Would Seem So.

The lesson was in natural history, and the new teacher had chosen the interesting but complex subject of the cat.

"Now children," she said, "tell me what sort of clothes pussy wears."

No reply.

"Come, come!" said she, determined to extract the right answer by naming everything that pussy didn't wear; "does she wear feathers?"

A pained expression crossed the face of a little boy in the front row.

"Please, Ma'am," he asked pityingly, "ain't you never seen a cat?"

### A Business Man.

"What does your father do for a living?" asked one little girl.

"Why," replied the other, "he takes up the collections in church."

### Doing Them Good.

"Doing well?"

"Yep. Got a business men's athletic class. Tuition, five dollars a year."

"Well, those rates are attractive, but too low to pay you."

"You don't get the idea. They all drop out in about two weeks. Then I start another class."—Judge.

### Took It At What It Said.

Pat was hard at work in the Baldwin Locomotive Works when the foreman on his rounds stopped and eyed him sternly.

"Did yez not receive a letther from me, sayin' yez was foired?" he demanded.

"Oi received a letther," answered Pat calmly. "Th' insoid says Oi was foired, but th' outside says 'Return in 5 days to Baldwin's, so Oi'm back."

### "Sundown."

An Irishman coming from the old country was leaning against the rail of the ship wrapped in deep thought. The ship was just rounding Sandy Hook when the stillness of the late afternoon was broken by the terrific boom of a cannon. Pat, in a fright, turned to the officer in charge and asked:

"Phat was that?"

The officer replied: "Sundown."

After a few moments of thought Pat turned to the officer and remarked: "Well, begorrah, the sun goes down with a divil of a crash in this country."

### The Doctor's Suggestion.

A man who was very vain of his personal appearance went to the doctor one day and asked him to explain a singular circumstance.

"Doctor," he said, "my hair is perfectly black, but my whiskers are turning white rapidly. Now, how do you account for that?"

"Well," replied the physician, "I don't know, unless it is because your jaws have worked a great deal harder than your brains."

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LXIII. FEBRUARY, 1915. No. 2

## CURRENT COMMENT.

The best sign of the times is "Build With Brick."

* * *

The coming N. B. M. A. meeting at Detroit ought to be a veritable love feast.

* * *

Every man must take some pride in his business if he ever expects to accomplish anything that he may be proud of.

* * *

Get your machinery equipment in and all your repairs and alterations made early, for it looks like busy times ahead.

* * *

For detail information about the National gathering at Detroit, read the official announcement on pages 184, 185 and 186.

* * *

No clayworker can afford to miss the national convention at Detroit where every branch of the industry will be represented.

* * *

"A Night of Good Roads" "listens good," and those who listen will hear a Knight of good roads who will make them glad they listened.

* * *

It is not competition with other material that hurts brick, but useless competition between different brick manufacturers for the same business. Get together and quit fighting each other.

* * *

Post yourself on the exact figures of comparative cost between brick and frame construction, for the lumber folks are going to present some figures favoring lumber as much as possible.

* * *

Spend a little more of your spare time visiting with your competitor. You may learn something from each other about your work that is worth while, and besides that, the closer you get together the better off you will be when it comes to meeting him in competition with trade as the season advances.

* * *

Get your machinery equipment in good trim before the busy season because a breakdown after the rush comes is doubly expensive.

* * *

Get your "Build With Brick" posters up early and keep putting them up every time you see a place where one will show up to advantage.

* * *

As usual, the American Ceramic Society will have to work incessantly to complete the program arranged, within the two and a half days allowed.

* * *

The toughest problem the efficiency advocates have to solve in connection with the brick business is found right where the brick are laid in the wall.

* * *

The brick paved road way is the thing of the future and the sooner we get every community interested in and experimenting with it the sooner we will have the right kind of roadways and a greatly enlarged market for paving brick.

* * *

By proper attendance at the sessions, every man should be able to get good ideas out of the N. B. M. A. annual at Detroit that will be useful to him all through the year while at home at work.

* * *

It is a safe bet that the winter tourists will see more and learn more of America this year than they have ever taken the trouble to find out before, as most of the winter touring will be confined to the southern part of the American continent and to the South American countries.

## BRICK WILL BENEFIT.

As stated in these columns recently, there is evidence of pretty strong rivalry between different offerings in the building material line and the building season this year will perhaps see more active exploitation of the different materials of construction than we have ever had before. Incidentally, it may be added that brick will likely benefit more from this rivalry and agitation than any other one building material, because the more the subject of building material is agitated the more apparent it becomes that brick and other clay products constitute the highest ideal and the most desirable material for structural purposes generally. All that is required is for the brick industry to keep awake and keep their products properly exploited. Brick is a product that just naturally benefits by comparison and from a more active exploitation and the centering of more attention on the subject there will come more advertising of brick and the brick trade will benefit in the end. There is nothing to be afraid of in this competitive business that is developing; it is a thing for the brick trade to roll up its sleeves and go to earnestly, for out of it all should come a bigger and better demand for brick and clay products.

## LOW COST BRICK HOMES.

We are pleased to present to our readers in this issue two fine examples of low cost brick residences. The cost of each is in the neighborhood of $5,000. Compared with houses of other materials of equal cost, they would easily take first prize before any competent jury. The Hydraulic Press Brick Company, St. Louis, by whose courtesy we are able to present the views shown, will be pleased to furnish floor plans and full particulars of either house to any readers of the Clay-Worker who may desire same. Such attractive brick homes are much more desirable than frame or cement block structures and by reason of there being no repair bills, painting, etc., from season to season, they are much cheaper in the long run, facts which brickmakers will do well to bring to the attention of prospective builders.

It is a dwelling much after this fashion that will be erected as an example of up-to-date brick architecture by the Panama-Pacific Clay Products Association at the Exposition at San Francisco. Stereopticon views of the latter will be shown at the coming national convention to be followed by an account of the method of promoting brick architecture advocated by the above association which will be represented at the Detroit meeting by Mr. Herman L. Matz, W. P. Varney, Charles Bonner and others.

## THE DRAIN TILE SEASON.

Reports so far obtained indicate a fairly active season in the drain tile world and if this branch of the clayworking business is pushed industriously 1915 should prove to be one of the best years on record in the drain tile business. There is no longer any question but what the doctrine of tile drainage is pretty generally accepted and fairly well understood. It is much easier to develop an interest in tile draining now than it was a few years back, thanks to the educational work that has been done by the agricultural departments as well as by those interested in this work.

Another thing of interest is in the practice that is developing of continuing the drain tile work all through the year. It used to be that only the winter and spring season was given over to tiling, but now, with the ditching machines which work better in dry weather than in mud, there is more opportunity to develop tile draining work in the late summer season when there is nothing much else to do and weather conditions are more favorable to outside work. So, while one should naturally push the drain tile business in the spring, there is no call to quit then till the next spring. Keep at it and the chances are that the summer season may become better eventually than the spring season. Anyway, the season can be lengthened out and made a good late summer and fall business as well as a spring business.

## THE MACHINERY FUND.

Those who keep books right in the clayworking industry, figure so much off each year for depreciation in machinery. The percentage may vary with different people, but account must be taken of this everywhere and logically the percentage figured off each year should be proportioned to the length of time the machinery in question will ordinarily last before it needs replacing. That is, if the machine will ordinarily last ten years, 10 per cent. should be figured off the first year and the next year enough to equal the same amount, so that its original cost will be charged off by the end of the ten-year period.

That, however, is only part of the business. The other part, and the part that may often be neglected, is that a fund equal to this depreciation charge should be set aside as a machinery fund, so that it may be available for use in getting new machinery. It is hardly fair to charge it off and distribute the surplus in the form of dividends and let it go at that, for, under a system of this kind, one wakes up now and then with a need for machinery that it is hard to meet for lack of available funds.

Every manufacturer should make it his business to set aside a machinery fund. Each man may figure out to suit himself how much it should be and how it should be handled on his books. The important thing about it all is to recognize the fact that a regular fund is needed to keep up the machinery equipment. The man who has been in the business for quite a while should be able from his past records to arrive at some definite idea of the amount of machinery fund ordinarily required during a year and then take steps to provide it. The man with a machinery fund is the man who keeps up to date easiest and is in the best shape when some accident makes necessary the sudden purchase of new machines. So, make a machinery fund a part of your regular business, for you will need it and it will help you along.

## GET BUSY—BUY NOW.

One of the good slogans promulgated by the business people of the country, mention of which was made in The Clay-Worker for January, is the slogan "Buy It Now." The brick manufacturers should take this to heart, especially in connection with machinery and equipment because forehandedness in this connection will mean being prepared for active work early in the building season. If you wait until the busy building season is upon you before putting in your new equipment and refitting your plant generally, there will be a handicap of rush and hurry which makes against efficiency and the getting of the best results generally.

The machinery contingent has been patient and while waiting, persistently boosting for industrial progress, and they deserve their inning. It is not a matter either of handing the machinery people something to help them along; it means helping yourself, for the man who gets into the work of installing new machinery and making alterations early will get through in time to reap the harvest of the next building season.

The indications now are that the building season of 1915 is to be a splendid one and the brick boosting that has been done and that will be done should materially increase the percentage of brick and other clay products entering into the building operations.

So let us be up and doing and hitch onto this slogan, "Buy It Now," and help make the wheels of industry hum. Progressive effort of this kind should bring its own reward before the season is over, so get busy and buy now.

## CONVICT LABOR.

There is no such thing as an entirely satisfactory solution to the problem of convict labor as our penal institutions are handled in this country. Some day we may realize that Russia with her Siberia, comes nearer to the ideal in this respect than many other countries.

It matters but little what line of effort convicts in our penal institutions are employed at, it brings protest that they constitute an unfair competition with outside labor and indusry. We come across it now and then in the brick business and the brick manufacturers and the workmen in the brickyards naturally object to convict labor making brick in competition with them—and it is the same thing no matter what they turn to.

We have this protest against convict labor even in road making because the operators of quarries and stone crushing plants contend that it makes unfair competition with them and beats them out of what would be legitimate business. When they make clothes, brooms or furniture, the same protest goes up from those industries, and it matters but little whether these things are made for outside market or for state and government needs—in either case the contention is made that they enter into competition with and replace the products of labor and industry.

It seems more natural to have the convicts doing quarry work and stone crushing than anything else and perhaps there is less protest here than any other industry, but the fact remains that no matter what line of endeavor convict labor is turned to, it develops a species of competition with other labor and results in protest. Fortunately, competition from this source is not as strong as it looks like it might be on the face of the figures, because convict labor is seldom efficient or productive to an extent much beyond the allowance made for it, so that often the profit from convict labor is not nearly so great as it looks like it should be. The stubborn fact remains, however, that convict labor is a thorn in the flesh of labor and industry the country over, no matter what line it turns to.

### A BEAUTIFUL CALENDAR.

There hangs on the inner walls of The Clay-Worker sanctum a very beautiful calendar bearing the imprint of the C. P. Mayer Brick Co., Bridgeville, Pa. The feature of the calendar is a picturesque presentation of "Hiawatha's Wedding Journey" from an original oil painting by Ferris. Minnehaha appears so charming that the observer is inclined to be a little bit envious of the big chief, in whose masterly pose and gaudy blanket, we see incarnate the Big Chief of the tribe of Mayer.

### THE CURRENT BOOK OF SMILES.

The first epistle of the current issue of the Book of Smiles, just out, reads:

"Presidential candidates in Mexico do their running after they're elected."

The closing epistle is equally pertinent:

"When she said, "Go to war, men!" can it be that Mrs. Pankhurst was thinking of General Sherman's definition of war?"

Sandwiched in between the two are a number of equally clever hits in both prose and verse. If you have not received a copy, write for one, addressing The Standard Dry Kiln Company, Indianapolis, Ind.

### KILN BUILDING BY CAMERA.

The above is the title of a series of bulletins issued by the American Clay Machinery Co., of Bucyrus, Ohio, from time to time, showing the record of building a Haigh continuous kiln at the plant of the Lincoln Paving Brick Co., Corning, Ohio. Up to this time two bulletins have been published and others will follow as the work progresses. This new idea of giving the public progressive photos of kiln building shows the genius of the American company's publicity department. The second bulletin, called Picture Record No. 2, shows pictures taken November 9, 12, 19, 24, 31 and December 3, 1914, and illustrates respectively, first, the finished piers on which the doorway arches and main crown are built; second, one of the main crown or main arch sections in position with the centers in position to build two other arches; third, twenty-seven main arches in position with each arch supported by its supporting wall; fourth, interior view of kiln under construction, showing doorway arch and main arch; fifth, one of the entrances or doorways to the kiln, and sixth, two doorway openings in the starting end of the kiln. These pictures, together with the descriptive matter, are most interesting. Write the American Clay Machinery Company to put you on their mailing list.

### TRADE NEWS.

E. A. Hults, secretary and manager of the North Iowa Brick and Tile Company, Mason City, Iowa, has made arrangements with James Trainor, of Dundee, Ill., to take the superintendency of his plant.

A. P. Green, of the Mexico Fire Brick and Clay Company, Mexico, Mo., was in attendance at the convention of the Northwestern Clayworkers, where he booked an order for thirty cars of fire brick for kiln construction.

Alexander Burke's Sons, of which John J. Burke is manager, are erecting a large, modern common brick plant at Forty-eighth avenue and West Thirty-ninth street, Chicago, Ill. The machinery has been purchased, and they expect to have the plant in operation early in the spring.

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**"GETTING THE MOST FOR A DOLLAR"**
has been given as a definition of good engineering such as is done by
**The Richardson-Lovejoy Engineering Company.**
[See page 297.]

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Position as manager or superintendent of brick plant. Experienced in fire brick, silica, paving brick and hollow ware. Employed, but desire change.

Address, BOX 2—GOOD MAN,
2 1 cm Care Clay-Worker.

WANTED

Position as superintendent or foreman in a plant manufacturing paving, face or hollow ware, by a first-class machinist, who thoroughly understands brick machinery and burning of clay products. Strictly temperate. Can furnish best of references. Address,

BOX 2—W. G.,
2 1 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued On Pages 265, 266 and 267.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

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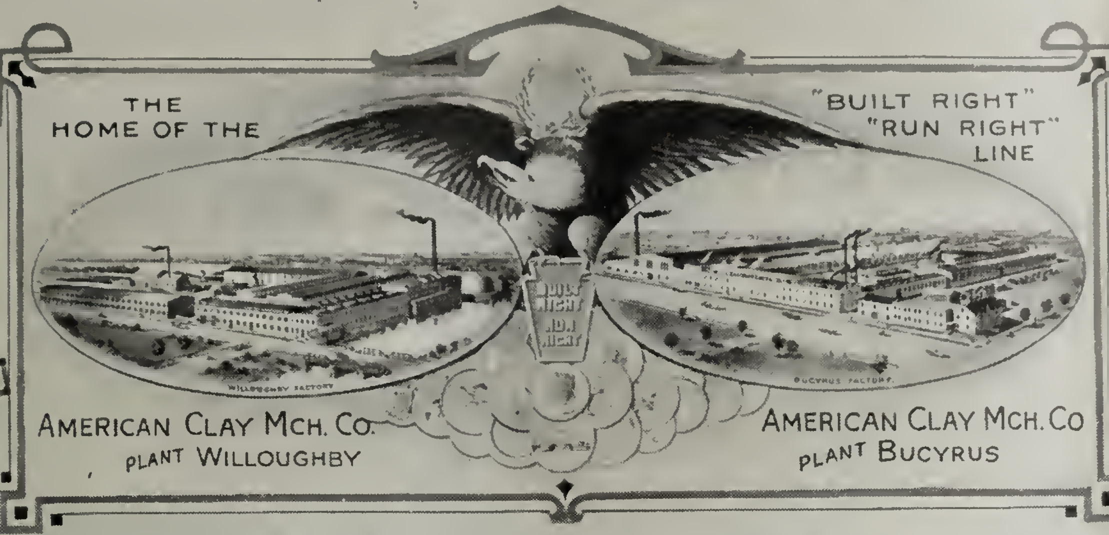
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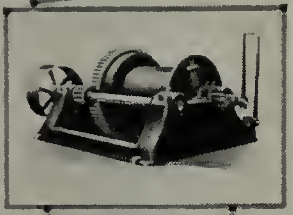
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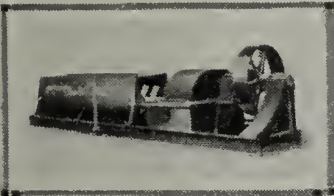
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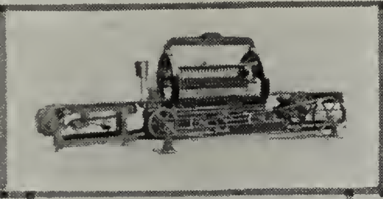
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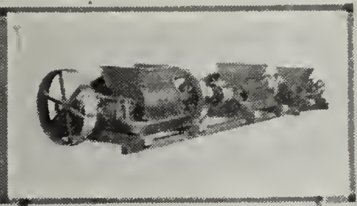
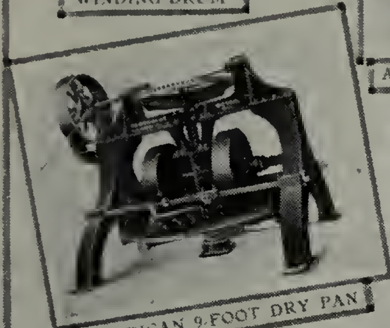

AMERICAN DISINTEGRATOR


AMERICAN 9-FOOT DRY PAN

HAIGH CONTINUOUS KILN

# THE DETROIT CONVENTION

We will be pleased to have every Clayworker call at the headquarters of The American Clay Machinery Company at the Detroit Convention.

We are anxious to meet all old friends and acquaintances as well as new ones.

We will have something interesting to show every Clayworker, whether he be a customer or not. The general good of the industry takes precedence over all other matters and we will be able to show you something for the increased use of brick and other clay products.

Every Clayworker who is contemplating an increased capacity or a betterment of his product should look into the merits of the new line of machinery we have recently placed upon the market.

These machines are up to date in efficiency. They are economical on power, are simple, strong, durable.

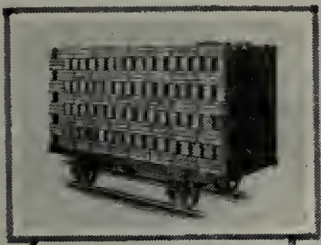
Whether in the market now or not, you should be posted on these machines. Your inquiries will have prompt attention.

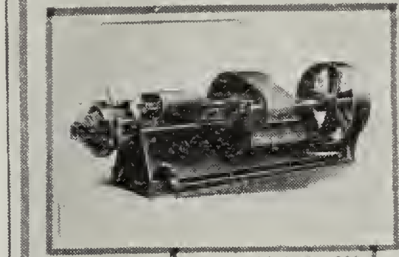
We build every machine and appliance needed in making every kind of clay products and solicit the small as well as large orders.

## The American Clay Machinery Co.
**Bucyrus, Ohio**

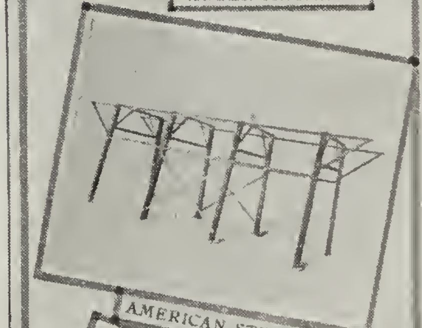
AMERICAN No. 233 AUGER MACHINE

AMERICAN WASTE HEAT DRYER


AMERICAN DRYER CAR


AMERICAN No. 290 AUGER MACHINE

AMERICAN STEAM SHOVEL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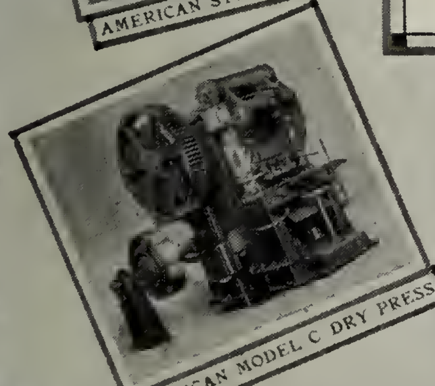
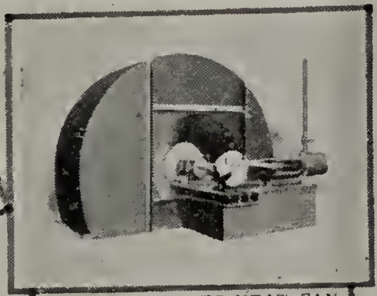
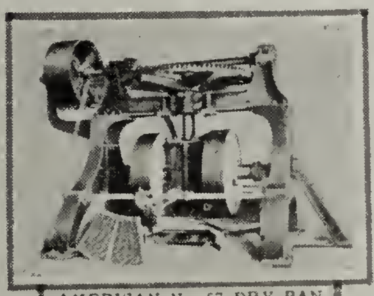
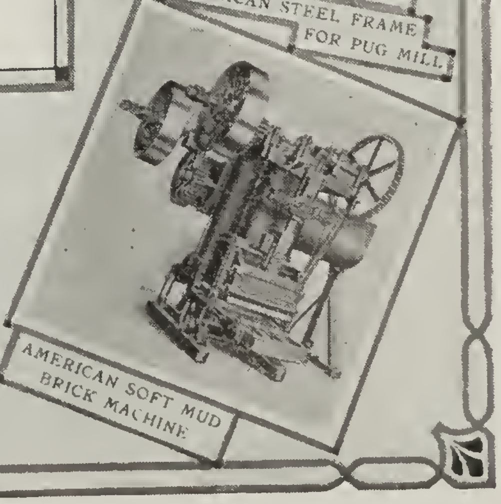

AMERICAN MODEL C DRY PRESS


AMERICAN WASTE HEAT FAN


AMERICAN No. 57 DRY PAN

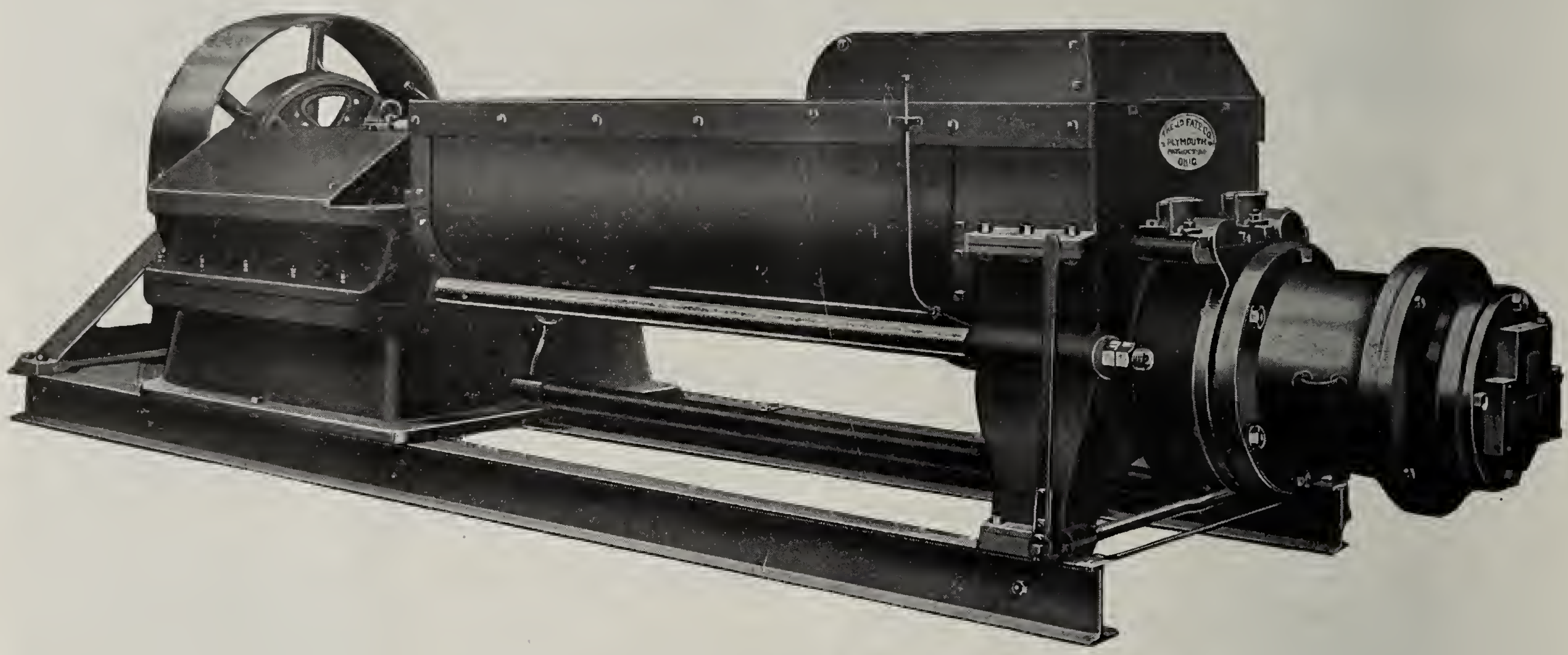

AMERICAN SOFT MUD BRICK MACHINE

We Build Every Machine and Appliance Needed in the Clay Trade.

**The Fate Quality**

*Quality hinges on two things—mechanical perfection and the best material.*

*These factors enter into the product of the House of Fate.*



SPECIAL PREMIER HOLLOW WARE MACHINE

*The Special Premier has met some very Formidable Foes in the way of Stubborn Working Clays and Fought vs. Great Odds, since it Championed the Cause of the Clayworker in his attempt to produce Merchantable Hollow Ware at a living Profit. However, it still stands today as the "Premier" of Hollow Ware Machines and ever ready to continue its Campaign for the Relief of the Distracted Clayworker.*

It is a splendidly built Machine, embodying the mechanical principles and ideas necessary in a successful machine, one that will produce a Good Capacity of Good Ware. That is what it has done where others have failed.

Our entire line of Clayworking Equipment is in keeping with the Special Premier. It is to Your Interest to write us if you contemplate purchasing anything new.

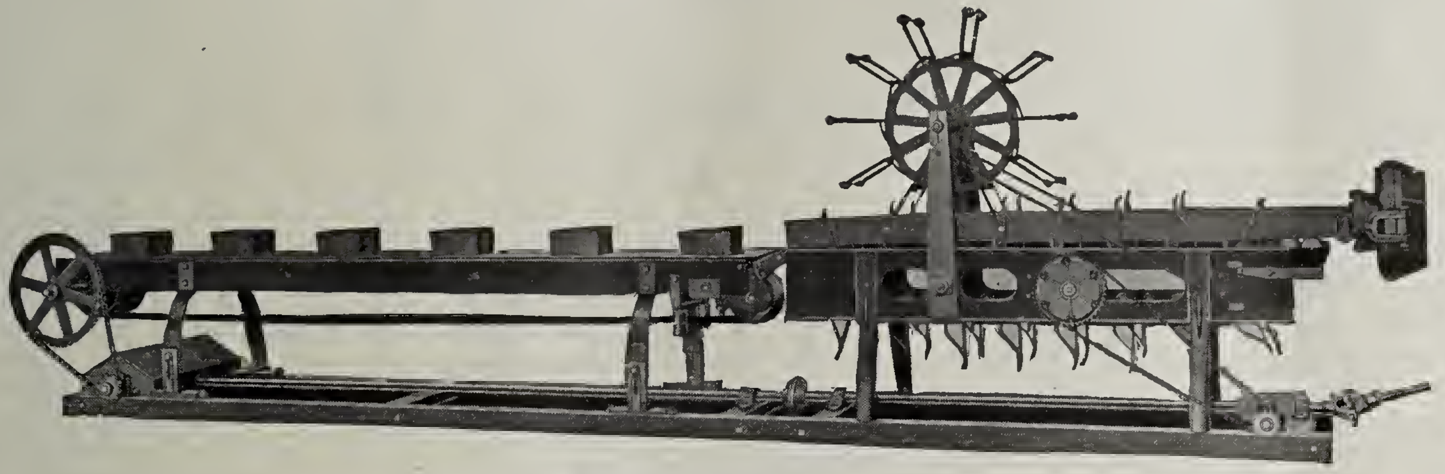
**The J. D. Fate Company**
**Plymouth, Ohio**
Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

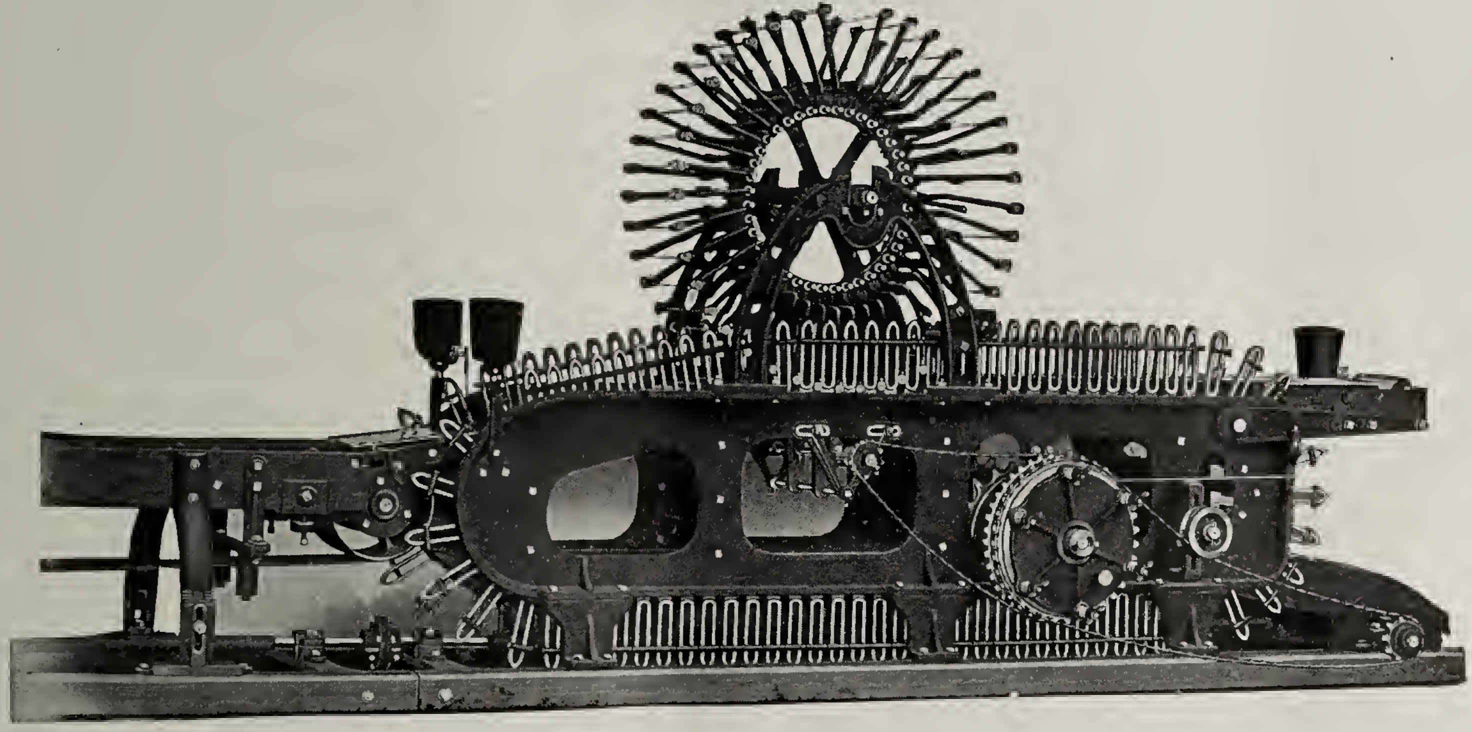
THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



AUTOMATIC END CUT BRICK TABLE WITH BELT DELIVERY.

The only successful Table so far built for cutting Hollow Brick or Haverstraws. It is also nicely adapted to cutting End Cut Tapestry or Mat Face Brick.



AUTOMATIC SIDE CUT BRICK TABLE.

This table is becoming more and better known as the most successful and economical Table to operate for Side Cut Brick. The Capacity is limited only by that of the Brick Machine and is quickly regulated to meet that.

We manufacture Automatic Cutting Tables for most any purpose desired.

Write us your needs.

## The J. D. Fate Company

**Plymouth, Ohio**

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
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See pages 310 and 311 for other ads.

WABASH

FOLLOW
THE
FLAG
TO

WABASH

# DETROIT! FEB. 15-20

## The Mecca of the BRICK MANUFACTURERS

Detroit is the hub center of the Wabash System

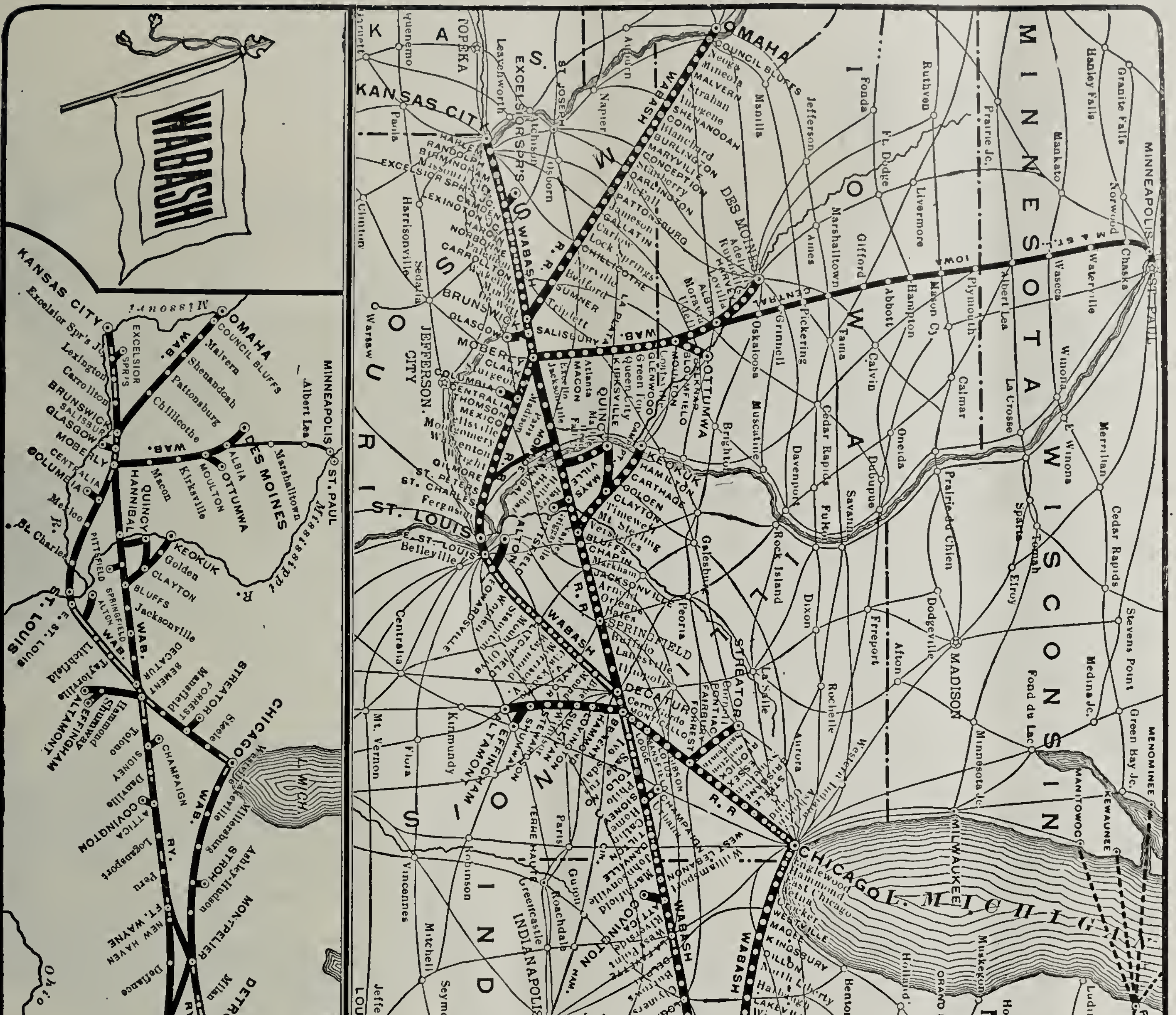
The Wabash connects Chicago with Detroit, New York with Detroit, Buffalo with Detroit, Toledo with Detroit, St. Louis with Detroit, Kansas City with Detroit----it can be truthfully said that you can reach Detroit from any direction and from any place via Wabash.

When one thinks of Detroit, one thinks of

# WABASH

as the logical line to go by. The 29th annual convention of National Brick Manufacturers' Association to be held at Detroit, Feb. 15th to 20th, 1915, gives you the opportunity to enjoy Wabash service.

**J. D. McNAMARA, General Passenger Agent**
**St. Louis, Missouri**


WABASH
KANSAS CITY
OMAHA
COUNCIL BLUFFS
DES MOINES
MINNEAPOLIS
ST. PAUL
ST. LOUIS
E. ST. LOUIS
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QUINCY
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MOBERLY
DECATUR
SPRINGFIELD
STREATOR
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### ANNOUNCEMENT

# THE NEW POTTS

## Horizontal Soft Mud and Fire Brick Machine

The most powerful Soft Mud and Fire Brick Machine on the market.
Weighing 2,000 pounds more than our Standard Horizontal Machine.
Requiring less horse power to operate.
Steel and semi-steel CUT GEARS.
Large DROP FORGED Crank Shaft.
Front of Machine Steel Lined where large Feed Wings work.
Larger Boxes and Bearings.
Larger Push-Out and Press Shaft.
Legs and the entire Front and Rear of Machine Heavier.
Press will take in Brick up to Six Inches Thick.
No Noise or Grinding of Gears.
Machine Manufactured from the Best of Material throughout.
This Machine like our Standard Horizontal Machine is simple in construction and simple to operate.

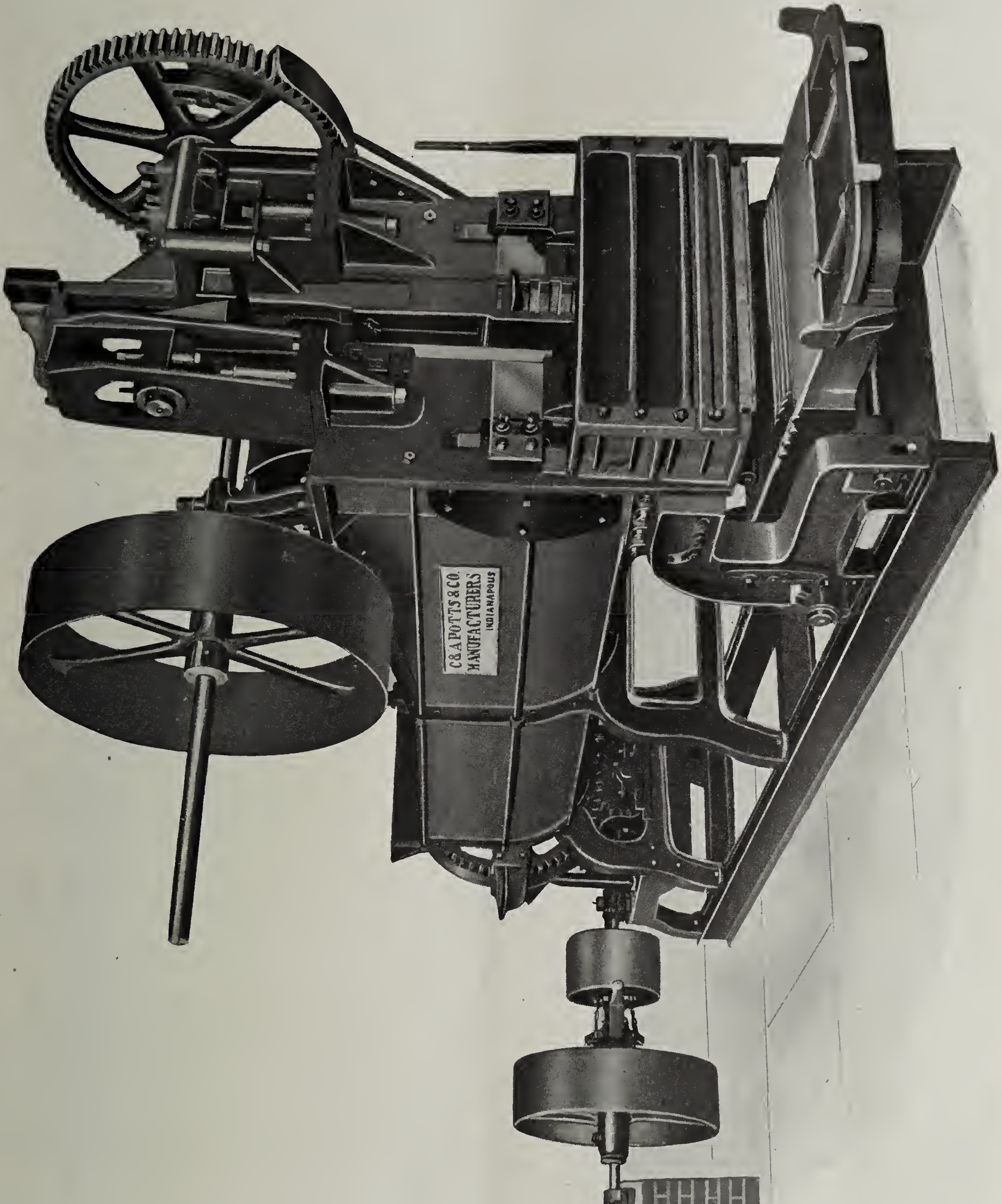
**Write us for full Information**

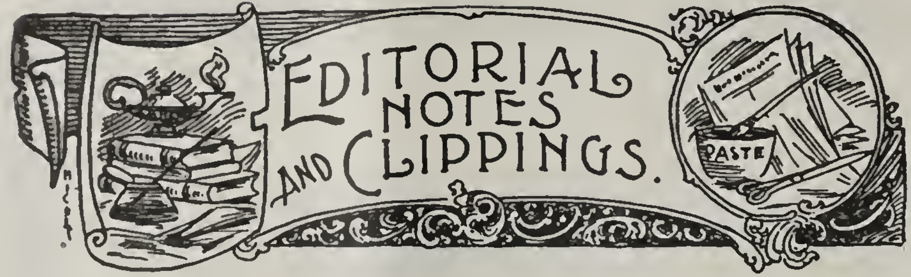
**If its used on a Brickyard**

**C. & A. Potts & Co.**

**Potts has it.**

**Manufacturers——Indianapolis, Indiana**


C&A POTTS & CO.
MANUFACTURERS
INDIANAPOLIS



Frank Bauman wil lstart a small brick and tile plant at Post, Garze county, Texas.

Geary Brick & Tile Co., Clearing, Ill., will erect a plant of 50,000 daily capacity in the near future.

Joseph Nussell, formerly manager of the Poston Brick Co., of Attica, Ind., is organizing a new company at Attica, for the manufacture of brick.

J. R. Payne, of Bertha, Minn., is interested in a movement to erect a brickmaking plant at Baudette, Minn., where there is a large desopit of excellent clay.

E. A. Ford, 201 East Maxwell street, Lexington, Ky., anticipates going into the brick business, and will be glad to receive catalogues of brick machinery and supplies.

Seeley, Harrison & Co. is the name of a new concern which will erect a plant at Beaverton, Pa., for the manufacture of brick. The firm will also do general contracting work.

Fiske & Co., of Boston, Mass., have placed an order with the Kane Brick Co., of Kane, Pa., for 1,000,000 brick. This will keep the plant running full handed for the next four months.

The plant of Adams Brick Co., at Alexandria, La., was almost completely destroyed by fire January 20th. Mr. C. N. Adams, the proprietor, advises us that he estimates the loss at $12,000. He carried insurance of only $5,000. The plant will be rebuilt at once.

The Central Clay Products Company, of North Tonawanda, N. Y., which has a large plant at Beach Ridge, announced recently that it has sold the entire output for the next two years to an Erie (Pa.) company, and will duble the capacity of the plant before spring.

Mrs. Mary A. Neugenbauer has brought suit against Gladding, McBean & Co., for $50,000. The plaintiff alleges her husband was employed in the works of the defendant at Lincoln, Cal., and that while working in the factory inhaled certain acids used in the manufacture of pottery which caused his death.

The Barr Clay Products Company, Wanamingo, Minn., adjudged bankrupt January 18, 1914, has paid all its creditors 100 cents on the dollar. It was the first case ever handled by Referee Ives in which the bankrupt company wound up its affairs by paying its creditors in full. The liabilities amounted to $89,868.72, including outstanding bonds of $75,000, secured by real estate.

A. C. Pritchard, of Indianapolis, has purchased the plant of the Adams Brick Company, located at Martinsville, Ind., and reorganized the company, which will be operated under the name of the Adams Clay Products Company. Mr. Pritchard will have associated with him Mr. Fred B. Adams, who has grown up with the business and will have charge of the sales end of the business. The main office of the company will be located in Indianapolis, as heretofore.

Milledgeville, Ga., is to have a new brickmaking concern which will be operated by the Cary Fire Clay Products Company under the management of D. T. Asbury. The plant will be located at Carr's Station, a few miles from Milledgeville, where the head office of the company will be. Milledgeville is already the home of several brick and tile manufactories. J. W. McMillan, pioneer in the industry, enjoys a reputation throughout the entire South as a manufacturer of especially fine building brick, while Stevens Brothers and the Oconee Brick and Tile Company are both hardy enterprises.

The Hamilton Brick and Tile Co., organized by Paul L. Hitchins, of Frostburg; Joseph P. Blake and W. L. Hamilton, of Mount Savage, Md., for the manufacture of building and paving brick and hollow brick, has been granted a certificate of incorporation. The plant will be erected at Barrellville, Md., just east of Mount Savage, where an abundance of red burning shades and low grade fire clay have been developed. The work of erecting the plant will be pushed rapidly and the company expects to have the product on the market by May 1. The daily capacity will be 50,000 brick. W. L. Hamilton will be the manager of the plant.

The West Point Shale Brick Company, of Royersford, Pa., has been incorporated with $9,000 capital stock.

Max Robinson, general manager of the Auburn Wagon Company, Martinsburg, W. Va., died at his home in that city, January 31.

A charter was recently issued to the Plymouth Brick Company, of Plymouth, N. C. L. C. Blades, D. S. Jones and others are the incorporators.

The plant of the Amarillo Brick & Tile Co., at Cliffside, Texas, is to be enlarged. Among other improvements will be the erection of a continuous kiln.

The china and earthenware concern of J. Wedgwood & Sons, Ltd., of Etruria, Eng., has been authorized to do business in the state of New York. The capital is $500,000.

The National Ornamental Terra Cotta Company, Kansas City, Mo., has been incorporated with a capital stock of $250,000 by Harry Stiver, Charles W. Lovitt and J. L. Davies.

The West Lake Brick & Products Co., Ltd., Wellington, Ont., has been incorporated with $250,000 capital, by N. F. Hoffman and Grover Lauth, Buffalo, N. Y., Hugh A. Rose and others, to manufacture brick.

S. R. Reck, formerly of Alliance, Neb., is erecting a brickmaking plant at Rapid City, Iowa. He will turn out a vitrified shale brick, and expects to have the plant ready for operation by the middle of March, with a daily output of 50,000.

James Dalton, a well-known brick manufacturer of Peoria, Ill., died at his home in that city January 26. His father established the business which the son has carried on since the father's death. Mr. Dalton leaves a mother, three sisters and two brothers.

The Manitowoc Clay Company, of Manitowoc, Wis., has been reorganized and incorporated with a capital stock of $200,000 by A. S. Green, Elmer Leach and H. M. Clark. The plant will be enlarged, new equipment will be installed and the output will be enlarged in brick, tile and other clay products.

Henry Busse, president of the Busse Brick Company, Covington, Ky., died January 31, at his home in South Covington after a lingering illness. Mr. Busse succeeded to the brick business a number of years ago when his father, who was a pioneer brick manufacturer of that city, died. The business will be continued by two sons, H. J. and B. L. Busse.

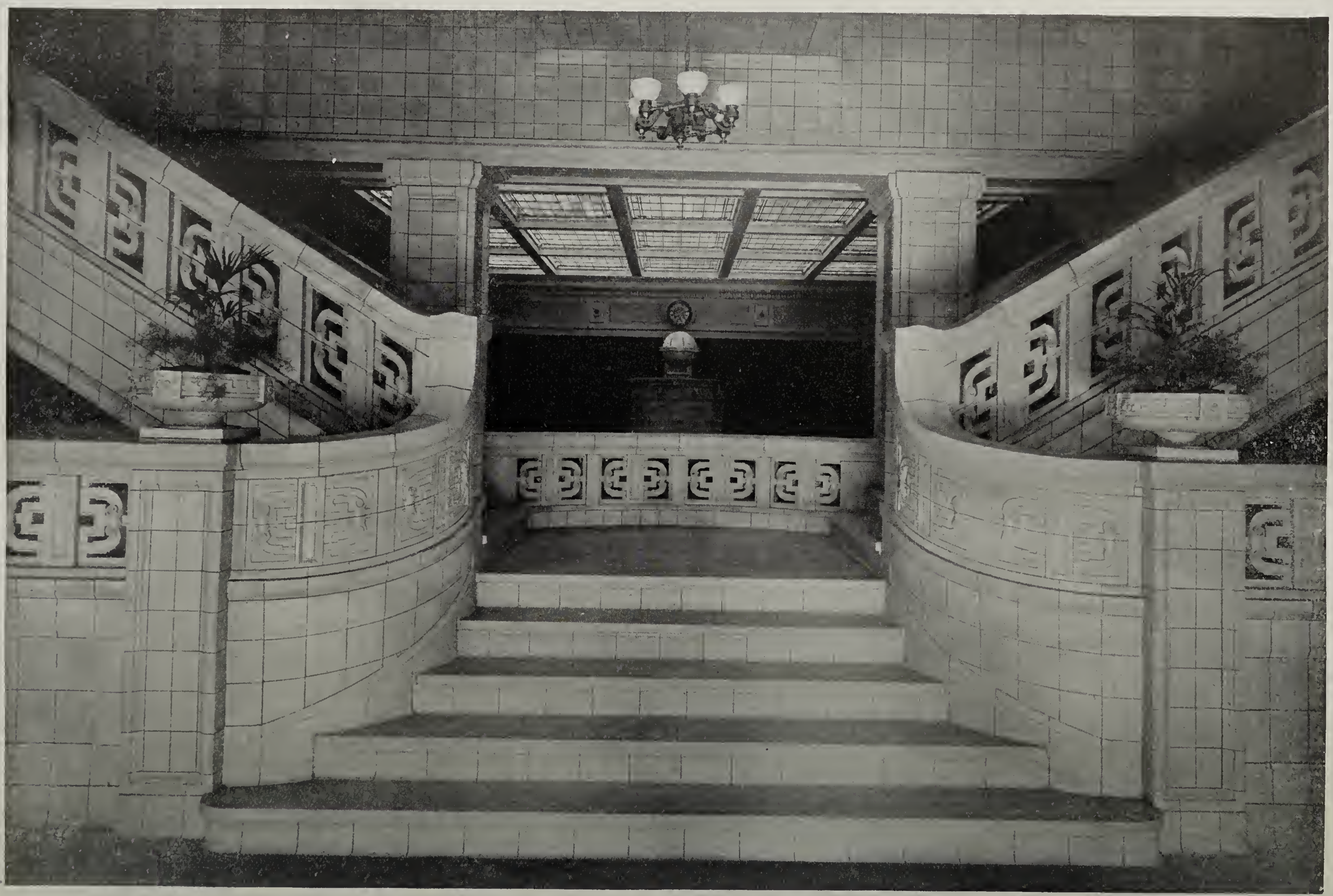
The annual meeting and election of officers of the Greater New York Brick Co. was held recently, when the Hon. John B. Rose was re-elected president; A. E. Aldridge, of Beacon, vice-president, and Frank V. DeNoyelles, of Haverstraw, secretary. Reports showed that conditions in the building trade are improving and that prospects for a brisk business the coming season are favorable.

At the annual meeting of the Central Connecticut Brick Exchange, held at New Britain, Conn., in January, the members expressed themselves as being very optimistic as to the trade outlook for the coming year. Joseph Towers, of New Britain, was re-elected president; G. H. Todd, of Hartford, vice president; F. H. Holmes, New Britain, secretary; H. S. Tallard, treasurer, and C. W. King, manager.

The Great Falls Sewer & Fireproofing Company, Great Falls, Mont., was fully organized at a meeting of the stockholders in January. Thirteen directors were elected as follows: S. S. Hobson, Paris Gibson, Warren Overpack, E. C. Metzner, O. S. Strausburg, R. B. Noble, J. W. Speer, Ransom Cooper, Louis Newman and S. R. Jensen, all of Great Falls; F. W. Mitchell, Stanford; J. W. Powell, Brooklyn, Ind., and A. F. Daughenbaugh, Gowrie, Iowa. The following officers were elected by the directors: Warren Overpack, president; F. W. Mitchell, vice president; E. C. Metzner, secretary; J. W. Speer, treasurer.

The owner of one of the old and well-established face and common brick plants in Texas writes that he desires to make a number of improvements in his plant, and for that reason would like to interest a responsible man, with capital, in one of the best face brick propositions in the South. While nearly all the brick plants in that section are closed down now, yet the prospects for good business the coming season are well assured, especially for this plant, where an unusually high grade of both dry press and stiff mud face, with the states of Texas and Oklahoma for a market. The manufacturer in question would invite thorough investigation of plant, products and the business generally. Interested parties will address, Texas, care The Clay-Worker.

ROOKWOOD FAIENCE FOR HOSPITALS



MAYO CLINIC BUILDING, ROCHESTER, MINN.
Walls Complete, Grand Stairway, Fountains and Vases
Made by THE ROOKWOOD POTTERY COMPANY, Cincinnati, U. S. A.

## NEW YORK STATE'S BRICK PRODUCTION FOR 1914.

THE STATE OF NEW YORK has long held the record of being one of the great producers of clay products. During the season of 1913 thirty-six counties reported a production of common brick with a total of 1,090,506,000 having a value at the yard of $5,938,922. This is the output as reported by one hundred and fifty-nine operators. During 1904 the common brick production had a value of $7,234,876; 1905, $9,751,753; 1906, $9,302,165; 1907, $7,201,525; 1908, $5,064,194; 1909, $8,009,766; 1910, $6,563,212; 1911, $5,310,511, and 1912, $6,666,945. The total production of all clay products, including crude clay, during the season of 1913 had a value of $12,077,872, a slight increase over the preceding year. Of the counties reporting a production of common brick twenty-one made their entire output by the soft mud process. The output of stiff mud wire cut common had a value of $424,894. Three counties reported their entire output by this method. Under stiff mud common brick are included the ungraded red brick and also the production of common brick, such as made by the producers of paving brick, though not including the rough face brick made by the same producers.

The state can be conveniently divided into five common brick manufacturing districts according to the materials in use and methods of manufacture. The first and most important is the tidewater Hudson river region. Beginning at Croton Point on the south and extending north into Albany county there are approximately five hundred soft mud machines, with an available daily capacity of over 11,000,000. Nearly the entire output of this section is disposed of in either the New York City or Jersey City markets. The total production of this district during the season of 1913 was 788,731,000 with a value of $4,176,406, the output of nine counties. A large portion of the product from Albany and Rensselaer counties, amounting to $258,810, was sold in the local markets or exported by rail to the eastern states. This section consists of five main productive areas with many scattered producers. Kingston, Ulster county, leads with a production of $1,068,655 during 1913, with an available daily machine capacity of about 2,904,000. Haverstraw, Rochland county, is next, with a production of $820,475, and an available daily capacity of 2,948,000. Dutchess Junction, Dutchess county, produced $591,796, with an available daily capacity of 1,936,000. Orange county, with the main production from Roseton, had an output of $472,465. Verplanck Point, Westchester county, and vicinity, produced $275,756, with an available daily capacity of 1,122,000. The next important section of the state is Mechanisville, in the upper Hudson valley, with a production of 89,744,000 and a daily available capacity of 415,000. Nearly the entire output of this section is sold in the New England states through the Boston market. Long Island and Staten Island were responsible for a production of 59,004,000, with an available daily capacity of 387,000. In nearly every case the yards of this district are situated so as to have deep water transportation and most of the product is sold in the southern New England states. Erie county is next in importance, with a production of 56,899,000. Nearly the entire output comes from the yards situated in the city of Buffalo, and is all consumed in the local markets. This county is the greatest producer, in the state, of wire-cut building brick, the production amounting to 20,868,000. The smaller yards scattered throughout the state were responsible for the output of 96,128,000 brick.

The front brick production of the state was of four grades: the ordinary smooth face wire-cut brick, buff and yellow product, rough face and dry pressed. The entire production of 9,355,000 made during the season of 1913 had a value of $99,736. This production was as follows: Smooth face red, $31,556; buff and yellow, $7,000; rough face, $35,825, and dry presssed, $25,355. Two counties reported a production of smooth face red, while five reported a rough face product. In four of the counties the rough face was reported by producers of paving brick.

In 1913 six plants produced 35,666,000 vitrified paving brick, with a value of $576,970. With one exception these plants operated with shale entirely. At all locations a small amount of surface clay found its way into the bins, but no attempt was made to add any certain proportion except in the one instance. In this case about 20 per cent. clay is in use.

Common hollow brick was reported from seven counties, five also having a production of hollow building block (fireproofing); nine counties reported a production of drain tile; one of sewer pipe; four of fire brick (materials imported in most cases from other states); five of stove lining; ten of pottery; three of decorative terra cotta and three of crude clay. Two counties produced pottery (red ware) entirely from local material.

The season of 1914 has been disastrous to the producers of clay products in the state of New York, especially in the production of common building brick. While the larger yards situated so as to be dependent upon local markets have had a fair season and in a few cases have even made decided gains over the preceding year, the main producing sections have fallen off. Estimates made from available figures gives losses of from 3 to 42 per cent. in amount for the production of common soft mud brick. The soft mud product of the lower Hudson valley will be about 20 per cent. lower per yard than in the preceding year. These figures are based on the average output of the most important yards along the navigable section of the river. Many of the smaller yards situated away from water transportation have had to close down completely. The Long Island and Staten Island section has held its production up very close to that of 1913, the decline being about 5 per cent. Erie county has had the greatest falling off. In the case of the soft mud product, only 58 per cent. of the production for 1913 was produced during the season of 1914. There has been a falling off from the Mechanicsville yards. During a considerable portion of the season the machines were only worked at from one-quarter to one-half capacity. The production of stiff mud wire-cut common will probably have a greater decline than the soft mud product. The largest productive section of wire-cut common shows a loss of 63 per cent. from the season of 1913.

## SYSTEM IN FOREMANSHIP.

The right idea with the modern foreman is to get an element of system into his foremanship, not a lot of red tape, but system of the kind that means order and study and a working toward the greatest degree of efficiency with the material, men and equipment at hand. The old-fashioned foreman was a rough and ready sort of fellow and followed no system except that of native intuition and that of the unconscious leading of certain dominant traits in his make-up. He was often a mighty good man in his way, too, but while he still makes good on many an occasion the modern idea in foremanship is more analytical than that of the old school, that makes it a point to understand system and do business in a more orderly manner.

There is a natural tendency in the new order of things to make system into red tape, to go to an extreme that is even more objectionable than the lack of system and order in the old time plant. This is to be avoided because it hampers more than it helps and also for the reason that no system in the world ever was or ever will be invented that will work alone to perfection. If it were possible to devise a system that would work by itself it would eliminate the need of the foreman. The idea of system is merely to get order and make the work of the foreman lighter and more effective, and to get more work out of the men and appliances without really making it any more burdensome on them. Indeed, the right idea should be to make life brighter and better for the man at work while at the same time developing a greater degree of efficiency. This, of course, is easier to say than it is to do, but just the same some of it can be done now and then.

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The Boss Ten-Hour Unit-Control Waste Heat Dryer.

**Mr. Brickmaker:**

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

**NO CLAY TOO TENDER.**

Ask us to show you how we do it.

**JOHN C. BOSS COMPANY**
**Elkhart, Indiana**

**WEBB WIRES WEAR WELL**

WRAPPED TWISTED SOLDERED

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

**The WEBB WIRE WORKS, New Brunswick, N. J.**

Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES OF THE NORTHWEST.

THERE IS A DISTINCT REVIVAL of interest in building investment since our last letter was written. The opening of the new regional bank in this district was followed by an immediate easing in the stringent conditions in the money market. Forthwith a number of projects which had been contemplated and then deferred until spring were again under consideration, and some of them have been started, although the lateness of the season and the danger of interference by winter have held back a number of them. But it is less the matter of actual work than the effect shown upon the sentiment that is satisfactory. Business will come along nicely if the sentiment is right. The last half of December saw a better volume of building in prospect than some weeks previous thereto, and it was largely because of the change of sentiment after the reserve banks had opened.

Both Minneapolis and St. Paul will show good gains over a year ago in the building permit totals for 1914. St. Paul will show a wonderful gain of several million dollars. This gain is not achieved through any one immense project, which sometimes accounts for a marked increase, but through a number of large buildings, which include the Merchants' National Bank building, sixteen stories; the Hill building of twelve or more stories, and numerous others, beside a steady and marked growth of lesser structures. Minneapolis totals are about the usual gain, and are somewhat over $14,000,000.

With a continuance of the present bright outlook, conditions for 1915 will be exceptionally good in these cities and in the Northwest. The common brick situation is quite satisfactory, on the whole, although the improvement came too late to help the season much. Many yards produced less, and had about their normal volume on hand to run through the winter and early spring. With any sort of spring demand, many of them will find their stock running very low before another season permits a resumption of operations.

Public comfort stations are proposed in both St. Paul and Minneapolis. These should be lined with white enameled clay ware, which offers such a sense of cleanliness and freedom from germ or other dirt. Should they be given any other treatment, they will lose their artistic worth by considerable.

The Morton Clay Works, at Morton, Minn., will install extensive improvements to its plant during the winter, in anticipation of a good business next season.

The Minneapolis Civic and Commerce Association has named its new committees, and it is to be noted that there are a number of architects, contractors and builders in the list. A. S. Hedborg, of James Leck & Co., general contractors, is chairman of the membership committee; A. M. Christiansen, of Landers, Morrison, Christiansen Co., brick and other building materials, is also on this committee.

The re-arrangement of the Builders' Exchange quarters in Minneapolis has left desk room space to be rented. The Hydraulic-Press Brick Co. has taken a front space, which has been laid up with brick walls and panels, trimmed with terra cotta. The plan is to have a complete display of various materials in these quarters for the benefit of visiting contractors and also for the use of such owners as may wish to view the samples which are on display there. This display of the Hydraulic company is an exceptionally good one and is well worth careful inspection.

A league of bowling teams has been formed in the Builders' Exchange of Minneapolis. The brick team has held a fair standing in the league, although it is not at the top.

Purcell & Elmslie, architects, of Minneapolis, have prepared plans for a handsome brick veneered residence to be erected at Madison, Wis., at a cost of $20,000. There will be three brick fire places and other clay and brick material used.

The J. & W. A. Elliott Company, of Minneapolis, has received the general contract for the erection of the branch library building in Northeast Minneapolis. It will cost about $30,000.

Lindstrom & Almars, architects, Minneapolis, recently supplied plans to Thomas P. Smith, of Cleveland, Ohio, for a modern brick residence.

J. R. Kingman, of Minneapolis, has work under way on a row of brick stores, 70x60 feet in size, two stories, at Tenth street and Marquette avenue. The H. N. Leighton Co. is the general contractor. The building will cost about $18,000.

Morris Kanovsky, of St. Paul, will erect a brick veneered flat building at 28 Iglehart street, St. Paul, to have twelve apartments, of one, two and four room suites. H. E. Erickson, of St. Paul, is the architect.

H. L. Habighorst, of St. Paul, will erect a brick veneered flat building on Portland avenue, between Avon and Victoria, two stories, 35x70, on plans by R. V. L. Haxby, architect, of Minneapolis. J. P. Frisch, of St. Paul, is the general contractor.

The James H. Brown Co., of Minneapolis, has the general contract for a modern brick hospital building for Fairview Hospital, Minneapolis, to cost about $200,000 complete. Hewitt & Brown, of Minneapolis, are architects.

Long, Lamoreaux & Long, architects, of Minneapolis, have prepared plans for a brick school house to be erected at Groveland, Lake Minnetonka, just west of Minneapolis.

Paul Steenburg Construction Co., of St. Paul, was recently awarded the contract to erect an elaborate brick residence at 427 Portland avenue, St. Paul, on plans by E. L. Masqueray, architect, of St. Paul. Cost about $20,000.

A. F. Gauger, architect, of St. Paul, is completing plans for a handsome brick church to be erected at Young America, Minn., for the Lutheran society there. It will seat 1,000, and will be 65x115.

T. WIN.

SEE IT AT DETROIT

At the National Brickmakers' Association Convention held in Detroit, Feb. 15th to 20th, we will exhibit a machine which will interest every user and manufacturer of paving brick. We ask you to carefully examine it.

MARSH-CAPRON GROUTER

For Brick Pavers

SIMPLE——COMPACT——STURDY

As high class in every respect as the well known **M-C Rail-Track Pavers** is this little **Marsh-Capron Grouter.** Highway Commissioners throughout the country are backing us in its introduction. By boosting its sale you will make brick paving cheaper and more popular than ever.

SEND FOR FULL PARTICULARS

Marsh-Capron Mfg. Co.

466 OLD COLONY BUILDING CHICAGO

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**Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.**

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FOR SALE.

Some tile factory equipment. Address,

THOMPSON BROS.,
12 tf d Rolfe, Iowa.

FOR SALE CHEAP.

About 15,000 brick pallets, engine and boiler.

SANDBORN BRICK & ICE CO.,
2 1 c Portage, Wis.

FOR SALE.

Down delivery attachment for Fate machine to make large sizes of tile. Scarcely used and a bargain.

CARLINVILLE CLAY CO.,
12 3 c Carlinville, Ill.

FOR SALE.

One American Clay Machinery Co.'s special giant auger brick machine, used for making fire proofing. In workable condition. Address

BOX 1—J. A. R.,
1 tf d Care Clay-Worker.

WANTED.

Position as Superintendent or Manager of a face brick plant or stiff mud plant or both plants in one. No proposition too large to handle. My past records will prove me as a reliable and successful man of twenty-two years' experience. Age 38 and married. With well established firm might be interested with the company in a small way.

BOX 9—GEORGE,
9 1 cm Care Clay-Worker.

FOR SALE.
AN INTERESTING OFFER.

Death and affliction have opened an opportunity to acquire the best brick proposition located in Cincinnati territory. Two plants, combining ten million capacity annually, that have never failed to produce dividends for years, besides paying well for management. One or both plants can be had. So look sharp, as this will prove a valuable message to some one. Address

BOX 54,
Builders & Traders Exchange.
1 3 c Cincinnati, O.

FOR SALE.

Wellington Sand Dryer, new. Never been used. Price, $30.00.

CLAY PRODUCTS CORP.,
1 2 c Hampton, Va.

FOR SALE.

125-h.p. boiler, 100-h.p. engine, 2 brick machines, pulleys and shafting, all in good condition. Address,

J. P. VOGAN,
12 4 d Franklin, Pa.

FOR SALE.

Having replaced them with larger machines, we offer for sale the following:

One Special Giant brick machine,
One Wellsville side cutter,
One 12-foot pug mill.

All made by the American Clay Machinery Co. Pug mill can be seen in operation. Price of the three about one-half of one machine. Excellent value.

THE BARR CLAY CO.,
2 1 d Streator, Ill.

FOR SALE.

Soft mud brick plant in live town of five thousand. Only plant in town and 80 miles from Memphis, Tenn. In the center of the noted fruit and trucking section. Capacity 20,000. Boss system of burning, and railroad switch running into yard. Also small soft mud plant in Brownsville, Tenn., 55 miles from Memphis on the L. & N. R. R. Prices and terms satisfactory to right party.

McKNIGHT BROS.,
12 3 c Humboldt, Tenn.

FOR SALE AT ATTRACTIVE PRICES

One Blake No. 3 Jaw, 19x9 inch crusher (Allis Chalmers make) used in experimental work only six weeks.

One Stevenson 8-foot iron frame clayworking pan used in experimental work only six weeks; also one link belt chain drive and sprocket.

Four 100-h. p. 6-inch Atlas Tubular boilers with forty-foot stacks, 30 inches diameter each.

Eight industrial cars 24-inch gauge, one ton capacity; side dumps, used only one year.

One 7-foot Stine coal mine fan.

One switching locomotive tender tank.

Forty-eight cast iron gates with frames for stone or coal bins, openings 18½x18½ inches, weight 890 pounds each.

THE COLUMBUS IRON & STEEL
COMPANY,
1 2 cm Columbus, O.

FOR SALE.

Ten thousand pallets, 10x31 inches, also five mold dry press. Big bargain if taken at once.

J. H. KRITENBRINK,
13th and U Sts.,
2 1 c So. Omaha, Neb.

FOR SALE AT A GREAT BARGAIN.

Brick and tile plant, oldest in a town of 20,000. One of the best cities in Iowa. Plant is in good running order and will be sold cheap. Good reason for selling. Address

BOX 1—J. H. A.,
1 1 c Care Clay-Worker.

FOR SALE—SHALE SITE.

I have an unlimited quantity of high grade shale in hills, on railroad in Jackson Co., Ind. Will sell property or contract to deliver in carload lots. Will send analysis and samples on application.

A. J. NAVIN,
58 Baldwin Blk.,
1 3 cm Indianapolis, Ind.

**FOR SALE.**

**The Ashaway National Bank will sell a controlling interest in the capital stock of the Ashaway Clay Co. for a nominal sum. The plant was built in 1907 and cost about $70,000. On account of a lack of experience and capital, it has never run all told a full year. The company has just been reorganized with a capital of $35,000 and no debt. It is a thoroughly modern and up-to-date plant with new equipment throughout, consisting of Freeze intermediate size brick machine, capacity up to 60,000 brick per day, disintegrater for preparing the clay, Corliss engine with high pressure boilers, waste heat dryer, direct connecting fan and steam coils for auxiliary heater, 25 chamber Haigh continuous kiln with stack 135 feet in height. The equipment for handling clay from the bank consists of tramway and cars with elevated track at plant and winding drum to hoist cars. There is a switch into the plant with depressed track for loading. Address**

**FRANK HILL,**
**1 3 cm Ashaway, R. I.**

**American Clay Products Co.**
Manufacturers of
**CLAY PRODUCTS**
**175 Fifth Avenue, New York, N. Y.**

(Continued on next page.)

# Classified Advertisements—Continued.

## WANTED, ETC.

### WANTED.

Experienced superintendent for sand mold brick plant in Wisconsin. Address,

BOX 12—EX,
12 3 d Care Clay-Worker.

### WANTED.

Dry pan, state size, make, price and all particulars in first letter.

H. O. ROBINSON,
2 1 d Green Ridge, N. Y.

### WANTED.

Capable and experienced brick salesman to take charge of excellent territory. Address, giving age, experience and salary expected. Address,

BOX 2—F. W. B.,
2 1 d Care Clay-Worker.

### WANTED—POSITION.

Clayworking Manager, excellent reputation, well trained in technical and business details of all ceramic industries, seeks position with brick, tile, terra cotta or pottery company.

10 tf d F. E., care Clay-Worker.

### WANTED.

Position as superintendent. Thoroughly experienced in the making, burning and selling of brick, drain tile and hollow ware. Am employed but desire change. Will start with reasonable salary. Good references. Address

BOX 1—Iowa,
1 3 cm Care Clay-Worker.

### WANTED.

A man competent along brick and clay lines to sell approved brickyard appliances, for a well established company, on a commission basis exclusively. None but capable and financially responsible men need apply—men who can sell. Address, BOX 2—W. K.,
2 1 l Care Clay-Worker.

### OPEN FOR ENGAGEMENT.

Technical engineer, with 21 years of experience in clayworking; several years' American practice. Efficiency expert and fuel economist; constructor and operator of continuous and other kilns. Have solved most difficult problems in stiff mud and dry press process, and am especially prepared to remodel plants or equip same for a new line of manufacture. Am energetic and ambitious, always sober, and familiar with machinery and all details of manufacture. Let me prove it. Highest references. Address

BOX 11—PERMANENT,
Care Clay-Worker.

### WANTED.

Position as superintendent or head burner of brick plant making any line of brick. Address

BOX 1—Mo.,
1 1 c Care Clay-Worker.

### WANTED.

By an experienced clayworker position as manager face, paving brick or tile plant. Satisfactory reference. Address BOX 1—H.,
1 1 cm Care Clay-Worker.

### WANTED.

First-class salesman, also to manage sales department for an established manufacturer of roofing tile. State salary expected. Address

BOX 10—D,
12 d Care Clay-Worker.

### WANTED.

Traction engine, Case preferred, must be in good condition and cheap. Also two side dump clay wagons, capacity seven tons each. Address

BOX 1—J. L. P.,
1 2 d Care Clay-Worker.

### WANTED.

Good, practical clayworker, familiar with the manufacture of brick of any kind or color. Also other clay goods, is open for position as manager or superintendent with a good reliable firm.

Address, BOX 2—ACME,
2 1 d Care Clay-Worker.

### WANTED.

Position by first class superintendent with 20 years of practical and theoretical experience. Can take complete charge of up-to-date brick and face brick plant. Thoroughly competent and reliable. A1 references. Address,

BOX 2—R,
2 2 d Care Clay-Worker.

**E. SCHMATOLLA**
**Consulting, Designing & Constructing**
**Engineer and Patent Attorney**
**To the Manufacturers of**
**Brick, Lime, Magnesia, Silica & Ceramic Wares.**
**150 Nassau St., New York, U. S. A.**

**If...**

**You Want to Sell or Buy...**

**Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.**

**If... You Want a Man**

**for any position or a position in any connection with the Clayworking Trades use the**

**For Sale and Want Columns of...**

**The... Clay-Worker.**

**RATES**

**For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.**

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**WILLIAM N. MOORE**
**Patent Attorney**
**Loan and Trust Building**
**WASHINGTON, D. C.**

The first important step is to learn whether you can obtain a patent. Please send sketch of your invention with $5.00, and I will examine the patent records and inform you whether you are entitled to a patent, the cost and manner of procedure.

PERSONAL ATTENTION
ESTABLISHED 25 YEARS

Mention The Clay-Worker When Writing to Advertisers.

### BRICK MANUFACTURING INVESTMENT OPPORTUNITY.

There is an opportunity for investment in a Michigan paving brick manufacturing concern that is on a paying basis. It can be seen during the convention in Detroit, February 15-20, or will gladly supply similar information on written request.

A. A. FORDON,
100 Griswold St., Room 204, Tel. Cad. 2166. Detroit, Mich.

## Classified Advertisements.

# MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**

MINERS AND GRINDERS.

## FOR SALE.

Fine Fire Brick Property and Plant at Half Price.

Opportunity knocks at every man's door once. If you want to own a fine Fire Brick Plant making high grade fire brick and flashed face brick, here is YOUR opportunity.

For reasons good and sufficient when all the facts are known, this fine property is offered at less than half its real present value, and it will greatly increase in value as the property is further developed.

The property embraces 900 acres of fire clay, with necessary equipment for mining same. It has many desirable features, including a 30-inch vein of coal of good quality, and good railroad facilities, one line running through the center of the tract.

The clay plant consists of a three-story factory and an equipment of machinery for making fire brick and face brick which will be described in detail to anyone who is interested. There is also on the premises a two-room office building and a boarding house with accommodations for twenty men.

An analysis of the fire clay shows that it is equal to the famous St. Louis Cheltenham fire clay.

The title is clear and it is in every way a most desirable proposition. For analysis of clay and other particulars, address

OPPORTUNITY,
Care The Clay-Worker.

## LIST OF NEW AND SECOND-HAND CLAY MACHINERY REPAIRED AND READY FOR OPERATION.

| | |
|---|---|
| 1 | Second-hand Type "A" Rust Clay Feeder and Mixer. |
| 1 | 100,000 Capacity Eli Brick Machine, New. |
| 1 | New 20,000 Capacity Brick Machine. |
| 1 | New 30,000 Capacity Medium Size Brick and Tile Machine. |
| 1 | New 25,000 Capacity Michigan Disintegrator. |
| 1 | New 50,000 Michigan Disintegrator. |
| 3 | New Wood Frame Self-Contained Friction Winding Drums. |
| 1 | New Horizontal Pug Mill. |
| 2 | New Side-Cut Cutting Tables. |
| 1 | New 100,000 Capacity Horizontal Pug Mill. |
| 400 | New Brick and Tile Barrows. |
| 10 | New Spring Trucks complete. |
| 1 | New Bechtel's Automatic Side-Cut Brick Cutter. |
| 2 | Bechtel's End-Cut Brick Cutters. |
| 1 | Ross-Keller Four-Mould Dry Press Brick Machine. |
| 1 | Penfield Six-Mould Dry Press Brick Machine. |
| 1 | 150-H.P. Single Cylinder Non-Condensing Double Slide Valve Steam Engine. |
| 1 | 16x24 Stroke Single Cylinder Atlas Steam Engine. |
| 1 | C. & A. Potts Soft Mud Brick Machine. |
| 50 | Iron-Clad Dryer Cars. |
| 1 | Raymond Automatic Cutter. |
| 1 | Hummer, Jr., Fate Brick and Tile Machine. |
| 1 | Arbuckle Horizontal Pug Mill. |

The above machinery is offered subject to prior sale at reduced prices.

**MARION MACHINE, FOUNDRY & SUPPLY CO.**
**Box 156 Marion, Indiana**

*A man's mail will reach him where no mortal can.*

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99% Guaranteed

covering all classes of business, professions, trades or individuals. Send for our complete catalogue showing national count on 7,000 classifications.

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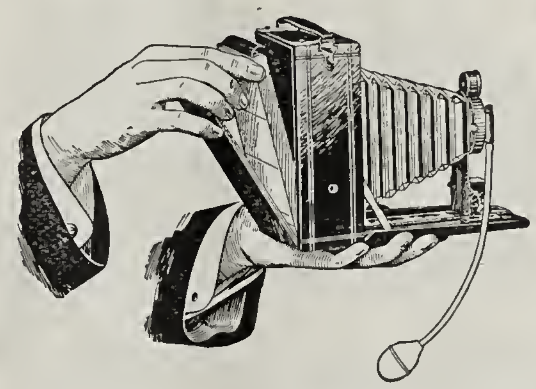

# Film Premo

The smallest, the lightest, the easiest to load and operate of all cameras—and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it today.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

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Eastman Kodak Co., Rochester, N.Y.

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When writing to Advertisers,
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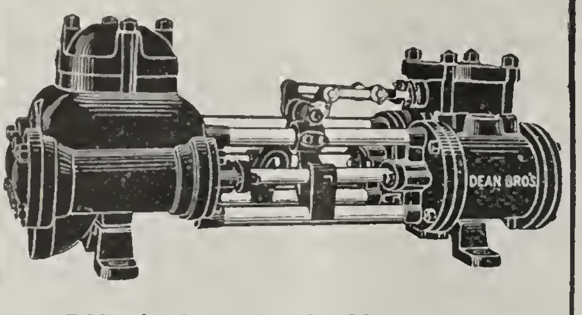

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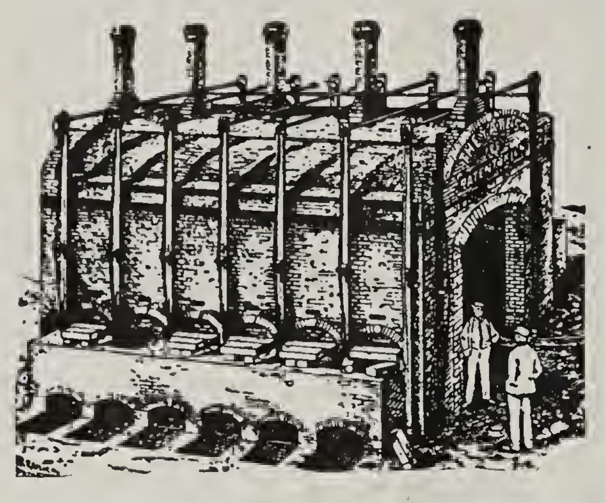

The Yates Patent Down-Draft Kiln Also Continuous Down-Draft.

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

ALFRED YATES,
SHAWMUT, PA.

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Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Clay Glazes and Enamels," $5.00; tells how to glaze and enamel brick and gives valuable recipes. "The Effect of Heat Upon Clays," by Prof. A. V. Bleininger. Price $2.00; a book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent. "Analyses of Clays," $2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," $2.00; a manual for all engaged in the manufacture of articles from clays. "Clays;" their occurrences, properties and uses, with special reference to those of the United States, $5.00. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

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Indianapolis, Ind.

Improved Belt Conveyors

For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof.* Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

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Western Ave., 17th-18th Sts., CHICAGO.
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Studios, 23, 25, 27 Sixth Ave.,
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Chicago Retort & Fire Brick Co.

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Fire Brick for
Building Kilns

'Phone
Wabash 6131

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CHICAGO, ILL.

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FIRE CLAY TILES OF DIFFERENT SHAPES AND SIZES.
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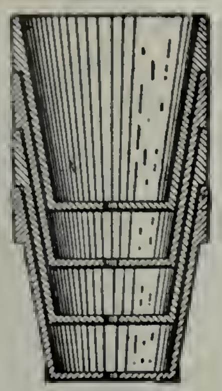
By-Product—Coke Oven Brick.
Fire Clay Liners for Cement Kilns.
Crude Clay in Bulk, Ground Clay and ground brick in barrels or sacks.
Gas Benches erected complete, including iron work.
Gas Retorts and Settings.
Fireproofing for buildings.

All Contracts Made as of St. Louis. Correspondence solicited.



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No expert workmen required.
Capacity in 10 hours:
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "
Write for Circular and prices.

**The Rockwood Mfg. Co.,**

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New Books Which Are Being Offered To the Trade:

HOLLOW TILE HOUSE, by Fred'k Squires, Price, $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

CEMENT, CONCRETE & BRICK, by A. B. Searle, Price, $3.00.

A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

SOLD BY

T. A. RANDALL & CO. (Inc.) Indianapolis, Ind.

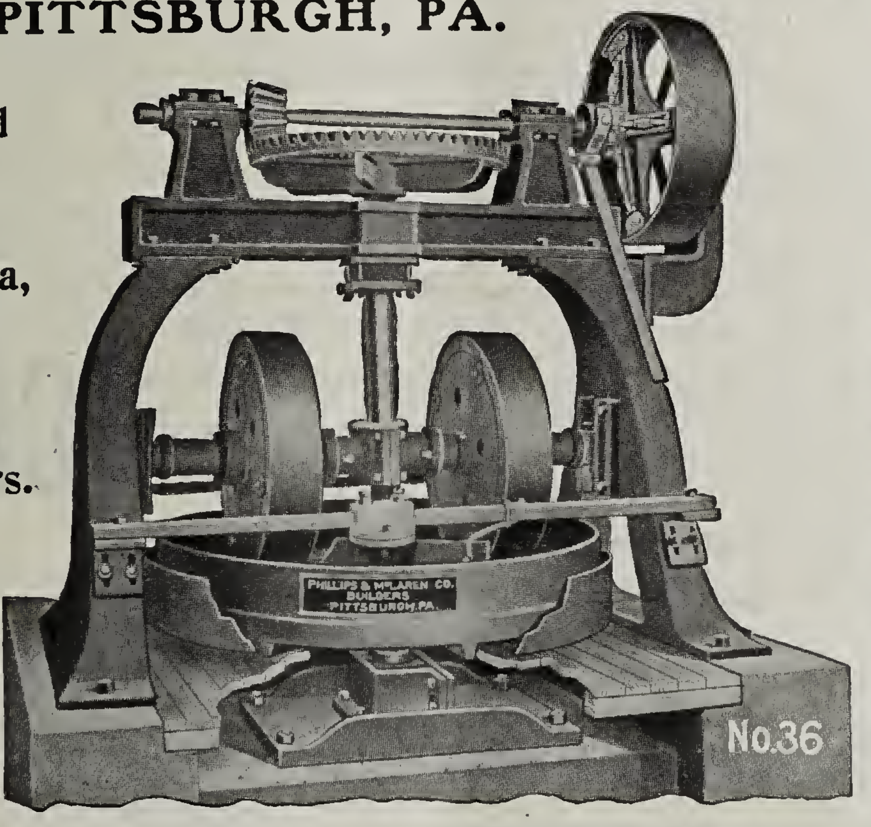
**PHILLIPS & McLAREN CO.**

**PITTSBURGH, PA.**

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
Stephen Girard Bldg.
Philadelphia, Pa.



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Manufacturers of

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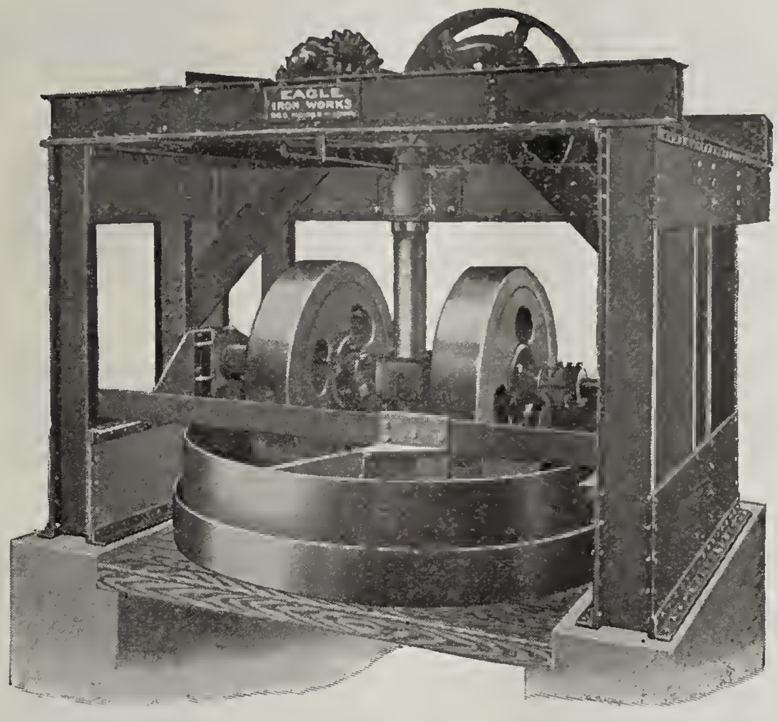

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Sold strictly on merit and results and on an entirely new plan that purchaser only pays as results are actually obtained in saving over former method.

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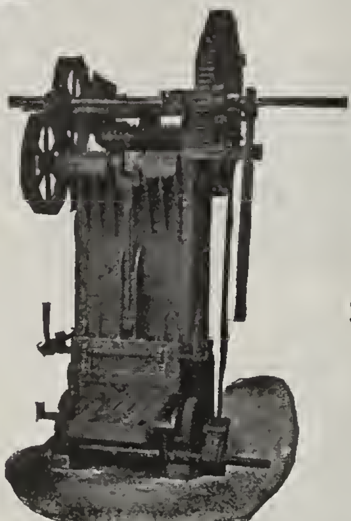

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We Build the Most Complete Line of Yard Supplies and

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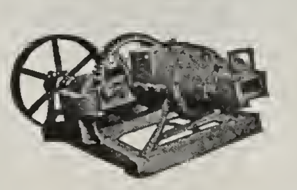

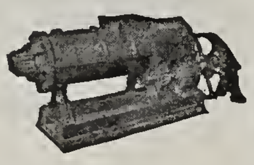

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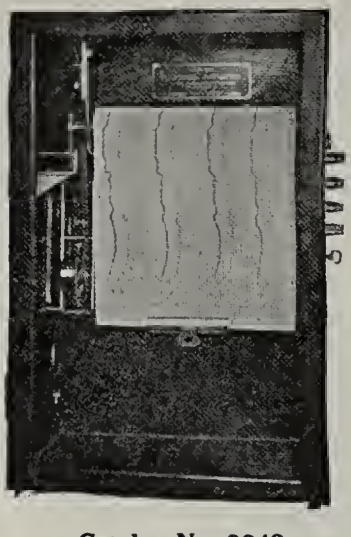

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It is obvious that the more you know about firing conditions in your

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**Multiple Record Recording Pyrometers**

permit the recording of more data from more points in one kiln, or from a larger number of kilns, on a single record chart than any other make of pyrometers.

That is why they are being so universally adopted.

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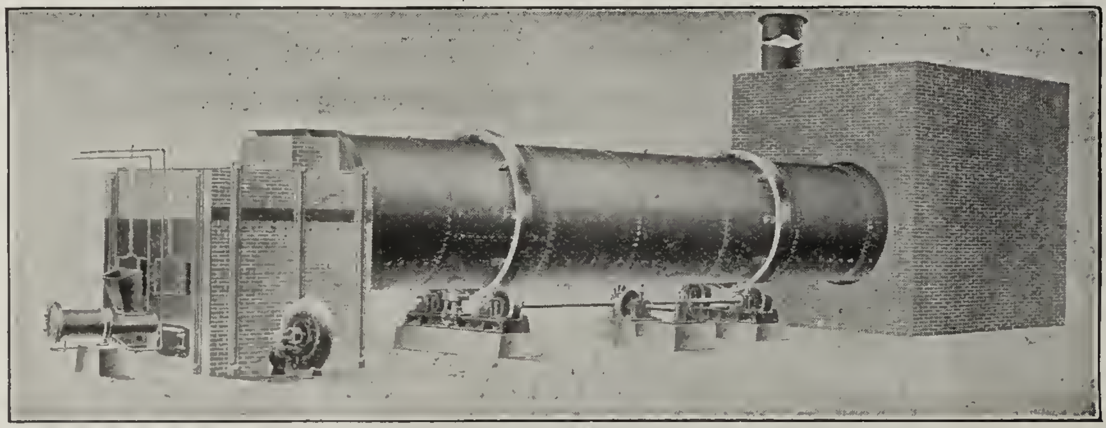

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By FRANK B. GILBRETH.

Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

Gilbreth's "Bricklaying System" is a book whose 330 pages are filled with rules and hints for his foremen and bricklayers, designed to increase the output of the workmen and to enable men of moderate skill to do difficult work in the best manner. There are 73 charts showing different bonds, ornamental and plain, some of which would be exceedingly hard to execute were it not for the methods explained in the text. To the architect, 73 ornamental charts alone will prove of great value, for practically none of them can be found in any other book, and no other book has more than 8 different bonds.

Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

The "fountain trowel" is another money-saving device. Space prohibits mention of more.

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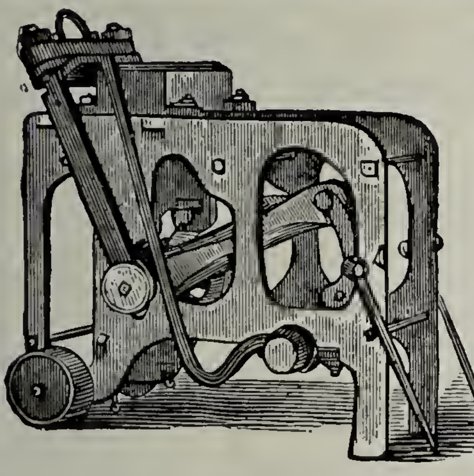
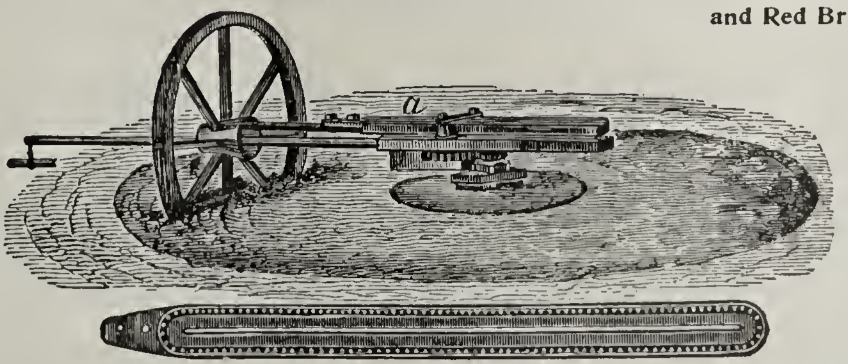
**Manufacturer of All Kinds of Machinery Used In the Manufacture of Fire and Red Brick.**



RED BRICK PRESS.



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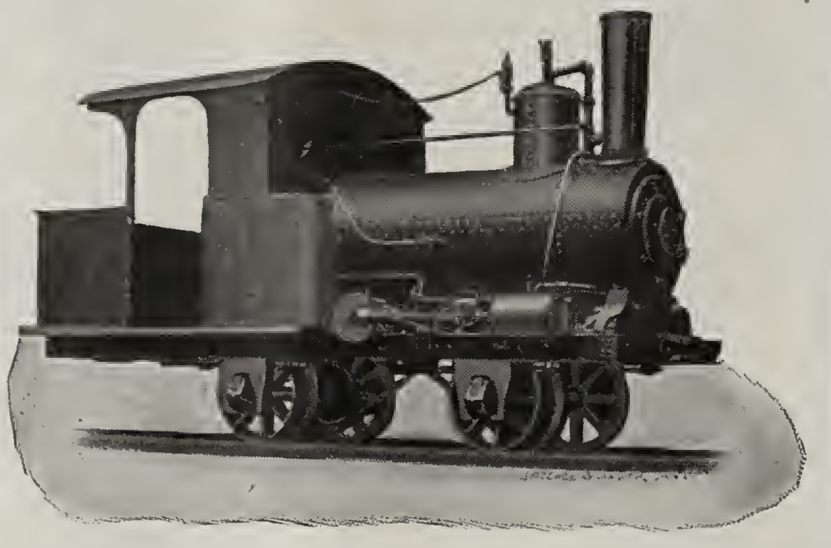

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Double chain driven. Steel roller chains and cut steel sprockets. Low in first cost and inexpensive to maintain and operate.

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**All Kinds of Clay Machinery on the Wanted List. Write for particulars.**

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Requires little power and labor.

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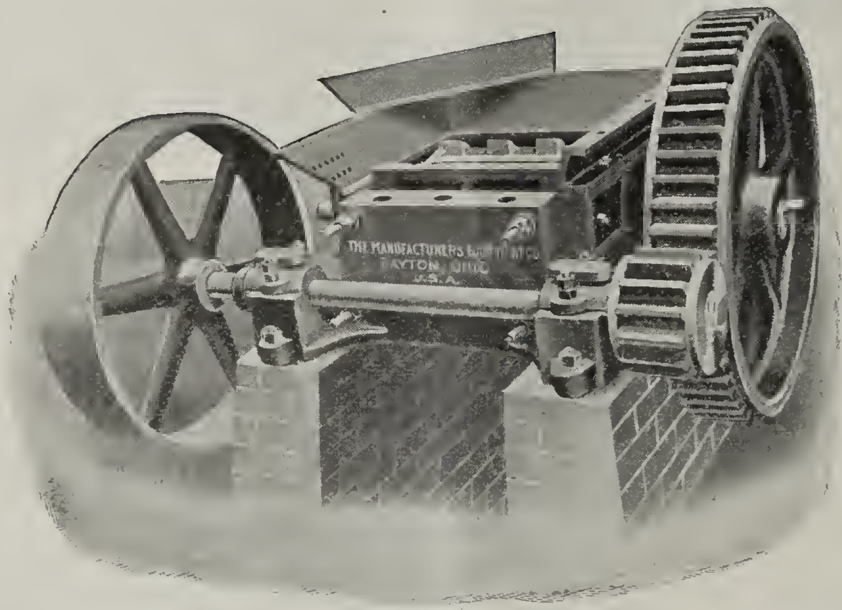

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It is indispensably necessary.

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DAYTON, OHIO U. S. A.

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**Single, Double and Triple Deck Dryer Cars,
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Switches and Trackage.**

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**Reduce cost of transportation
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Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

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and will reduce cost of delivering your material to your plant, thus increasing profits,

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OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

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After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP=TO=DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

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**KILN BUILDERS**
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**ALWAYS MAKES GOOD.**

WE ALSO HANDLE EVERYTHING
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**CHICAGO BRICK MACHINERY CO.**

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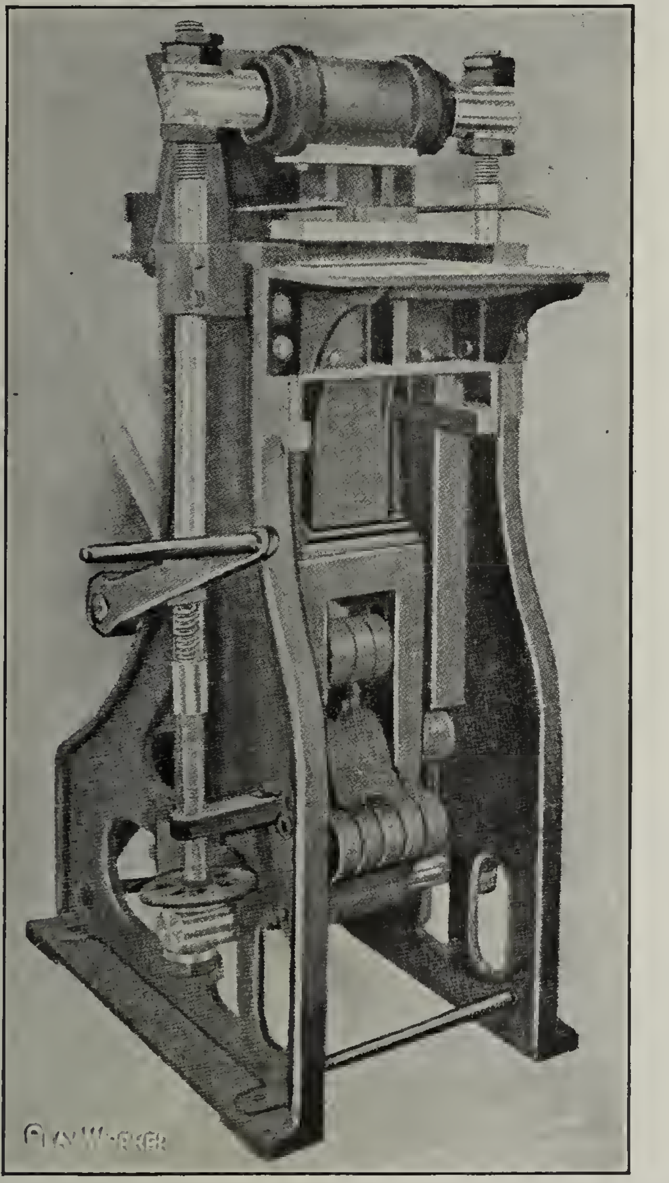

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Our Patent Hand Power Dry Press is used very extensively for manufacturing ornamental bricks as it can easily be fitted with molds to make the different designs. This Press stands in a class by itself for this kind of work. Bricks made on this press are equal in hardness and density to those made on a steam power press.

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The Vigo Tile & Brick Co., Vigo, Ohio, burned a full kiln of solid brick in 77 hours, watersmoke and all. Owing to insufficient dry shed capacity it was necessary to remove part of them from the dry shed and rehack them in the sun until they became partially dry. Even when burning this kiln under the above conditions the total fuel consumption was only 727 pounds coal per thousand brick. The temperature at which they were burned was about 1,850 degrees Fahr. Before changing this old kiln to the Hook system it required 7 days and nights to burn the same number of brick when the ware was placed in kiln dry. By the installation of the Hook System they saved a large per cent of the fuel formerly required. These same kilns have often been burned when filled with drain tile in less than 30 hours, watersmoke and all, with an average fuel consumption of six tons of coal or less. The cut shows the party of clayworkers who saw this kiln burned in 29 hours 15 minutes, watersmoke and all, when filled with drain tile. The total fuel consumption was 147½ bu. of coal—less than 6 tons. This is a saving of over half the time formerly required to burn this kiln when filled with drain tile. It's the Hook System that does it. These kilns when burning drain tile have often been filled, watersmoked, burned, cooled and drawn in four days. Old kilns can at comparatively small cost be changed to the Hook System. New kilns can be built at less cost as a rule than kilns of other types. We can furnish competent masons to build kilns if desired.

**Seventy Per Cent of These Clayworkers Use the Hook System**

# HOOK PATENT KILN COMPANY

**Vigo, Ohio**

**Canadian Office, 250 Defferin St., Toronto, Ontario**

## Main Drive Belt Efficiency

SAWYER
TRADE MARK
CANVAS BELTING

An efficient belt does not depend on mere assertions of quality. The quality must be there and in extra quantities for the extra service required.

The reason Sawyer belts stand up on main drives is because there is strength in every bit of material which goes into them. The duck is extra heavy, every piece is tested for strength. The stitching twine is the heaviest and strongest that can be used to advantage on canvas, and the stitching is carefully done so that the needles never break the fabric of the canvas. **There is strength in Sawyer belts because there is strength in the raw materials.**

Sawyer belts are especially fitted for main drives in Brick Plants. The strength is there, but there is also the quality of being able to withstand the action of both grit and moisture, conditions nearly always attendant in brick work.

# SAWYER BELTING CO., Cleveland, Ohio

BRANCHES.

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The accompanying cut discloses

**THE AMERICAN PULVERIZER**

as was installed in the National Sewer Pipe Co. Works, Webster City, Iowa, Spring 1913.

A letter dated January 2, 1915, from their manager states, viz.: "Our American Pulverizer has been operated daily and is doing the work of three Dry Pans; in fact, we are grinding shale and clay that would be impossible to get through a Dry Pan."

What better evidence can be required. Try an AMERICAN RING PULVERIZER and gain best results. Ask for particulars.

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BY

**ELLIS LOVEJOY, E. M.**

This is the finest treatise on the subject ever written. Every angle of the cause and best method of overcoming the scumming and efflorescence on brick is given in detail.

ONLY FIFTY CENTS THE COPY.

Address

**T. A. Randall & Co.** **Indianapolis, Ind.**

## The 29th Annual Convention

OF THE

# National Brick Manufacturers' Association

## The American Ceramic Society, The National Paving Brick Mfrs.' Association *and* The National Clay Machinery Association

WILL BE HELD AT

## DETROIT *MONDAY TO SATURDAY, FEBRUARY 15th to 20th, 1915*

**The STATLER HOTEL will be Headquarters**

**The Sessions of the American Ceramic Society will begin Monday the 15th.**
**The Sessions of the National Paving Brick Manufacturers' Association will begin Monday, the 15th.**
**The Sessions of the National Clay Machinery Association will begin Tuesday, the 16th.**
**The Sessions of the N. B. M. A. will begin Wednesday afternoon and continue Thursday and Friday, 17th, 18th and 19th.**

A FULL OFFICIAL REPORT of the N. B. M. A. Convention which bids fair to be most successful, will be given in the March CLAY-WORKER, including papers, discussions and portraits of prominent members. Next to attending the Convention the best thing a brickmaker can do is to read THE CLAY-WORKER'S report. It is so full and accurate that those who attend the Convention would not be without it and those who don't go can't afford to miss it. The consensus of opinion among progressive brickmakers is that the Convention Number of THE CLAY-WORKER is the most valuable publication of the year. If you are not already a regular subscriber, don't neglect to send in your order in time to get the March or Convention number.

THE CLAY-WORKER is now in its **32nd year** and is recognized the world over as the best clayworkers' magazine published in the English language. It has more readers at home and abroad than all its followers combined. Take THE CLAY-WORKER and you get the best value for your money. $2.00 a year. Every issue is worth twice that sum.

| 1915 | | | FEBRUARY | | | 1915 |
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Advertising Matter to Insure Insertion
Must be Received by the First of the Month.

## T. A. Randall & Co., Inc.

PUBLISHERS,

INDIANAPOLIS, IND., U. S. A.

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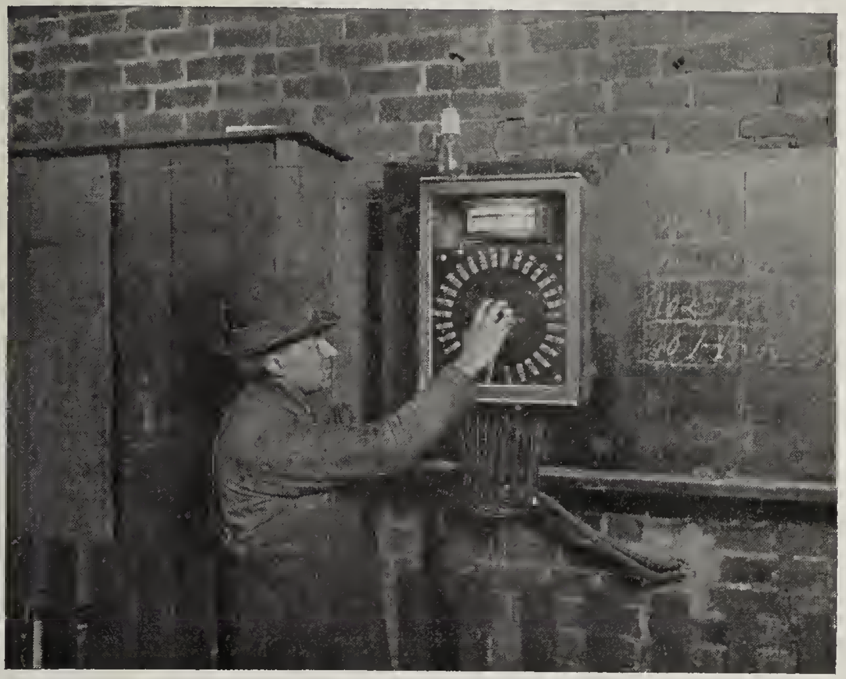
**The Clay-Worker is Unequaled as an Advertising Medium.**

# Another Well-Known Plant Uses
# BROWN PYROMETERS

**View of a Few of the 30 Kilns**



**Indicating Instrument for Burner**

The Terre Haute Vitrified Brick Company, Terre Haute, Ind., Mr. J. M. Hoskins, Vice-president, has a Brown Pyrometer equipment installed on thirty kilns. An indicating instrument is located in the burner's house and a recording instrument in the office. There is no man who knows the paving brick industry better than Mr. J. M. Hoskins, and a recent letter from him, telling how both his plant and his head burner have been benefited by this installation, would interest you. We should be glad to send you a copy of this letter; also photographs of Brown Pyrometer installations at well-known plants. They are yours for the asking.

**The Brown Instrument Co., Philadelphia, Pa.**

**Established 1860**

**New York** **Pittsburgh** **Chicago**

# The New Way

IT IS NOT THE PLAN of a city nor the plan of the farm, but instead it is a combination of the two. It provides a place for a home that will support you instead of you supporting the home. It provides for a *small* amount of ground to produce a *large* amount of INCOME. That's why it is THE NEW WAY. That's why it is named

**INCOME PARK,**

A WINTER RESORT AND PERMANENT HOME COMMUNITY on the Gulf Coast, a community devoted to the cultivation of Figs, Oranges, Grapefruit, Pecans and such other fruits and vegetables as the individual fancy may direct. The plans of this NEW WAY community are comprehensive and provide for co-operative marketing and buying, for pleasure grounds, for boating, bathing and fishing, for telephone, light, water, transportation and other conveniences.

THE NATURAL ADVANTAGES and conditions include good soil, excellent water, splendid drainage, abundant rainfall, delightful climate, and freedom from floods.

THE AVERAGE MONTHLY TEMPERATURES for the past thirty-five to forty years range from 50 degrees for January to 81 degrees for July and August. The rainfall for the same period averages 62 inches. We know of no other place in this or any other country where there are brought together by nature so many of the things that man requires and enjoys. The Gulf waters afford an abundance of the finest oysters, red snapper, pompano, sheepshead, flounder and other sea foods, and the small streams furnish bass and other fresh-water fish. The soil produces practically every known vegetable, citrus fruits and a large variety of other fruits and nuts.
tunity. Let us show YOU:

TO TAKE ADVANTAGE of these conditions is your privilege, and to share in the profits of the development of this property is your opportunity. Let us show YOU.

HOW, as an investment, to be sure of a big profit.
profit.

HOW to own a WINTER HOME on the Gulf Coast at a profit instead of an expense.

HOW to own a PERMANENT HOME on the Gulf Coast, with an income of more than you are now earning.

HOW to provide a competency for old age.

## MOBILE BEACH & LAND COMPANY

**State Life Building**
**Indianapolis, Indiana**

# Baird Pottery Molding Machine

## New Size No. 0

The machine
is a hummer
when it comes
to making
small pieces
up to 3 in. x 3 in.

We also make
a number of
other sizes
with capacity
up to
12 in. x 12 in.

**We Guarantee Service.**

**Correspondence solicited.**

## Baird Machine & Mfg. Co.

**34=36 Jefferson Avenue Detroit, Mich.**

# "A Man With a Message"---

## For the Brick Man

By this title was Floyd E. Waite heralded after his address at the joint convention of Face Brick Manufacturturers and Dealers, held at French Lick December 8, 9 and 10, 1914.

Mr. Waite did not appear to the Clayworkers as a "wrecker," but as a "Builder." His talk was constructive.

Not only were the weaknesses and the mistakes in the business of promoting fire-resisting materials pointed out—a remedy was offered. And it is a perfectly practical, within-your-reach remedy, too.

A printed copy of this address FREE if you write for it. Read this vital message. It's YOUR business.

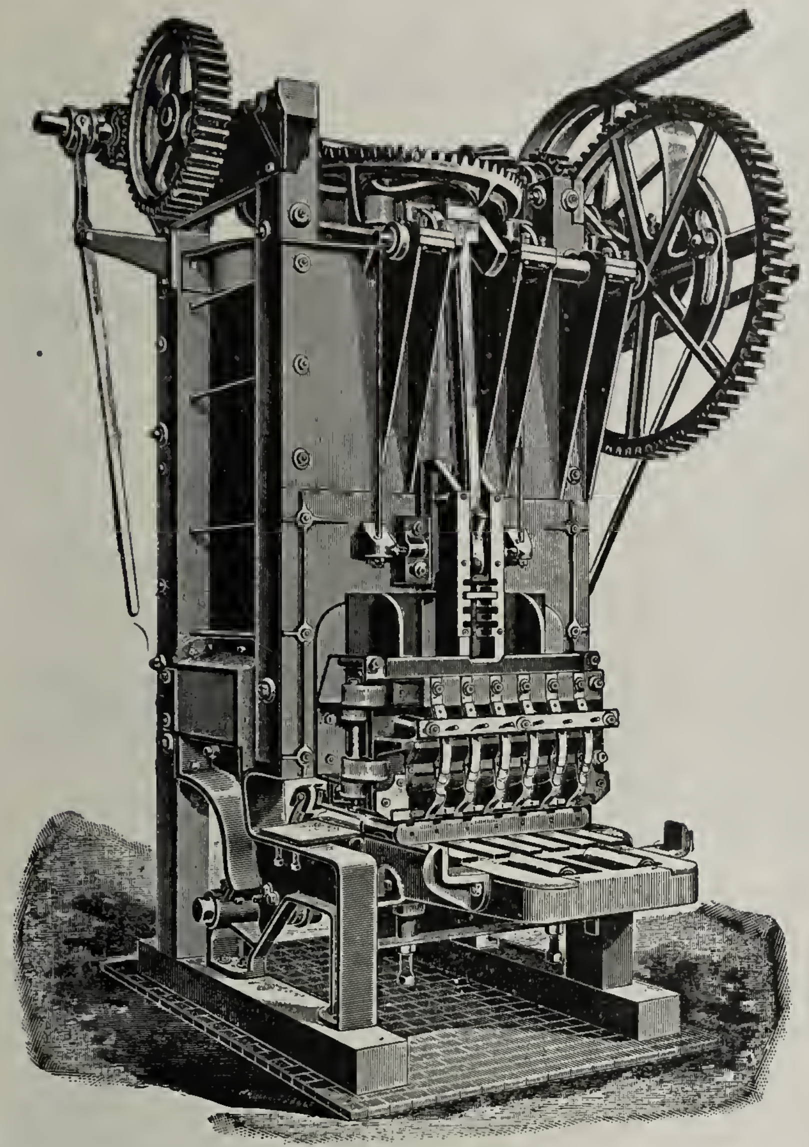
SAFE

PROTECT YOUR HOME

**Society Advocating Fire Elimination**

R. P. Stoddard, Secretary

340 Leader-News Building CLEVELAND, OHIO



"New Haven" Vertical Machine

# Endurance the "Crowning Quality."

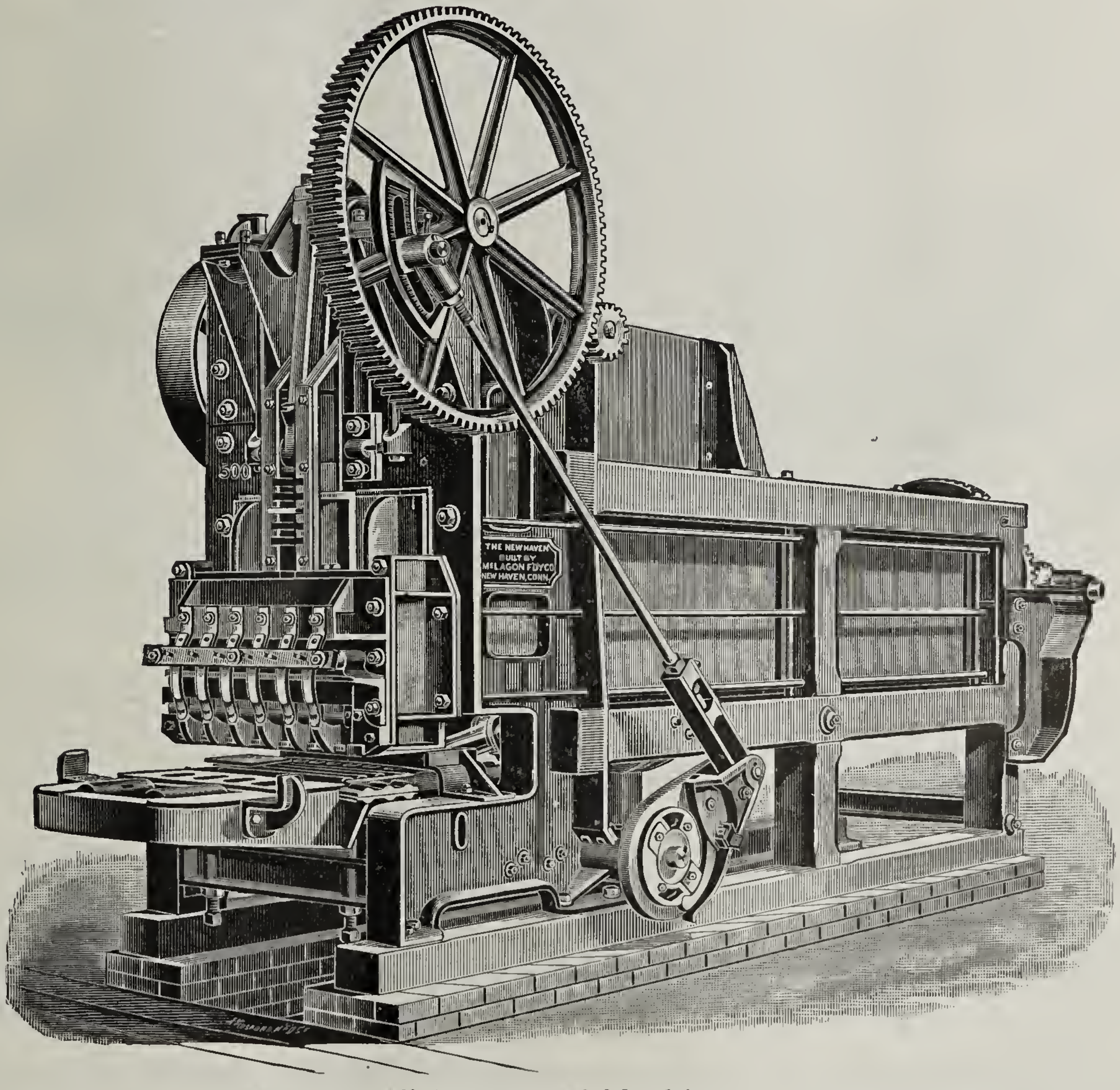
New Haven Brick Machines are not Experiments. They are particularly adapted for hard service.

Their history is a record of unusual success. Continued results determine the economic value of a machine rather than first cost, and on this basis NEW HAVEN Machines have been proved to be the least expensive as well as the greatest profit-winners.

## The Eastern Machinery Co.,

**New Haven, Conn.**

New
Haven
Machines
Have
No
Equal
For
Earning
Capacity.
They
Are
Built
To do
The
Work
And
They
Do it.



"New Haven" Horizontal Machine

# This New Rust Special, the KING OF CLAY FEEDERS, Cuts Out the Labor of Two Men

Figure it yourself—see what this means to your Profit-Box at the end of the year.
If you pay $2.25 per day to your hand-feeders at your pug-mill and you require two men to do the feeding—
If there are 300 working days in a year and you run the full year—
Doesn't that mean you are paying $1,350.00 for this service?
The "New Rust Special" knocks out those two men—and besides—well,

## Here is What the RUST Will Do in Any Plant:

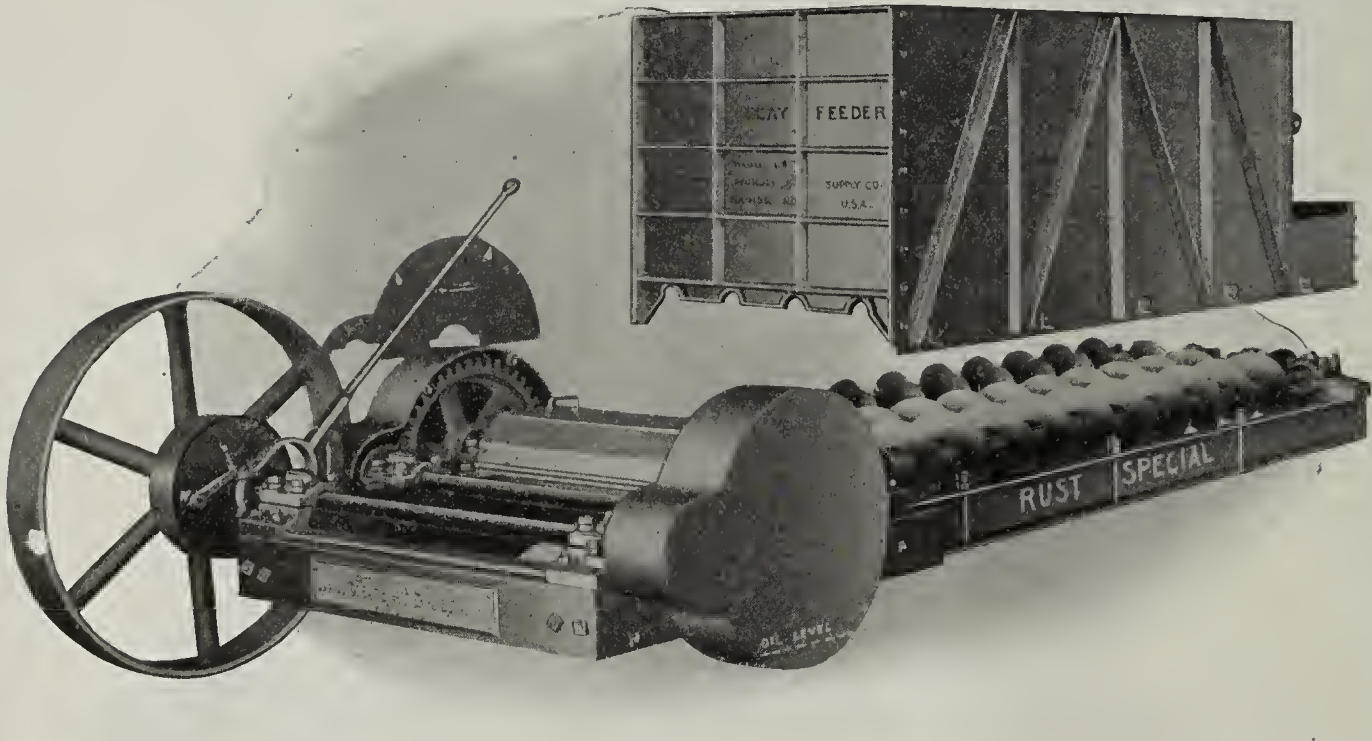
**It will cut out the labor of two men or save you $1,350 a year. This means** the "Rust Special" will pay for itself before the year is over and give you an annual profit of nearly $1,000. **It will temper your clay perfectly—improving your product.** Just set the "Rust Special" at the speed you require, gauge your water feed accordingly and leave it alone.

**It feeds your clay regularly—speeding up your plant.** Determine the capacity at which your pug mill and augur will run to get the highest efficiency, set the "Rust Special" and leave it alone—the feed will not vary 10 brick per hour.

This means that you will get the best out of your dry pan, your pug mill and your augur and insure a regular delivery to your off-bearers, who speed up and give you more efficiency in the work performed.

Don't be penny-wise and dollar foolish! If the cobbler was making your shoes by hand today, as he was twenty years ago, you'd be paying $15 for a pair you can get today for $3.

Speed up your plant—cut out hand labor wherever you can—and let *machinery* do the work!



### Five New Points in the NEW RUST

1: **There is no exposed gearing.** Every gear runs in oil, carefully housed from the dirt and grime, and insures full efficiency of your machine and removes danger of accidents.

2: **The eight gears that drive the spirals**—These are also housed in oil and are made of the highest grade crucible steel.

3: **The large gearings:** This is made of semi steel, built doubly heavy for any duty that may be demanded of it.

4: **The drop bottom:** This is hinged at the center and permits the operator to drop out the material under any two of the spirals and reach them quickly.

5: **The four spirals shafts:** These are built extra large and strong and increase capacity of the "Rust" more than 50 per cent.

## The New Rust Special is a Big Producer===

It is the last thing in clayfeeders. It has all the good things that "Rust" Clayfeeders have had for the ten years they have been on the market, with the new features that make it the "Efficient" clayfeeder.

It is made extra heavy for hard work and big production. Its gears are encased. They run in oil. They are made either of semi-steel or high grade crucible steel. Its spirals are heavier than other types. And, besides it has larger capacity.

We have a special bulletin describing in detail all the features of the "Rust Special" and the smaller size feeders. Let us send you a copy—it does not place you under any obligations.

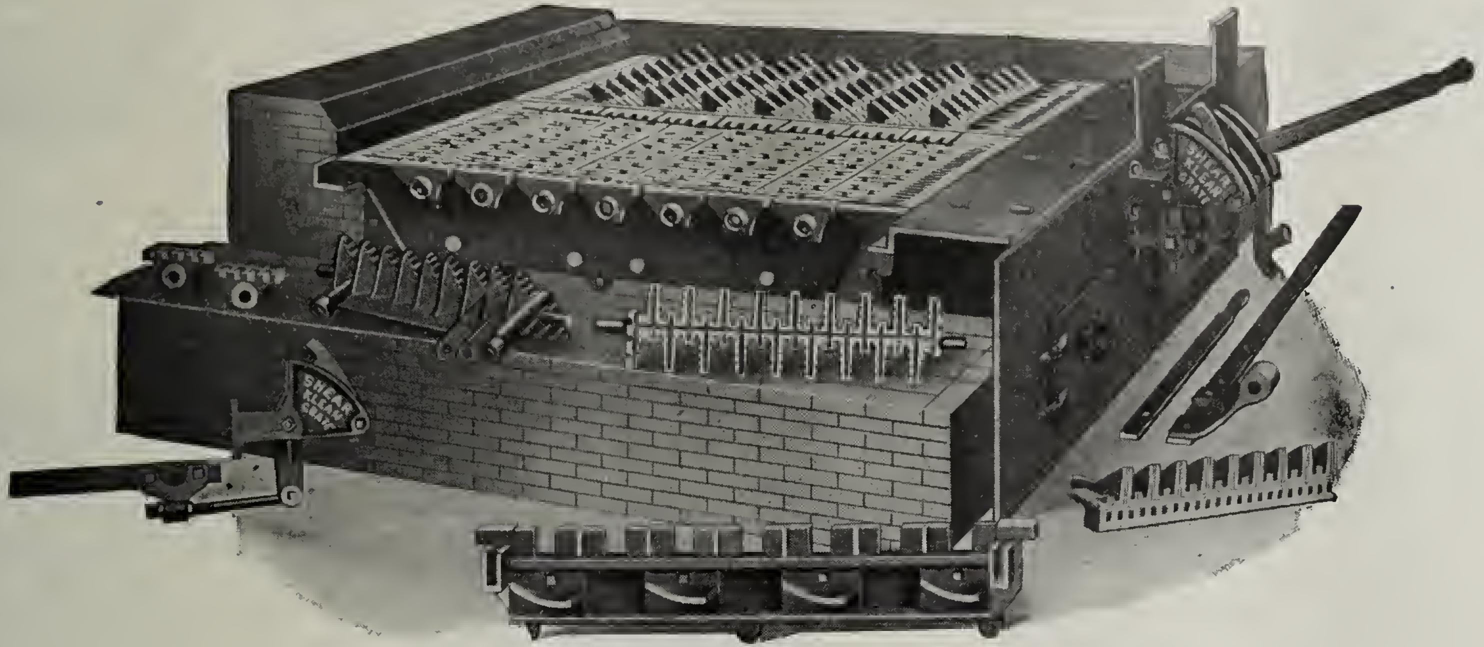
## Marion Machine, Foundry & Supply Co., Marion, Indiana

**P. O. Box 456**

**Please send for our new 56-page book entitled "EFFICIENCY." It will be worth reading. It is FREE.**

# The "Shear Klean" Grate

## Saves Fuel---Saves Waste---Eliminates All Clinkers



This grate is especially adapted for burning low-grade "clinkering" coal, especially slack or screenings—and it burns them so effectually that it makes them give a full day's run, without cleaning through the fire doors.

Its working principle is such that the fireman can handle and control his fires WITHOUT THE USE OF SLICE BAR OR POKER.

At plants using the SHEAR-KLEAN there is no inrush of cold air to chill the walls and fire-bed—interrupt the distillation of gases, and reduce the temperature of the furnace.

You know as well as we, that OPEN FIRE DOORS CAUSE LEAKY FLUES—producing smoke, waste heat, and lower steam pressure. The SHEAR-KLEAN prevents these wastes.

## You Need This Wire Twister Because You Can Not Get the Same Results Without It

**PRICE ONLY**
**$5.00 NET**

It twists both wires and the wire will break before the loop will pull out.

Heretofore we have confined the sale of our Wire Twister, as far as we could, to users of our Clayworking Machinery.

It has proven so handy, however, that we have determined to throw it unreservedly on the market.

Will ship anywhere on approval, charges prepaid,

Not only twists the wire better, making the loop stronger than when done by hand, but does it so quickly, it soon pays for itself in TIME alone. Place your order for one now.

## The Marion Rotary Soot Blower

### Prolongs Life of Your Boiler

The Marion Flue Blower is a permanent fixture in the rear wall of the boiler opposite center of flue space and by its use the life of a boiler is prolonged by keeping the soot from the tubes.

We have so much confidence in the Marion Flue Blower we are willing to ship it anywhere on a 30-day Free Trial. If it fails to do all we claim for it, ship it back and we will refuud freight charges.

Soot, if permitted to remain on the tubes, precipitates acid, causing corrosion, and the accumulation of soot causes a great loss of fuel.

With the Marion Flue Blower the soot is blown in direction of the natural draft out through the chimney, cleaning the boiler while in commission, thereby avoiding strains which occur in old method of opening front of boiler, causing flues and seams to leak.

**Please send for our new 56-page book entitled "EFFICIENCY."**
**It will be worth reading. It is FREE.**

## Marion Machine, Foundry & Supply Co., Marion, Indiana

Chicago Office, Monadnock Bldg. P. O. Box 156

# The Verdict–Guilty!

We have been accused, after having placed the Powell Patented Shale and Clay Planer on the market for over one year, of giving the Clayworking Industry, one of the greatest helps that it has ever had, the ARBUCKLE up-to-date line of Paving Block, Stiff Mud Brick and Hollow Ware Machinery, as well as supplies of all kinds for the clayworker, not being excepted.

The Patented Shale and Clay Planer reduces the pit gang like a German 42 centimeter gun would reduce a Belgium fort. That is, it leaves only one man who is necessary to operate the machine.

It also reduces the number of Dry Pans ½ to ⅔.

It saves all explosives.

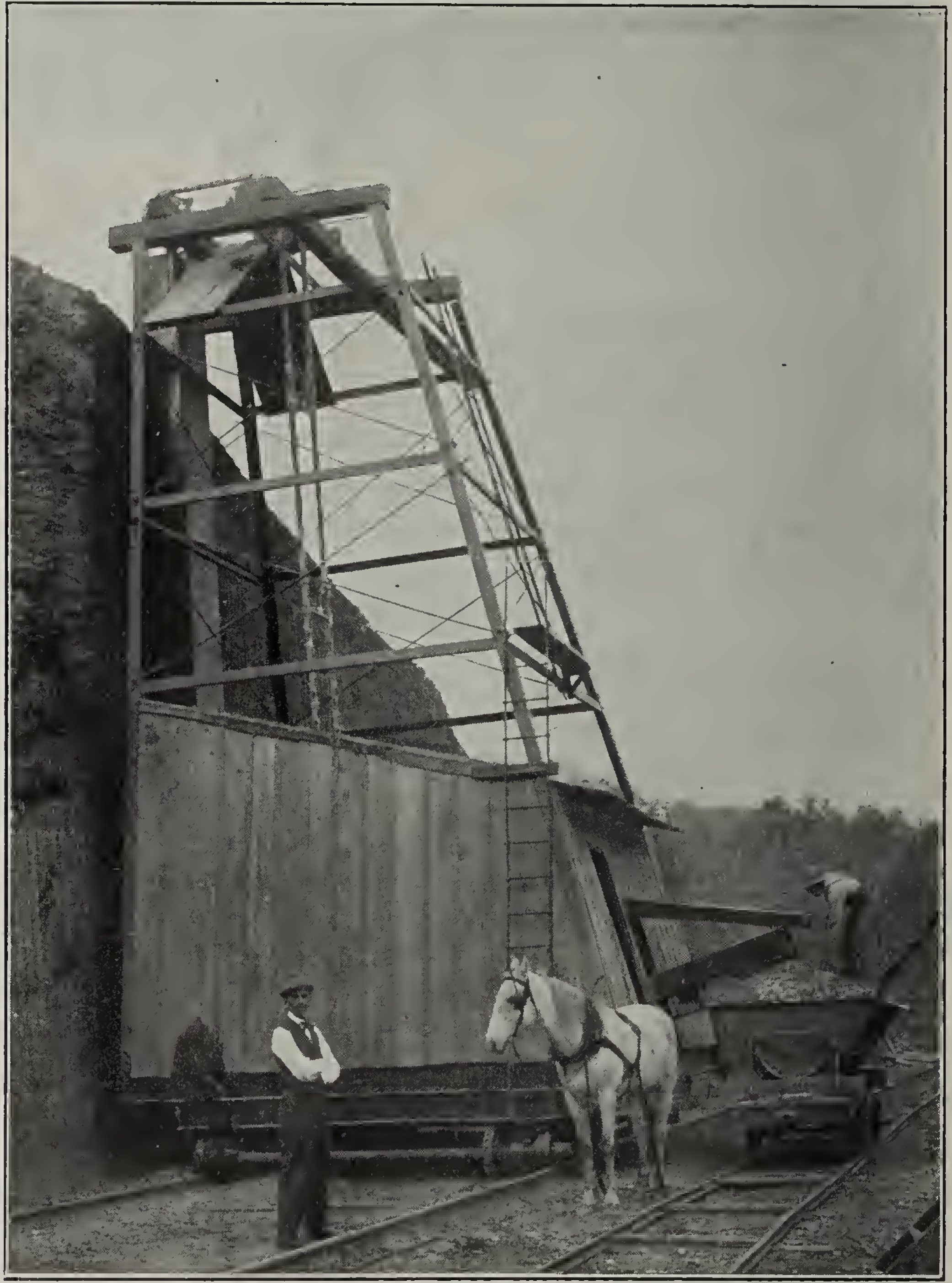
**Above all,** it gives a thorough mixture of the Bank face, cut up into fine pieces.

No Labor Troubles with the Shale and Clay Planer, which is ready to work at any season of the year.

Built in sizes to handle your proposition from a two-foot surface clay bank to a hard shale bank 100 feet high.

When writing state approximate height of bank and also composition of same.

**KNOW THE ARBUCKLE FIRST**



## ARBUCKLE & COMPANY

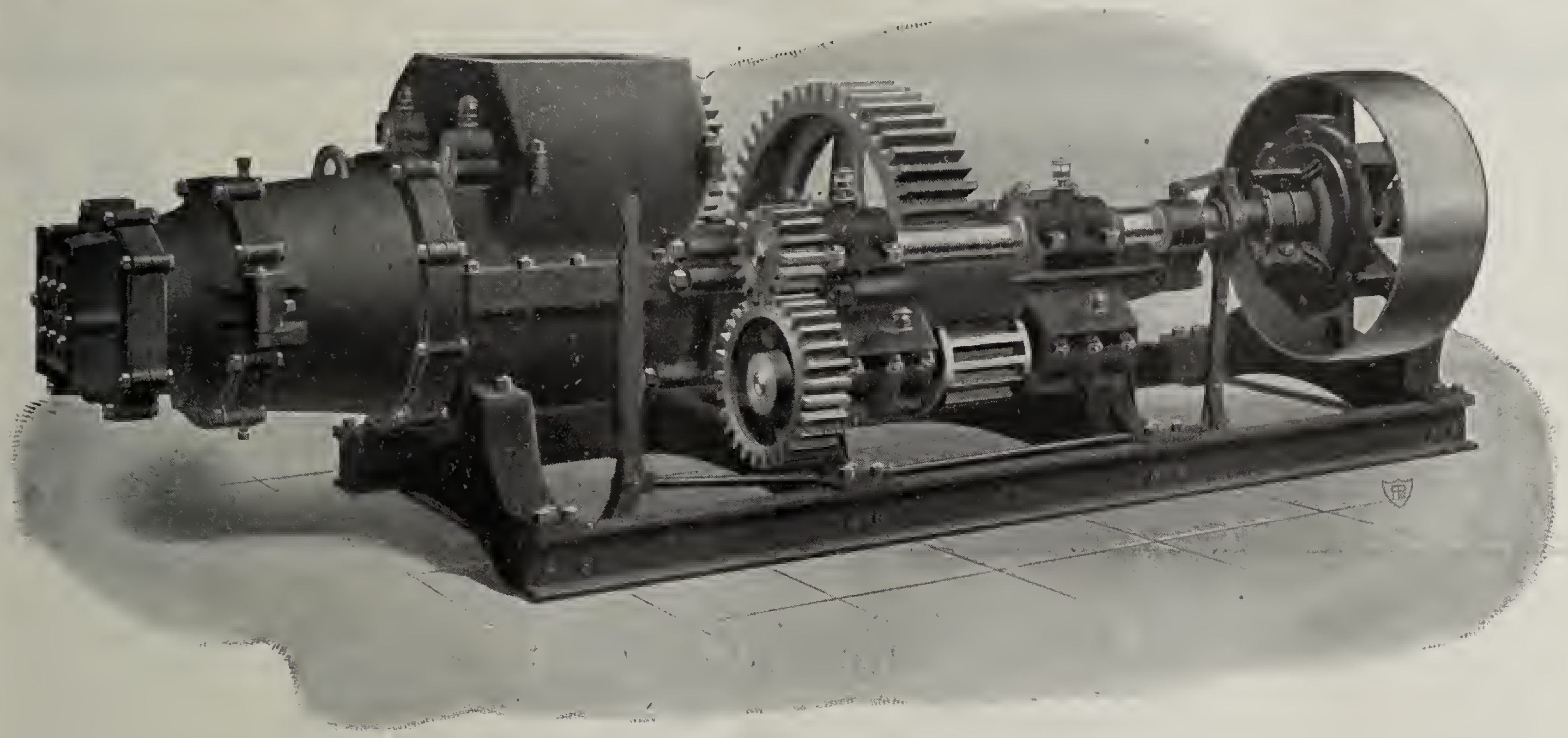
**Exclusive Manufacturers**

RUSHVILLE, INDIANA = = U. S. A.

Infringements will be promptly and vigorously prosecuted.

# THE ARBUCKLE

## Paving Brick and Hollow Ware Machine



The 8E is our latest in auger machines.

Built for Paving Brick and Hollow Ware Plants **of large capacity.**

High class design and workmanship. Removable Bearings.

Gear Frame one piece casting, 7,000 lbs, with housings machined for bearings.

Expressing Screw Case liners removable.

Automatic Force Feed.

Shafts 6 inches, 5 inches, and 4 inches diameter.

If you are operating a large plant, this is your machine.

LET US TELL YOU MORE ABOUT IT.

**ARBUCKLE & COMPANY**

**Rushville, Indiana**

**U. S. A.**

IF MARKED **BREWER** IT'S GOOD

# MEET US AT

## National Convention

**Our Headquarters**

during the entire Convention will be
**Rooms 316 and 318 Hotel Statler.**

Latch String Always Out.
COME IN.

**Our Representatives**

F. W. A. Fitzsimmons, Number Button 51.
Chas. Burridge, Number Button 52.
H. R. Brewer, Number Button 53.
G. S. Brubaker, Number Button 54.

Hold us up any time and any where. We'll be there with our pencils sharp for fine figures.

# H. BREWER

**Tecumseh,**

IF MARKED BREWER IT'S GOOD

# DETROIT

## February, 15, 16, 17, 18, 19

### Our Line

is large enough to take care of your requirements, old enough to be away past experiment, new enough to be up to the minute, and good enough to stand our absolute and unequivocal guarantee of **Satisfaction or no Sale.** We want to talk with you about

**Brick Machines**
**Drain Tile Machines**
**Hollow Ware Machines**
**Automatic Brick Cutters**
**Automatic Tile Cutters**

**Granulators**
**Feeders**
**Hoists**
**Dry Pans**
**Crushers**
**Pug Mills**
**Elevators**
**Conveyors**
**Screens**
**Power Transmission**
**Disintegrators**

GET OUR ESTIMATES

# & COMPANY

Michigan

# TURN FAILURE INTO SUCCESS

## With The Wonder Machine.

---

A Machine of Large Capacity. Unequaled in Record of Durability.

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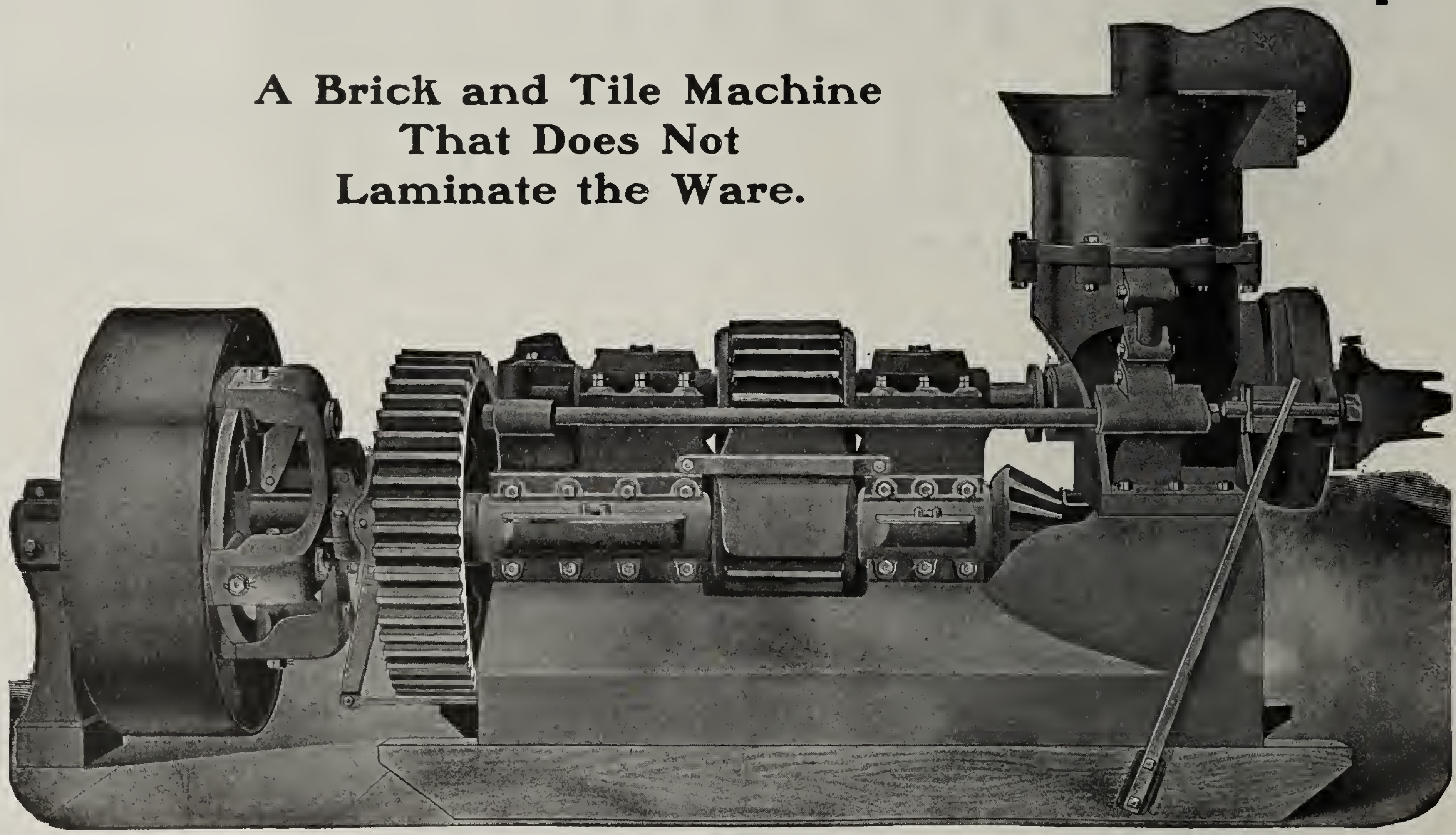
A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

*Write for Catalog and Prices.*

# THE WALLACE MFG. CO.

FRANKFORT, IND.

# BOOKS FOR CLAYWORKERS.

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## These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

---

**The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price $2.00.**

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

**Modern Brickmaking, by Alfred B. Searle. Price $5.00.**

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

**Clay Glazes and Enamels, by Henry R. Griffen. Price $5.00.**

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

**Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price $5.00.**

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

**The Effect of Heat Upon Clays, by Prof. A. V. Bleininger. Price $2.00.**

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

**Bricklaying System, by Frank B. Gilbreth. Price $3.00.**

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

**Hollow Tile House, by Fred'k Squires. Price, $2.50.**

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

**Cement, Concrete and Brick, by A. B. Searle. Price, $3.00.**

A book dealing with the raw materials, method of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

**Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price $2.00.**

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

**Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price $2.00.**

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

**Engineering for Land Drainage, by C. G. Elliott. Price $2.00.**

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

**Practical Farm Drainage, by C. G. Elliott. Price $1.50.**

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

**Economies in Brickyard Construction and Operation, by Ellis Lovejoy, E. M. Price $1.00.**

Points out economical methods for every department of the business. Is practical and covers the field thoroughly.

**Scumming and Efflorescence, by Ellis Lovejoy, E. M. Price, 50 Cents.**

A book of authority, giving the cause and remedy of scum and efflorescence.

**Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.**

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

**Drying Brick, by W. D. Richardson. Price 25 Cents.**

A little booklet giving and explaining the various styles of dryers, etc.

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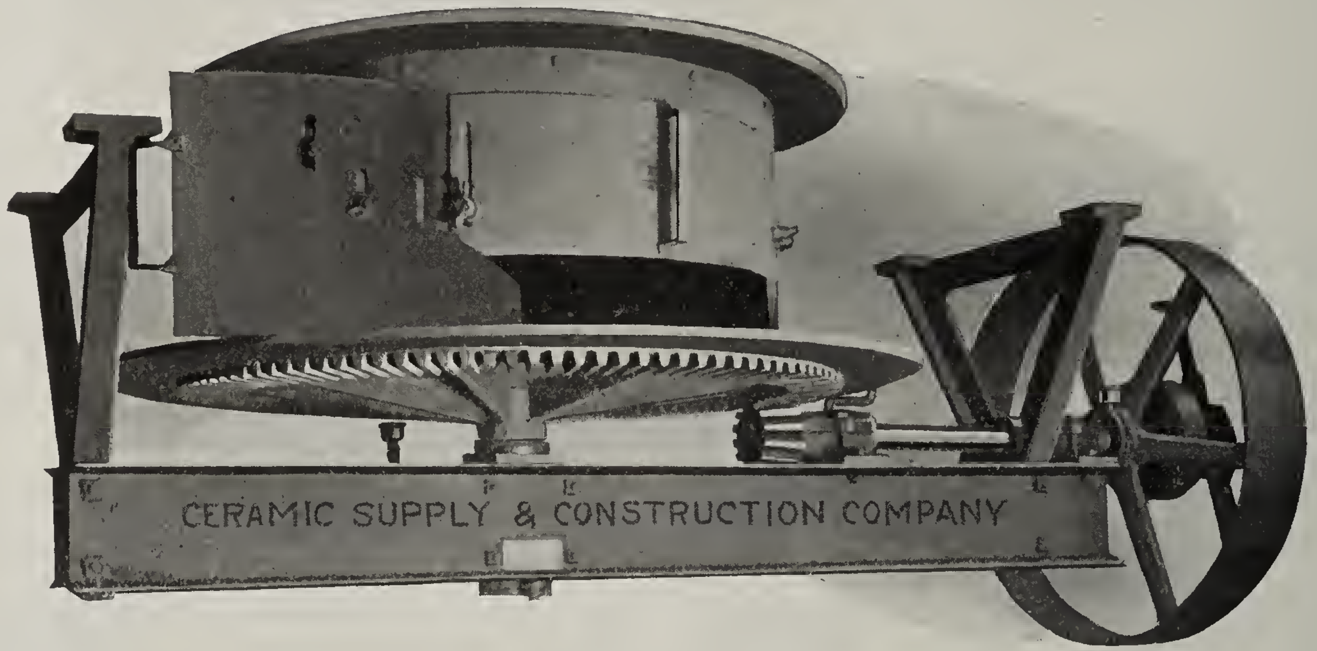
**T. A. RANDALL & CO.**

**Indianapolis, Ind., U. S. A.**

# BOLT IT TO THE BIN!



No auxiliary machine on the brick plant yields such LARGE RETURNS ON THE INVESTMENT as the COLUMBUS FEEDER.

We were the first to introduce this type of feeder in America, and MORE OF OUR FEEDERS are in operation in this country THAN ALL OTHER DISC FEEDERS COMBINED.

Our improved design is the most practical and universally applicable of any dry clay feeder on the market. IT EMBODIES THE RESULT OF YEARS OF EXPERIENCE in feeding clay by our MR. W. D. RICHARDSON, who operates five of these feeders at the plants of which he has charge.

Write for descriptive circular and list of satisfied users.

**The Ceramic Supply & Construction Co.**
**Columbus, Ohio**

# BRICK MOULDS WITH A REPUTATION

**You can not purchase a better mould than the one "Mentz" will sell you at a reasonably low price.**

Mr. George B. Mentz has made a lifetime study of the manufacture and use of brick moulds on his plant near the Hudson River. His close contact with the manufacturers of soft mud brick and the brick business in the East affords him every opportunity of knowing what is required and what is absolutely right. His moulds meet every requirement, and today are far superior to any other mould made in this country.

The general use of Mentz Moulds in the great Hudson River and New Jersey brickmaking districts and throughout the East shows their real value. These moulds can be found in the leading soft mud plants in the Middle West and in Canada. It is a fact that can be proven that no brickmaker who has given the Mentz Moulds a fair trial would be without them.

**Mentz Moulds Will Save You Money.**

Write for information.

---

**THE G. B. MENTZ CO.**
**Wallkill, N. Y.**

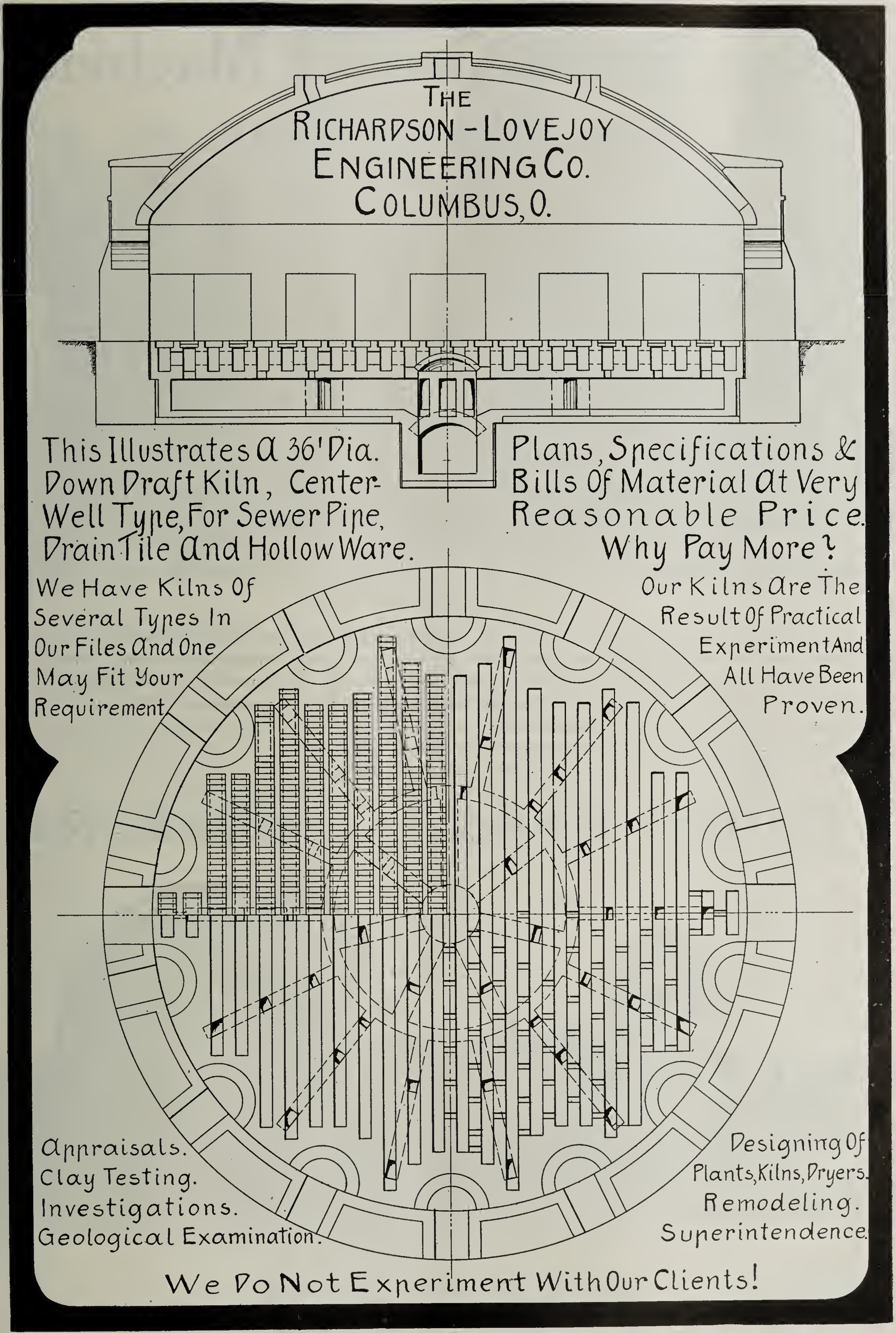
# HOTEL STATLER

## DETROIT

**Headquarters N. B. M. A. 29th
Annual Convention Feb. 15-20, 1915**

**400 rooms with shower bath at $1.50 and $2.00
400 rooms with both tub and shower at $2.50 to $6.00**

***COME TO
DETROIT***



THE
RICHARDSON-LOVEJOY
ENGINEERING CO.
COLUMBUS, O.

This Illustrates A 36' Dia. Down Draft Kiln, Center-Well Type, For Sewer Pipe, Drain Tile And Hollow Ware.

Plans, Specifications & Bills Of Material At Very Reasonable Price. Why Pay More?

We Have Kilns Of Several Types In Our Files And One May Fit Your Requirement.

Our Kilns Are The Result Of Practical Experiment And All Have Been Proven.

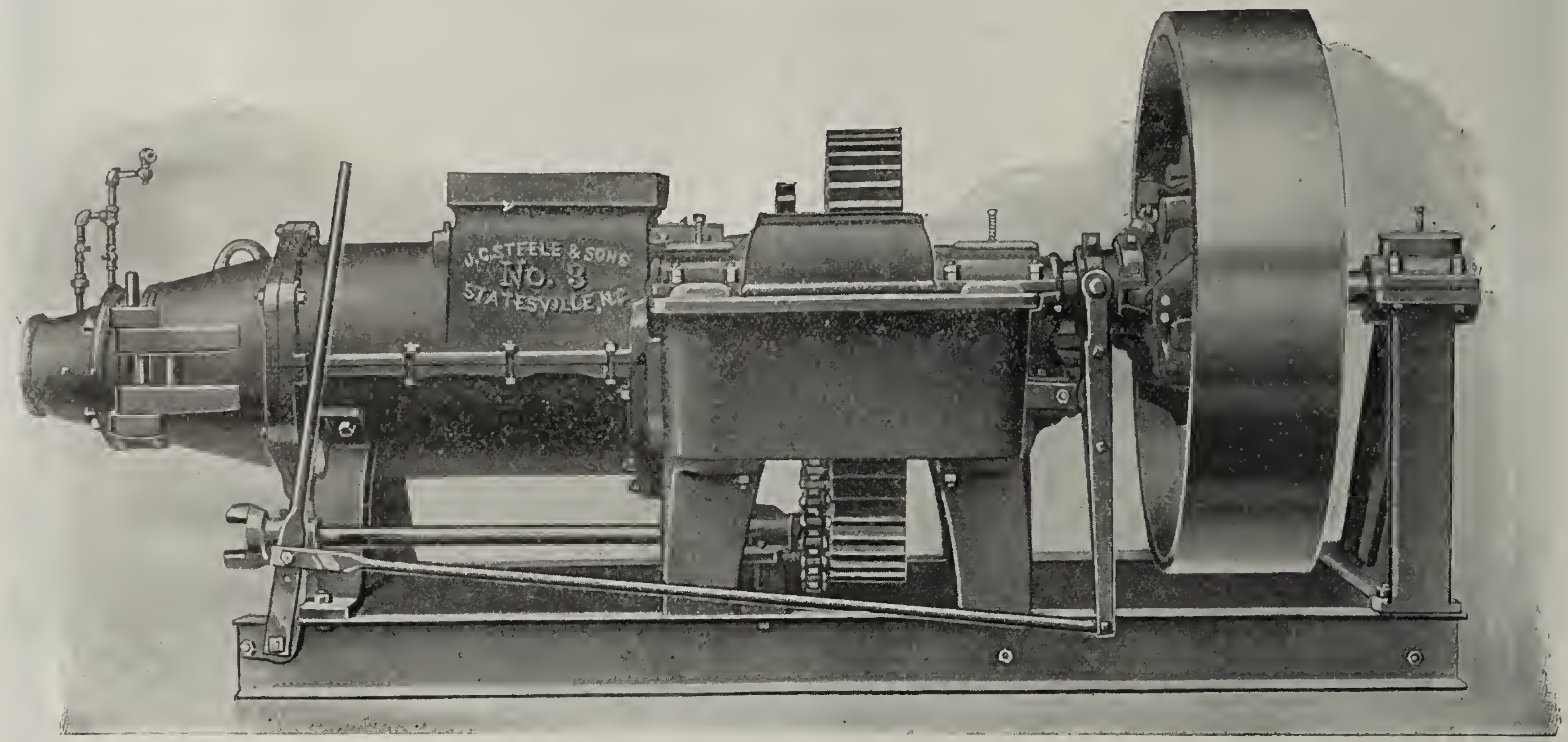
Appraisals.
Clay Testing.
Investigations.
Geological Examination.

Designing Of Plants, Kilns, Dryers.
Remodeling.
Superintendence.

We Do Not Experiment With Our Clients!

# Steele Single Geared Machines

## Few and Heavy Parts



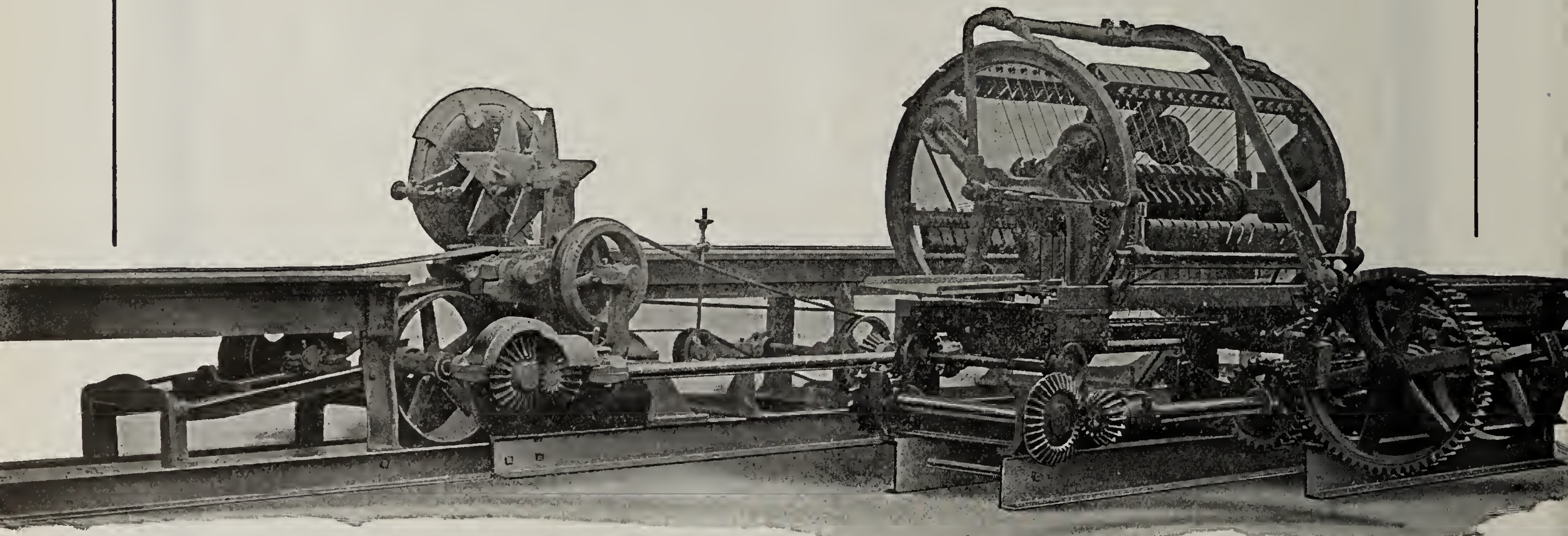
No. 3. 20,000 to 30,000 Brick per Day

Our machines for small capacities receive just the same attention as our larger machines. We know the requirements of the small brickmaker by long experience, and have given special attention to simplifying and improving these machines. We think it better policy to carefully consider the necessities of our customers, rather than to load them up with machinery not suited to their conditions. With our machines you are at no disadvantage with the large plants.

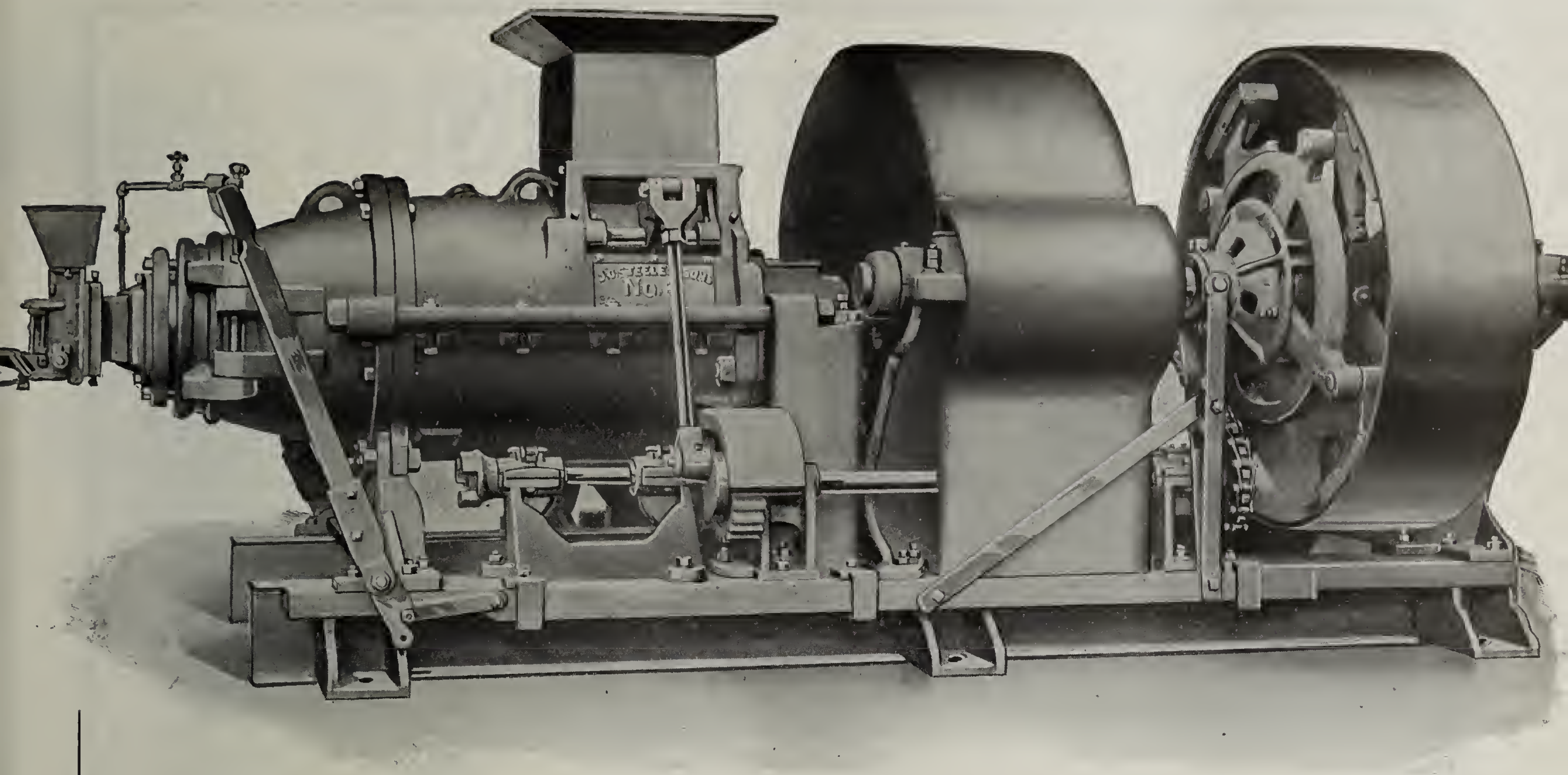
We will be glad to help you if you are having any kind of troubles.

We build the only End Cutter that will cut straight and on edge.

**J. C. STEELE & SONS, Statesville, N. C.**



STEELE'S END AND SIDE-CUT CUTTING TABLES.



## Steele No. 6 Brick Machine, Capacity 50,000 to 150,000

This machine has only two gears and four bearings—a reduction of three bearings, two gears, and one shaft, as compared with most machines of large size.

The bearings are very large—from 4½ inches x 15 inches to 9 inches x 18 inches.

The friction clutch pulley runs loose on a 7⅝ inches x 18 inches bearing. Clutch cast steel.

The gears are very large, thereby reducing tooth load and side strain on bearings to a minimum; therefore reducing power required, wear and tear to a minimum.

Gears are cut, pinion being steel. Housed and run in oil bath.

Thrust bearing of most approved design, in front of gear; end thrust cannot break frame. Outer end of auger shaft supported on out-board stand, thereby getting distance between bearings, and again reducing side strain and friction.

Sills are very heavy "I" beams with heavy channel for side strain.

Machine can be taken to pieces without elevating any part; will run equally well in either direction.

Cutter driving mechanism entirely separated from more important wearing parts, and get any speed in either direction.

A close examination will reveal many interesting points.

Approximate weight, 20,000 lbs. Power required, from fifty to eighty h. p., depending on clay and capacity desired.

Owing to the slow speed of the gears, the auger shaft can be run about one-third faster than usual, giving a corresponding greater capacity without undue wear and vibration.

This machine will appeal to large manufacturers, who almost invariably have had trouble with double geared machines, on account of excessive speed and tooth load, causing a jar that crystalizes the shafts, throws off grease and causes undue wear, breakage, noise and loss of power.

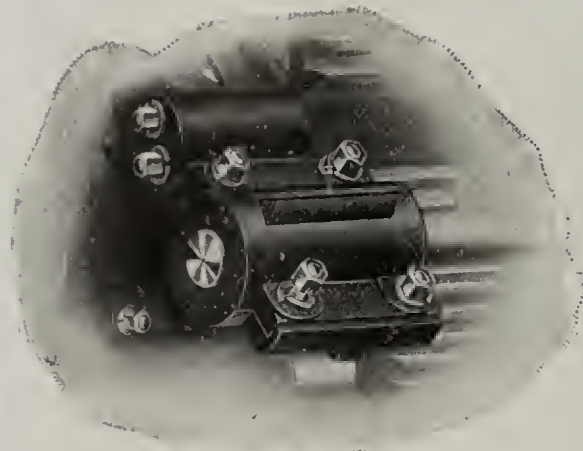
NOTE—The engine (or motor) speed and the auger shaft speed are fixed speeds, and the less driving mechanism between them, the less power will be required, etc.

**For further information address**

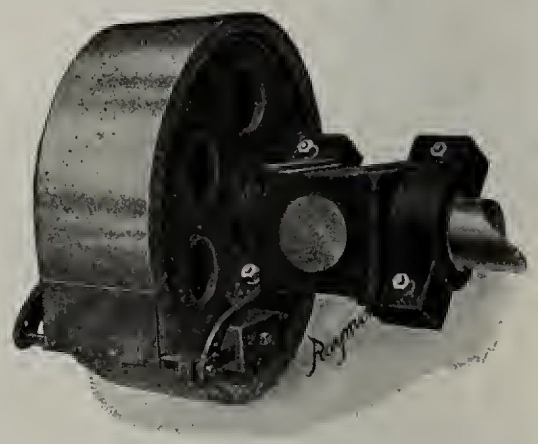
**J. C. STEELE & SONS**

**STATESVILLE, N. C.**

# SPARE PARTS

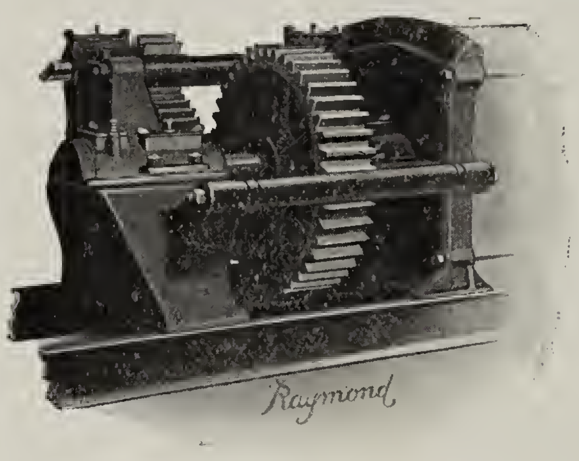


JOURNAL BEARING

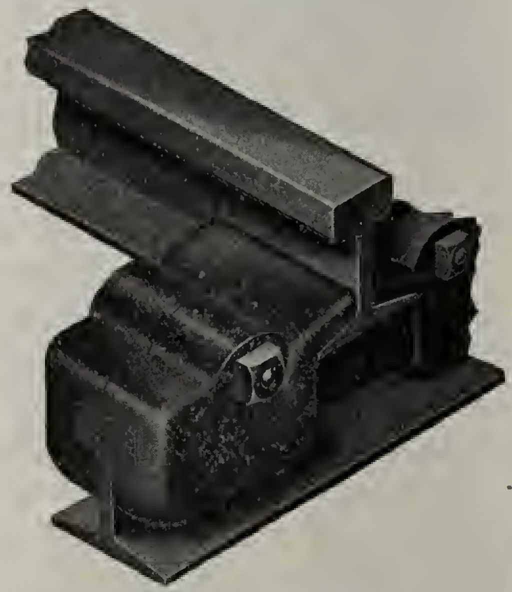


SCRAPING DEVICE

Under the subject of spare parts, the most important fact is, do your spare parts fit when you get them? If you would have it so, get them from the manufacturer as every part of the machine has been developed, and an original pattern made of each part, so that when a duplicate part is wanted you can get a real duplicate of the original and not one measured from a worn out or broken piece.

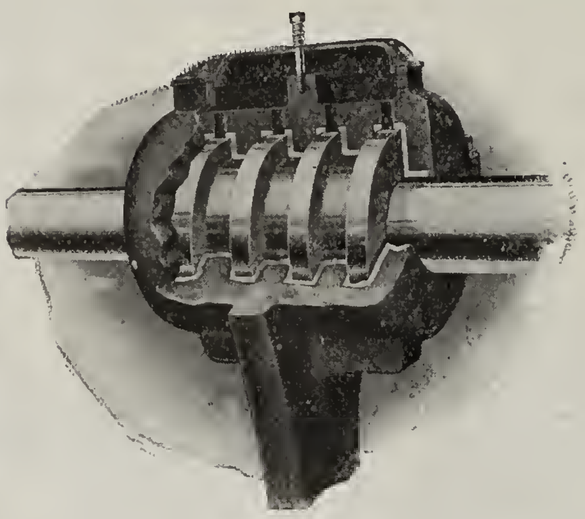


GEAR FRAME AND GEARS

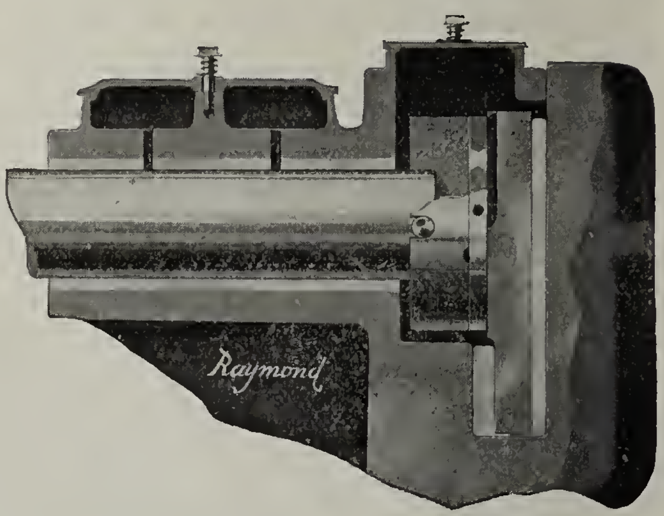


RAIL CLAMP

When someone tries to make brick out of a "Nigger Head" the machine will have to have a new part, so be sure to get it from the original manufacturer.



MARINE TYPE THRUST BEARING



SUBMERGED TYPE THRUST BEARING

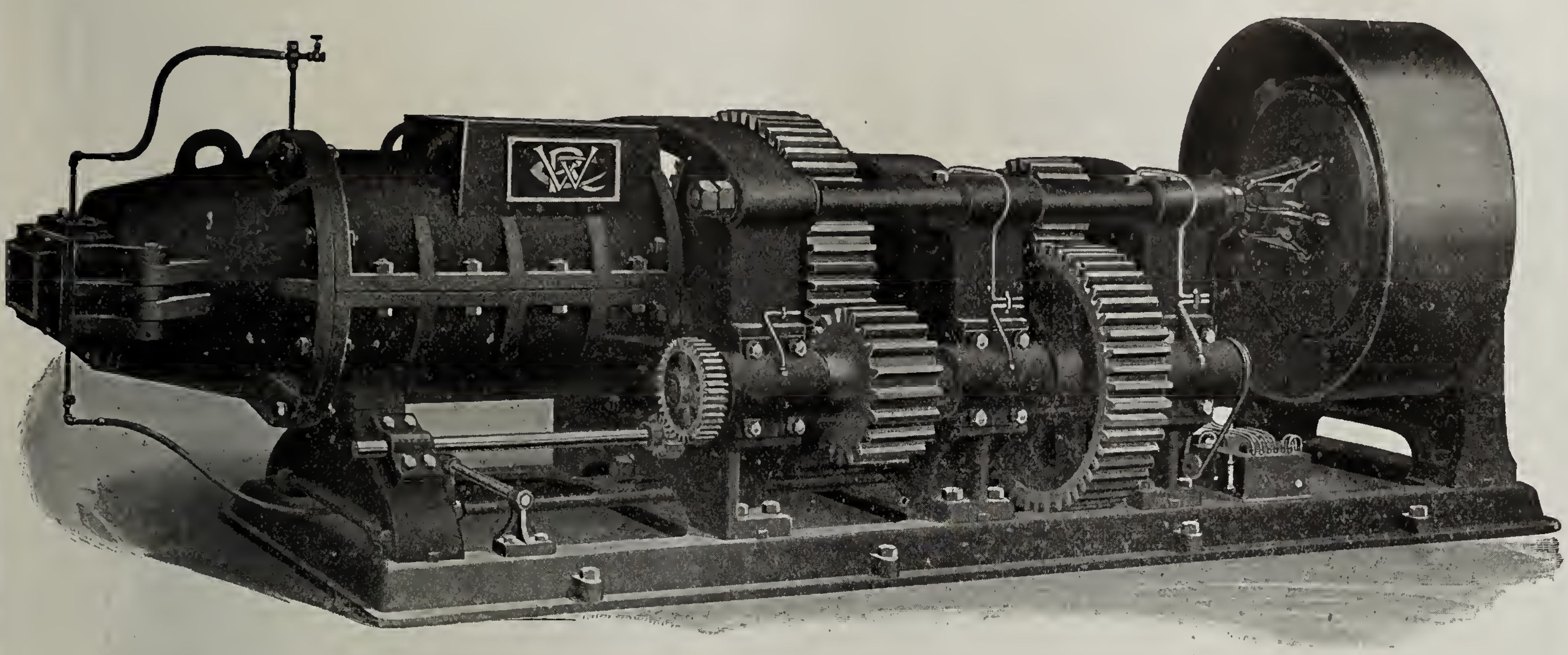
We carry at all times a stock to supply you with any duplicate parts of our machinery. If you need any, write to us direct.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

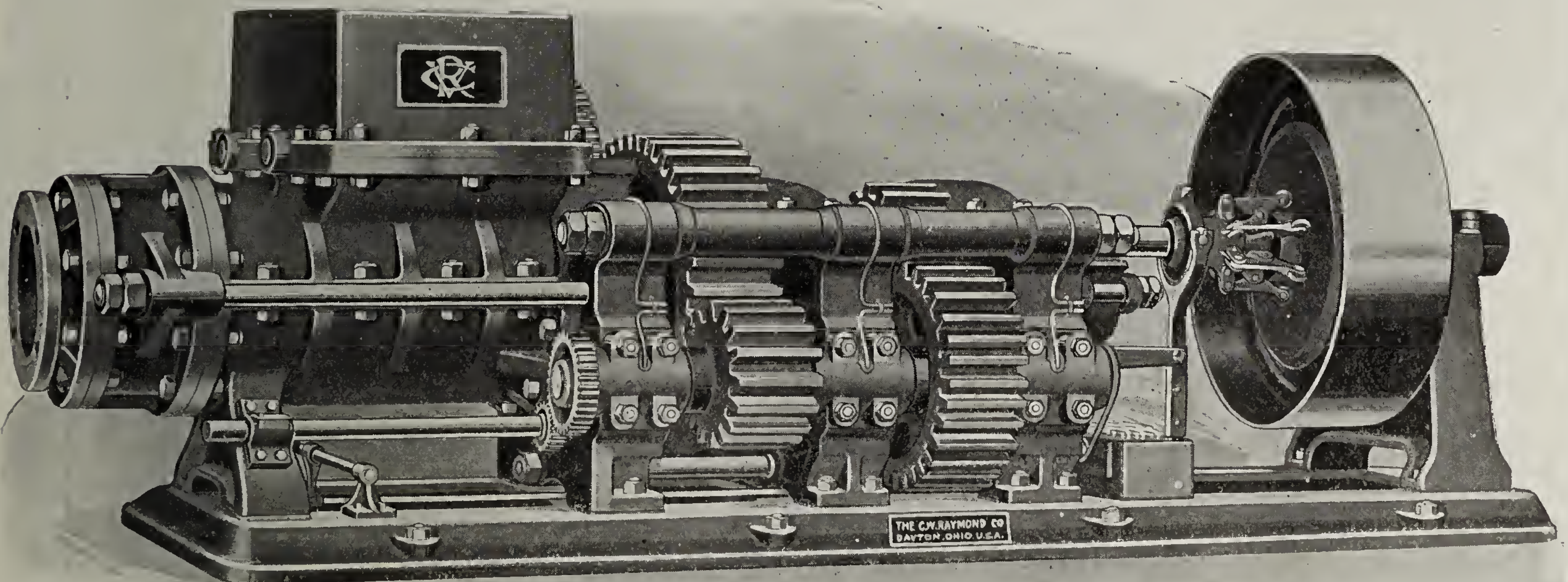
**Dayton Ohio U. S. A.**

# THE TWO GREATEST MACHINES



## THE RAYMOND "CWR" BRICK MACHINE

Surplus strength, extra weight, heavy steel cut gears, practically no wear, easy running and larger output, make these machines the greatest machines on the market to-day.



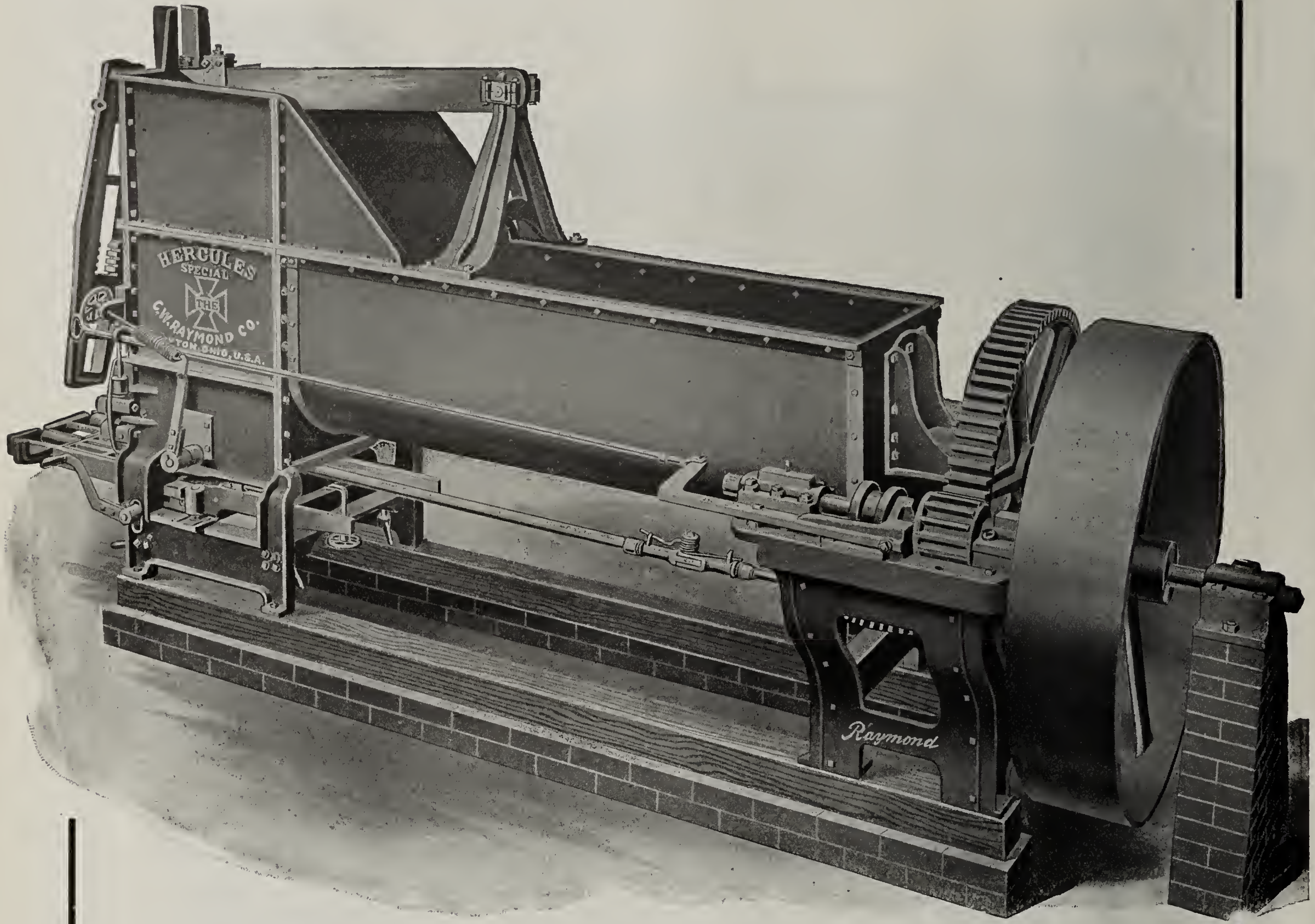
## THE RAYMOND CVR" HOLLOWARE MACHINE

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# LIVING UP TO ITS NAME



## The Raymond Hercules Special Brick Machine

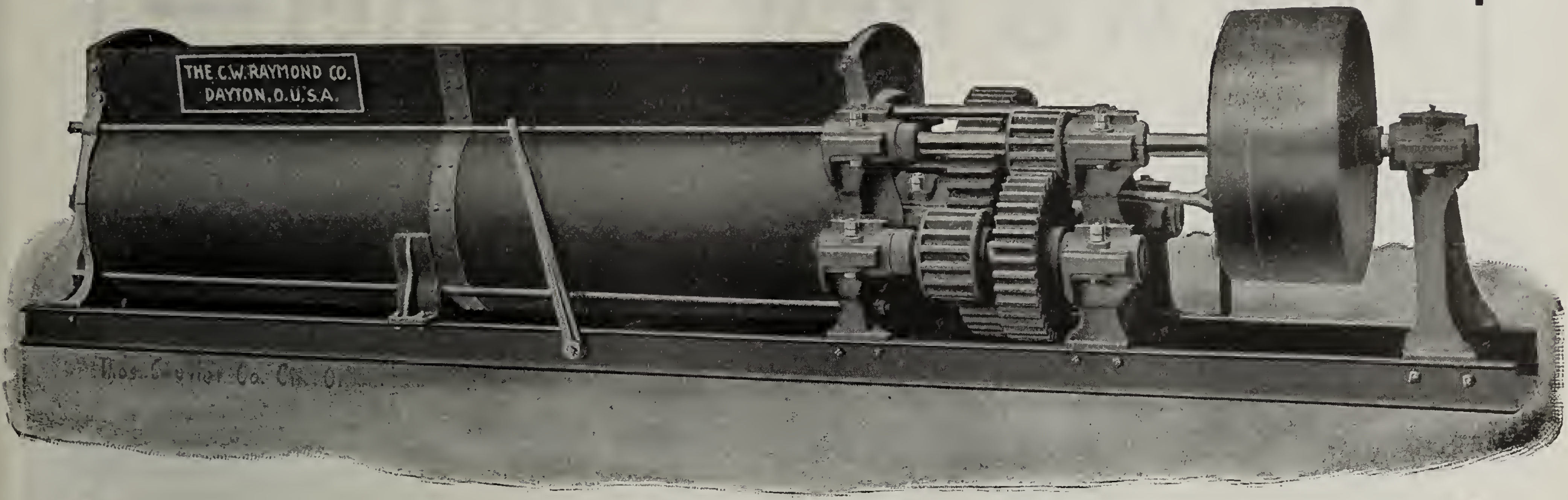
The name of this horizontal brick machine, implies that strength is, at least, one of the prime factors in its manufacture. It is made of iron and steel throughout, the shafting being cold rolled, tbe pug mill shafts being hammered steel forged under heavy pressure. A large margin of safety and power is allowed, and it is easily capable of handling all the work required of it. At the bottom of this machine is a space about 32 inches square and 8 inches below the knives. This is always filled with clay, forms a cushion and catches all stones or loose knives that may work forward. Thus there is a saving of expensive repair bills. Our friction Clutch Pulley is provided, being 62 inches in diameter, making six revolutions for one mold of brick. Capacity 30,000 to 40,000 brick per ten hour day. Approximate weight 17,000 pounds.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# TEMPER YOUR CLAY
## DAY AFTER DAY WITH



## THE RAYMOND STANDARD PUG MILL

The quality of your brick depends largely upon your Pug Mill. One that does not pug the clay thoroughly, causes lumpy, crumbling clay, consequently your brick are ragged and full of holes. The Raymond Standard Pug Mill is the best for practical pugging purposes. It has been constructed with great surplus strength and weight. The shafting is steel and the machine is mounted on channel steel skids. This Pug Mill will give service no other can give, and will stand up every day in the year. Made in 9, 10 and 12 ft. sizes, all equipped with friction clutch pulleys.

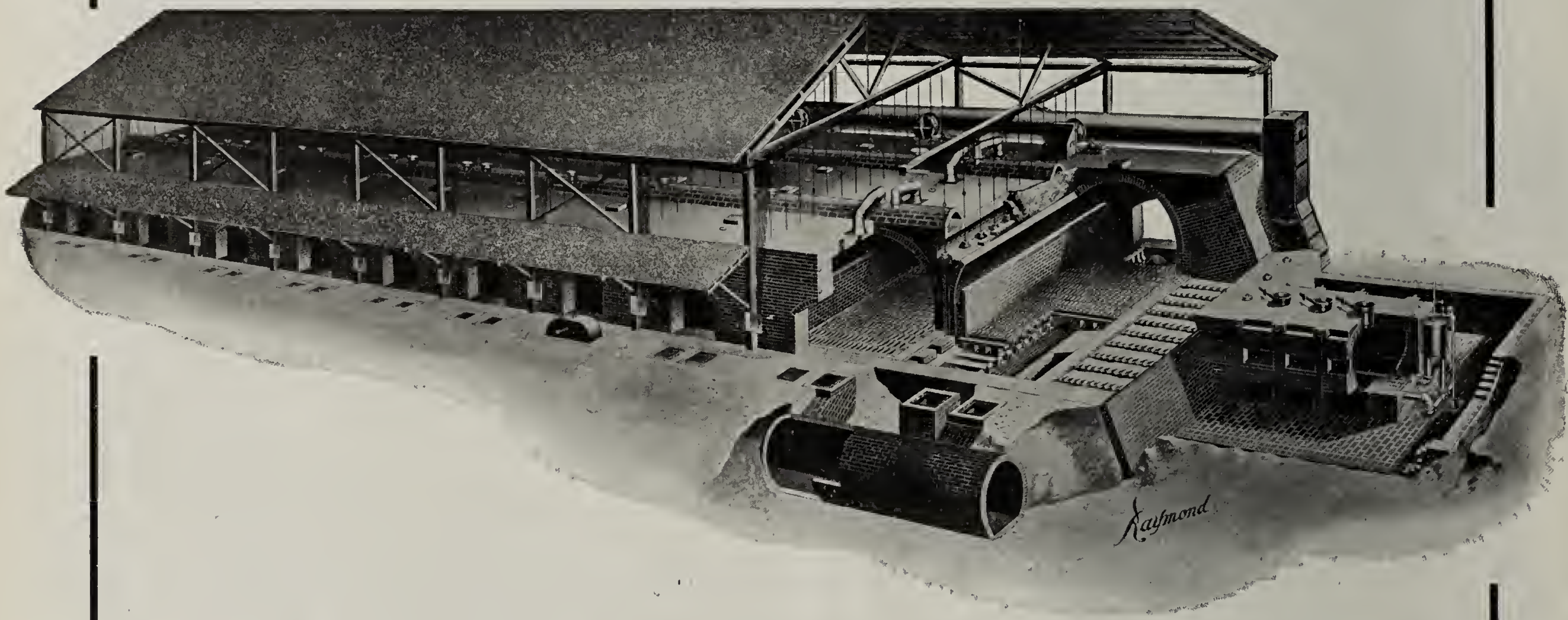
---

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# Shake Old Top
# This is a New Worker---



**The Raymond Producer Gas Fired Continuous Kiln**

Who wants a job, not a position, in the plant of every clayworker whom he meets. He is the most reliable worker that you ever had and can get better results with less expense. He can use less than half the coal your kiln uses now and produce a better product. Your savings will go in your bank account instead of the coal man's. His experience marked him as the coming kiln for the progressive brickmaker.

Don't be slow in asking for further references concerning his work in other plants. Write now.

**The C. W. Raymond Company**

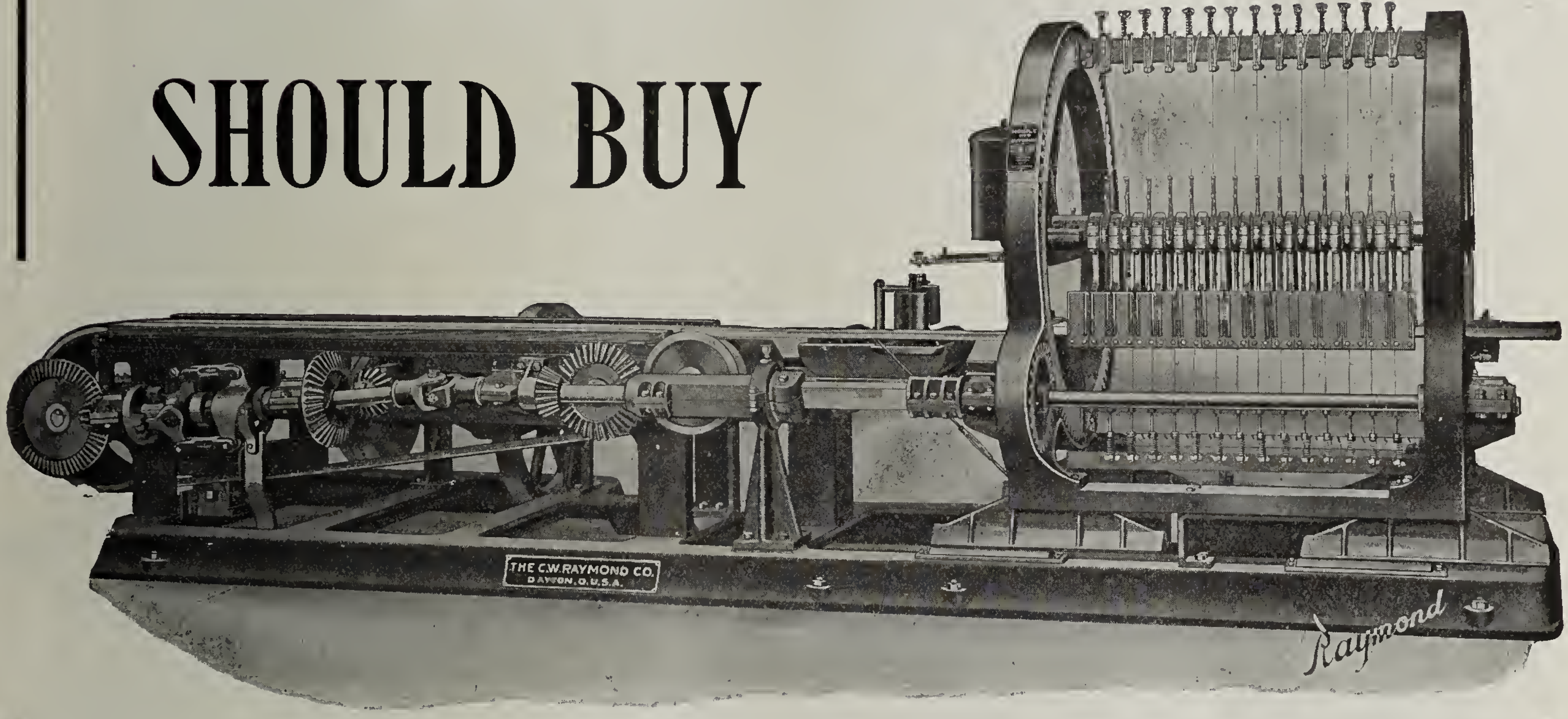
**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# READ WHY YOU NEED

# AND

# SHOULD BUY



## The Raymond "Mobile No. 4" Automatic Cutter

The cutter you have been looking for is one that you know will cut a straight edge brick, will not waste a large portion of your clay, and can be depended upon to give just the same results turning out twenty thousand as fifty thousand per ten hour day. All this and then some, is done by the Mobile No. 4. The clay bar will not stick, as it is lubricated thoroughly on the under side and also by a sliding oil reservoir. A broken wire may be replaced without stopping the cutter. Did you say you wanted a catalog or descriptive literature?

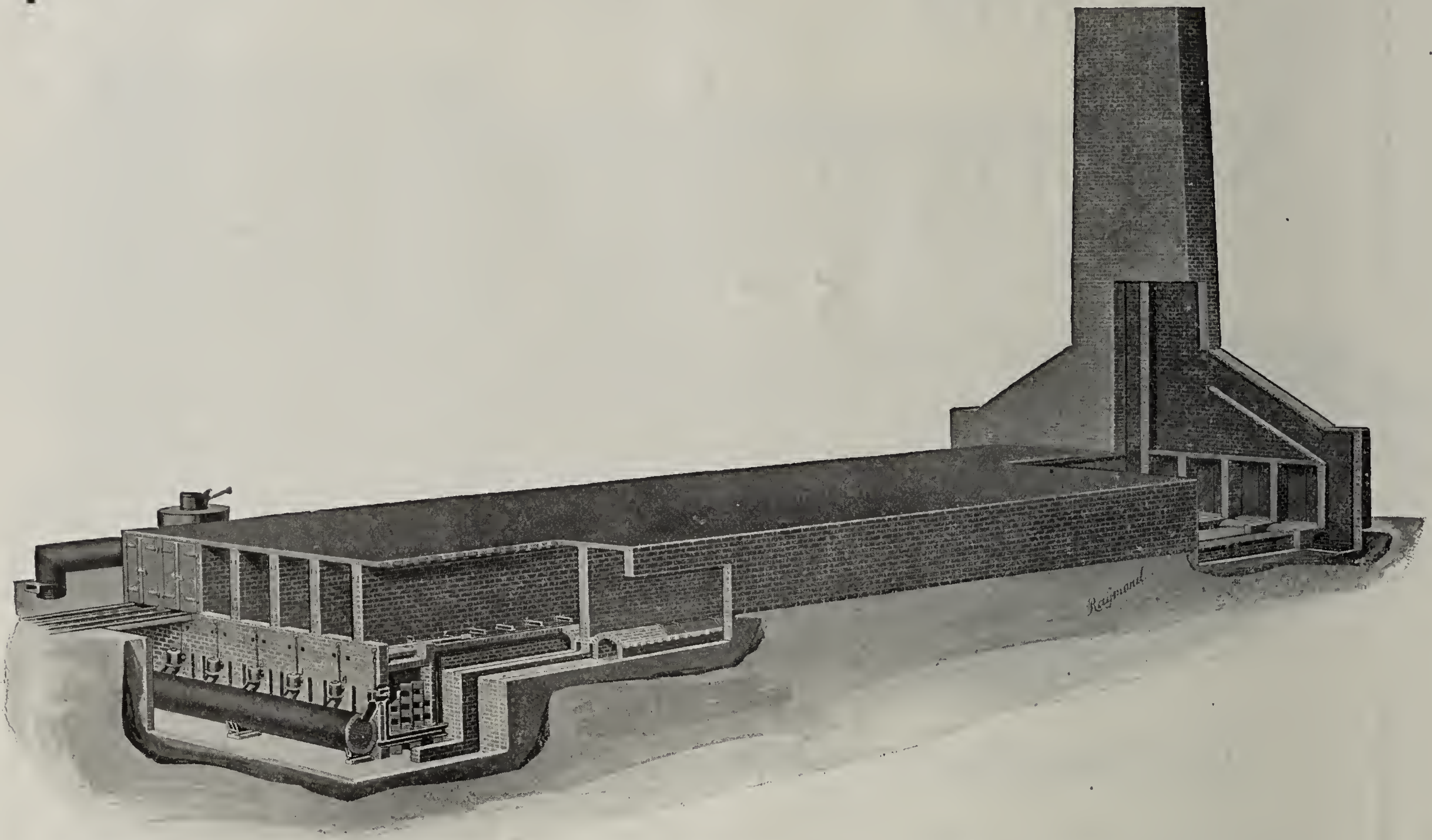
---

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# Any Man May Make a Mistake Once But---
# Don't Make the Same One Twice!



## The Raymond Producer Gas Fired Metallic Radiation Dryer

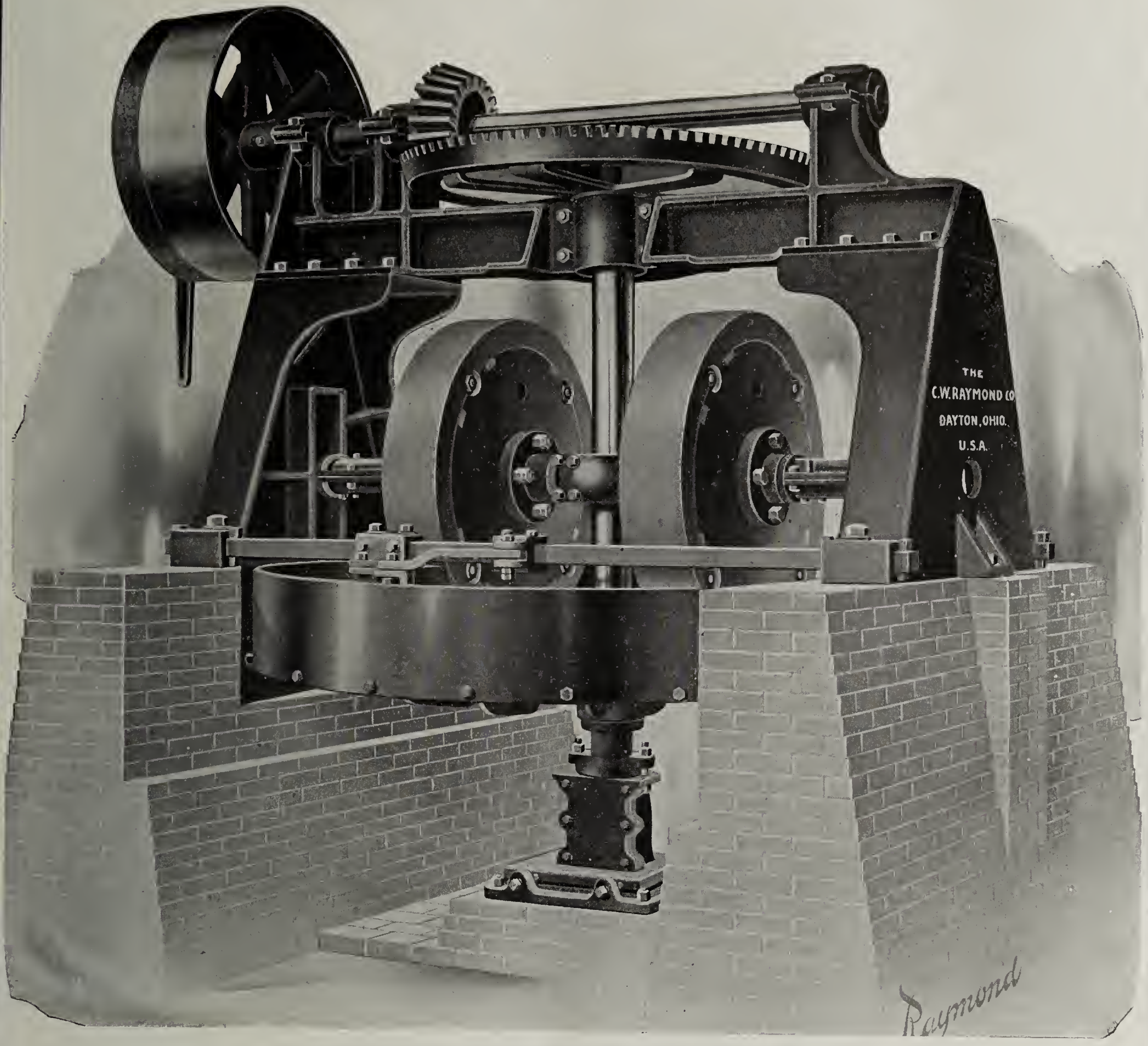
Don't put yourself in that class by making the same mistake *twice* in your Drying Question. You are no different from many men who made a mistake in buying their Dryer, but—don't do it again. We learn from experience. So now, buy one of the Raymond Producer Gas Radiated Heat Dryers, made of material radiating the most heat, using less than half the amount of fuel you are using now, by means of Producer Gas, and having tunnels that can be burned singly or all at once with the same result—perfectly dried brick. Let us know your troubles.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

MASSIVE!



**THE RAYMOND LOW FRAME DRY PAN**

Massive in everything, even to output, this monument of Raymond skill is built to stand forever. The man who can understand a great machine, will appreciate the strength, power, weight, in addition to frictionless action, that our machine possesses. It is 14 feet 6 inches long; 10 feet wide; 12 feet 3 inches high from base plate to top of pulley, and weighs approximately 35,000 pounds.

Surely you can afford to write for further particulars.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

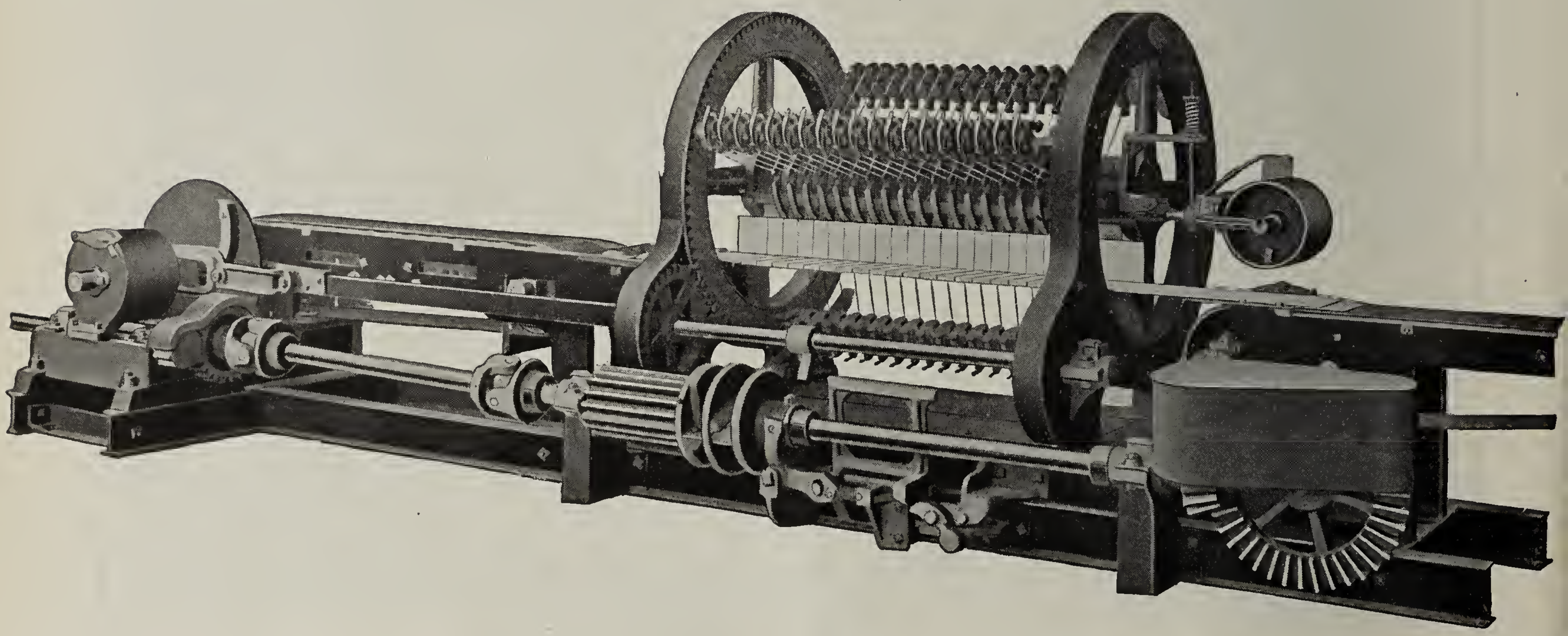
# DOLLARS AND SENSE

If an investment of a thousand dollars netted you a hundred dollars a year—10%—wouldn't you consider it a GOOD investment? Wouldn't you think it advisable—good business sense—to make such an investment if you had the opportunity?

If you're using a cutter that cuts crooked, misses cuts, or frequently runs wild; one that necessitates continuous repairing; or one that requires the constant attention of an attendant, you have that opportunity.

For a cutter with positive, never-miss mechanism—one that sends all of your clay column into the dryer—means a saving of power and repairs, and—still more important—it means a dependable output of perfect brick.

And these are worth more than a hundred dollars to you.



**Model C 20 Rotating Automatic Cutter**

Don't select a cutter from engravings or photographs—Find out what it does and how it acts under working conditions. Write or visit men who use them and know. We'll gladly send you the names of a dozen users of the Freese Cutters in your immediate vicinity.

## E. M. FREESE & COMPANY, 140 South St., Galion, Ohio

**Dependable Machinery of Proven Efficiency**

For
Sixty-Three
Years
The Name

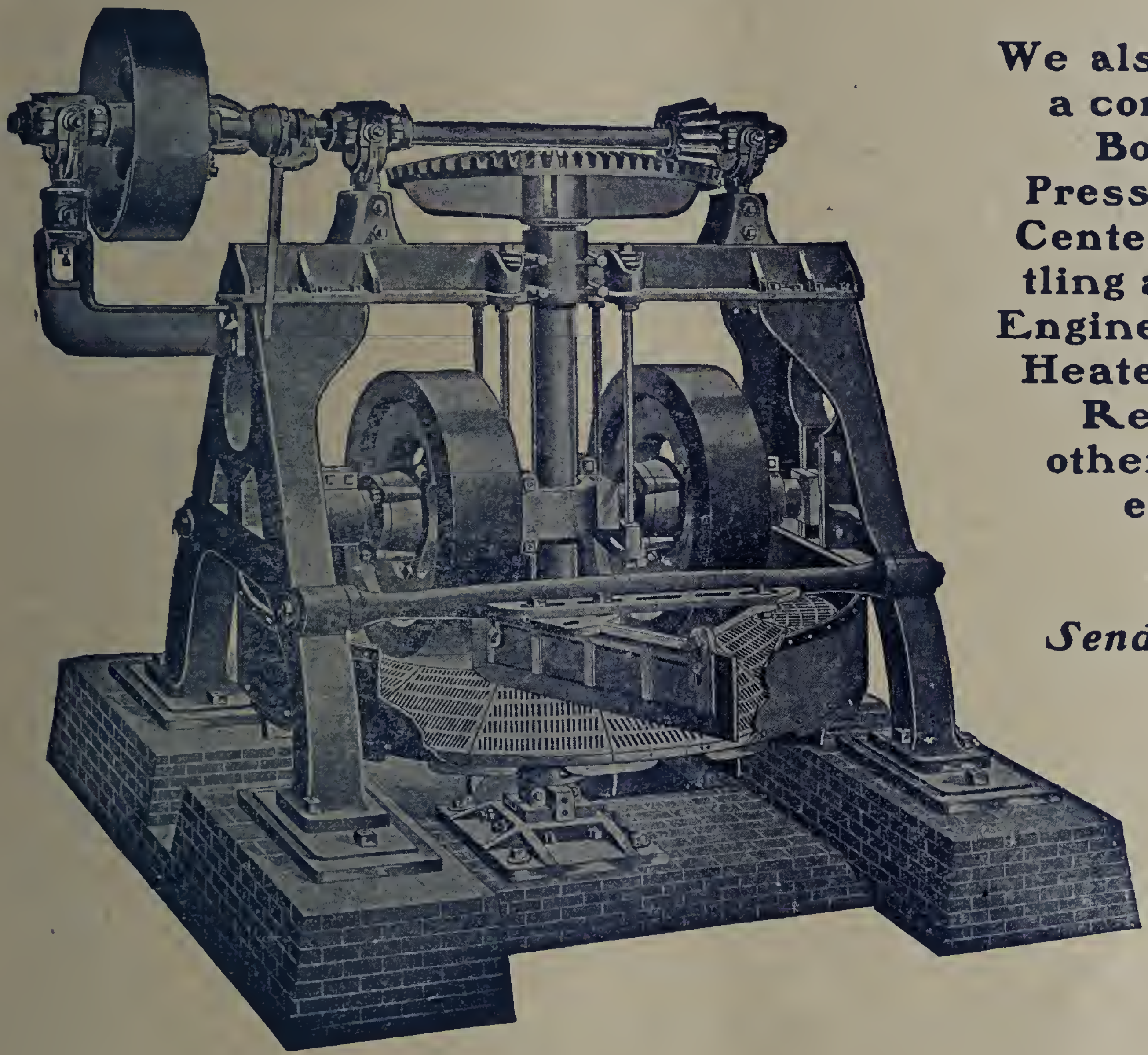
# Frost

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

**There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.**

**WHY! Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.**



**We also manufacture a complete line of Boilers for all Pressures, Side and Center Crank Throttling and Automatic Engines, Feed Water Heaters, Tanks, Air Receivers and other power plant equipment.**

---

***Send for Bulletins.***

## The Frost Manufacturing Co.

Works at
GALESBURG, ILL.

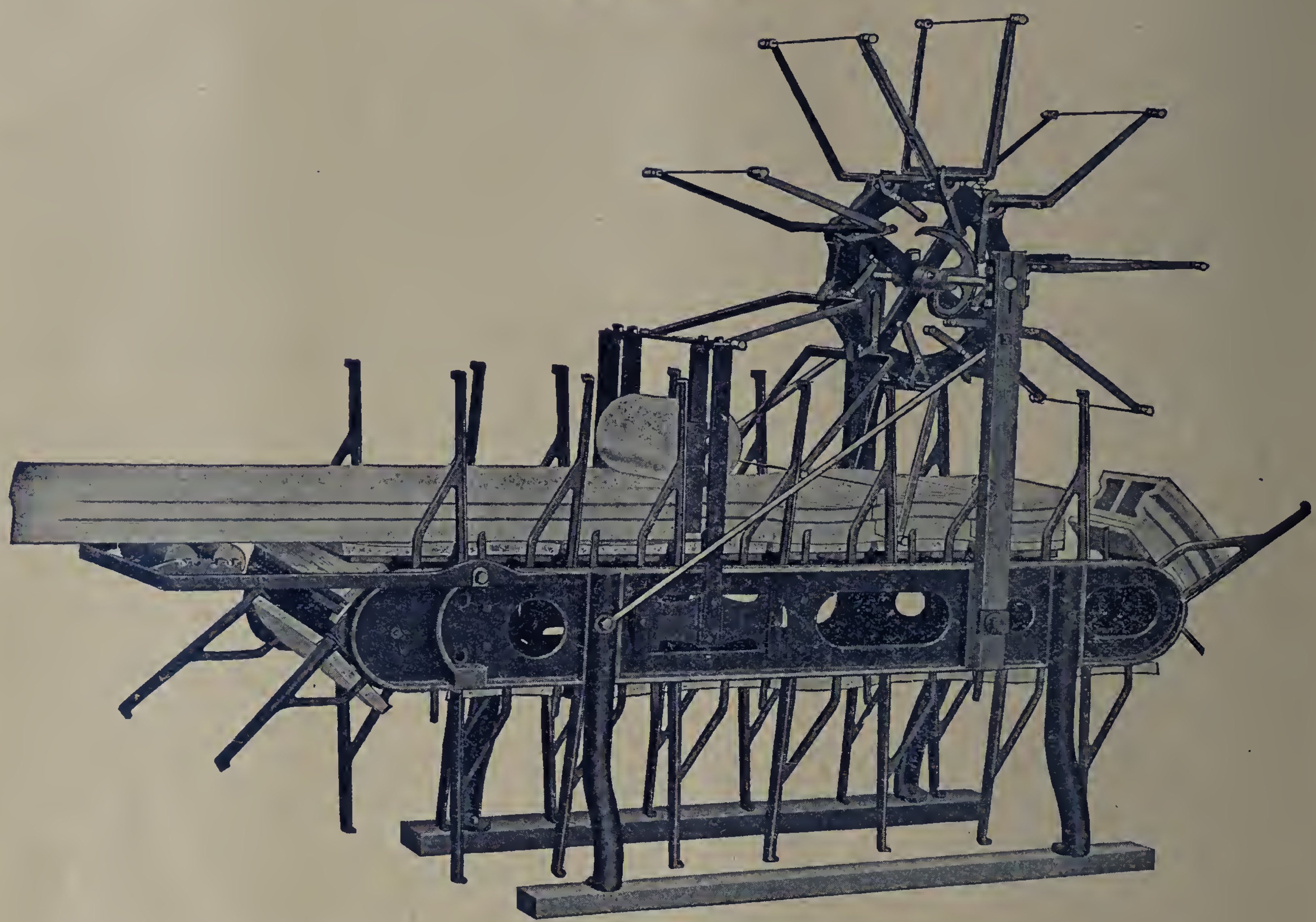
Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

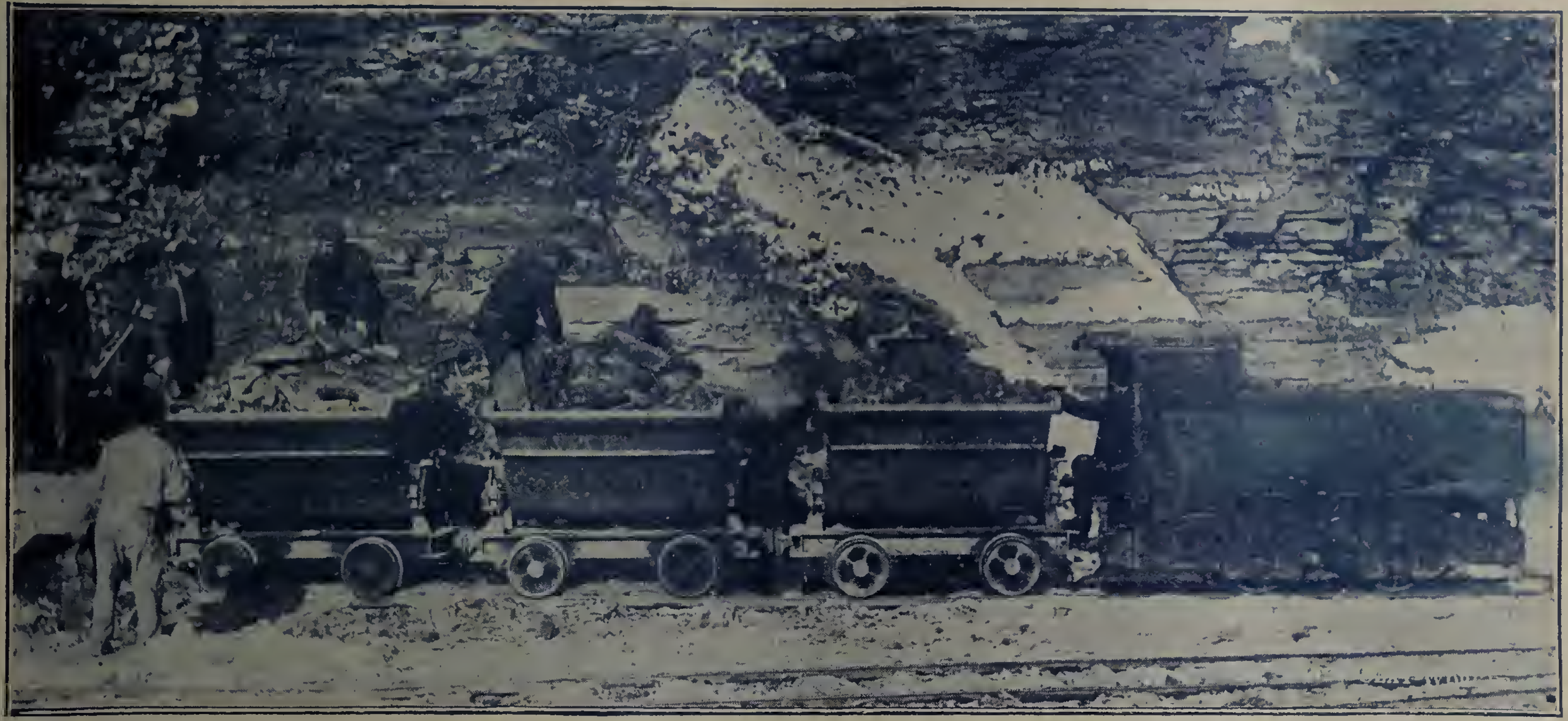
After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

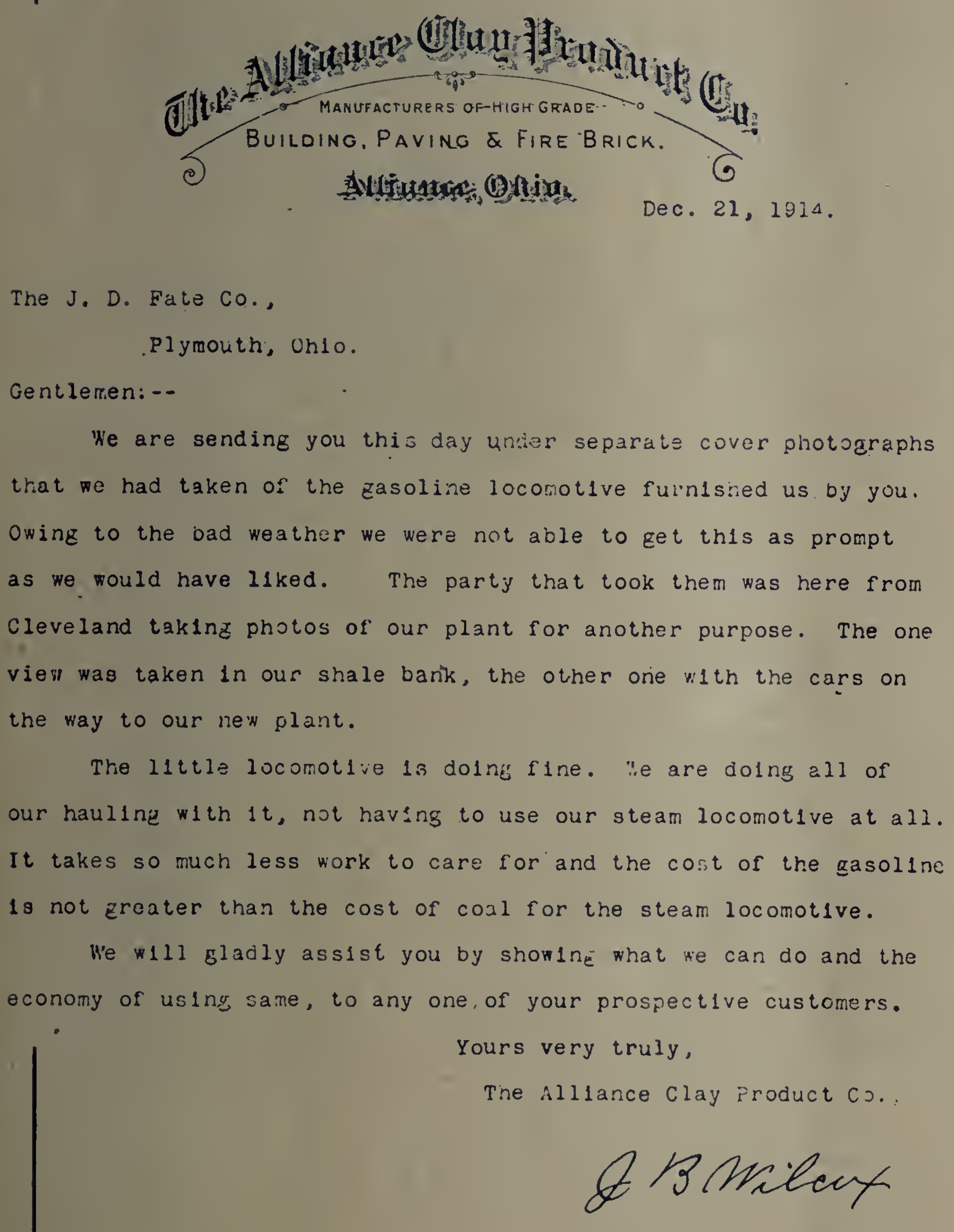
## The J. D. Fate Company

Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O



The Alliance Clay Product Co.
MANUFACTURERS OF HIGH GRADE
BUILDING, PAVING & FIRE BRICK.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
Plymouth, Ohio.

Gentlemen:--

We are sending you this day under separate cover photographs that we had taken of the gasoline locomotive furnished us by you. Owing to the bad weather we were not able to get this as prompt as we would have liked. The party that took them was here from Cleveland taking photos of our plant for another purpose. The one view was taken in our shale bank, the other one with the cars on the way to our new plant.

The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers.

Yours very truly,
The Alliance Clay Product Co.

J B Wilcox

# The "PLYMOUTH"
## is the
## IDEAL HAULAGE for CLAY PLANTS.

Efficient, Economical to Operate, Low in Price and Low in Upkeep.

Any Speed—Forward or Backward—Power Equal in Both Directions.

No Licensed Engineer Required.

Eats Only When it Works.

Continental 4-Cylinder Motor, Bosch High Tension Magneto, Schebler Carburetor, Hyatt Roller and New Departure Ball Bearings—Power, Brakes and Sand on all 4 wheels, and all parts very accessible. Any Gauge, 20-inch to Standard.

Let us tell you more about them, and how an 8-year old boy operates one in a clay plant at Morrisonville, Ill.

## The J. D. FATE CO.

Eastern Office, Woolworth Bldg., New York City
Western Office, Blake-McFall Bldg., Portland, Ore.

See pages 254 and 255 for other ads.

REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives

Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

**MOLDS MOLDS MOLDS**

Of Every Description

Machine and Hand Brick Molds Built of Air Dried Stock.

You can't buy a better brick mold. The price is reasonably low.

I have made a lifetime study of the manufacture and sale of brick molds.

Write for catalog and detailed information.

**JAMES W. HENSLEY**
Successor to S. K. Fletcher
Indianapolis, Ind.

**THE LAKEWOOD GRAB BUCKET**

Simple in Design. Heavy in Construction.

**THE MOST POWERFUL DIGGER**

For Hard Clay, Shale, Sand, Gravel, etc.
*Write for Catalog No. 15.*

**The Lakewood Engineering Company**
Dept. W.
(Formerly The Ohio Ceramic Engineering Company)
Cleveland, Ohio

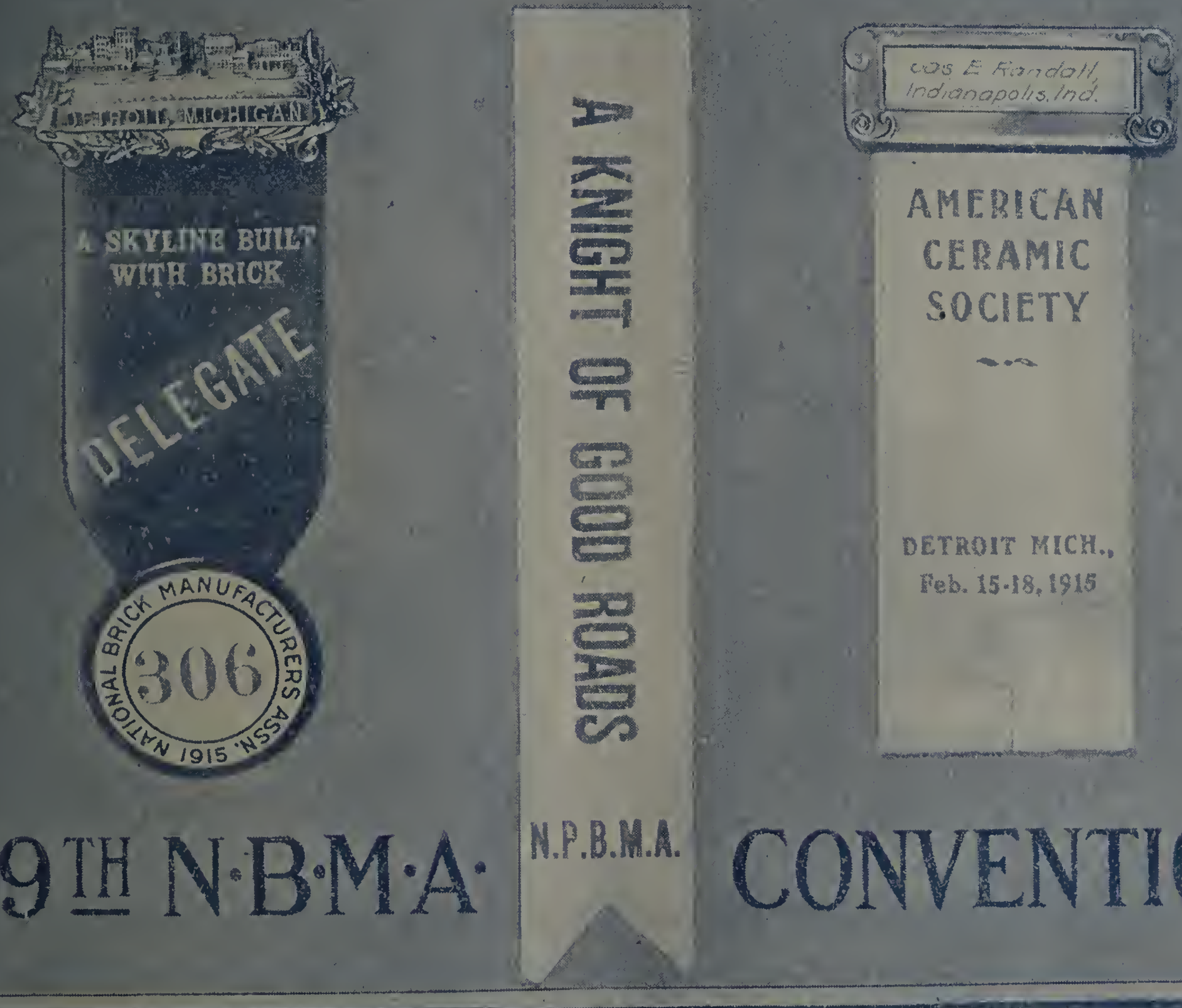
Chicago: 555 W. Quincy St.
New York: 30 Church St., Room 802
Pittsburgh: 1230 Fulton Bldg.

C L

MARCH, 1915

# THE CLAY-WORKER

## OFFICIAL REPORT



## 29TH N·B·M·A· CONVENTION

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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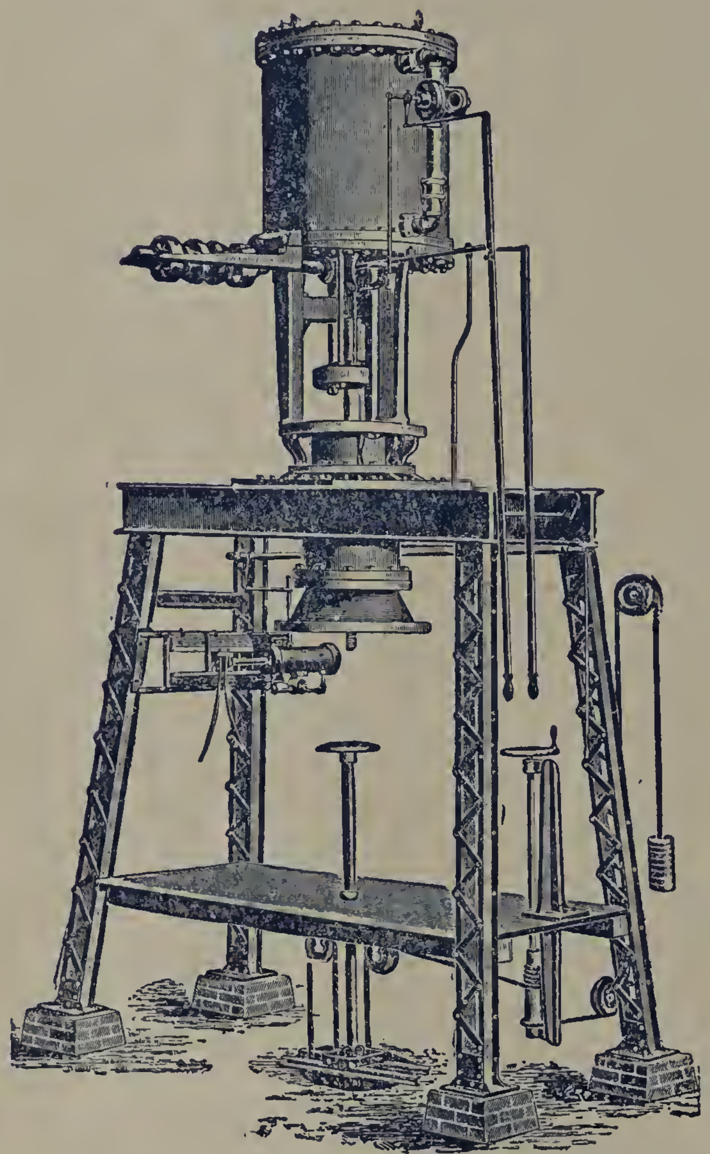
Ask for a Sewer Pipe Press, Dry or Wet Pan, or other Clayworking Machinery, and there is NO TELLING WHAT YOU WILL GET.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

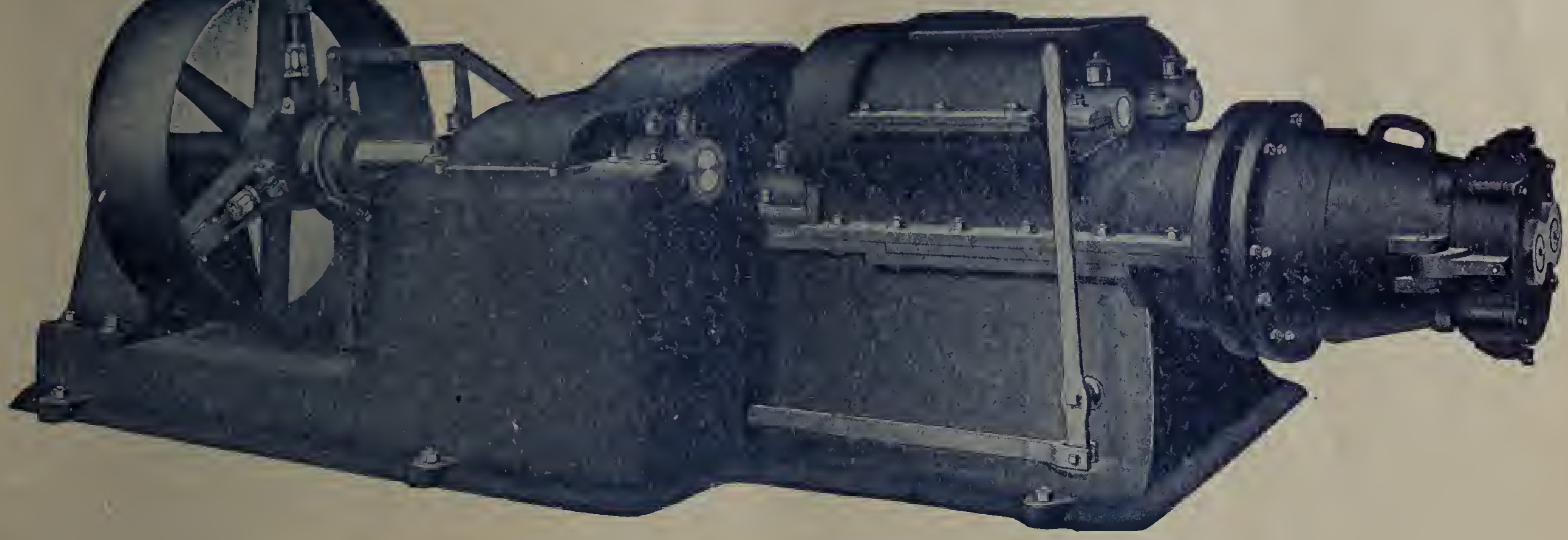
Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

THE TAPLIN, RICE-CLERKIN CO.

Akron, Ohio

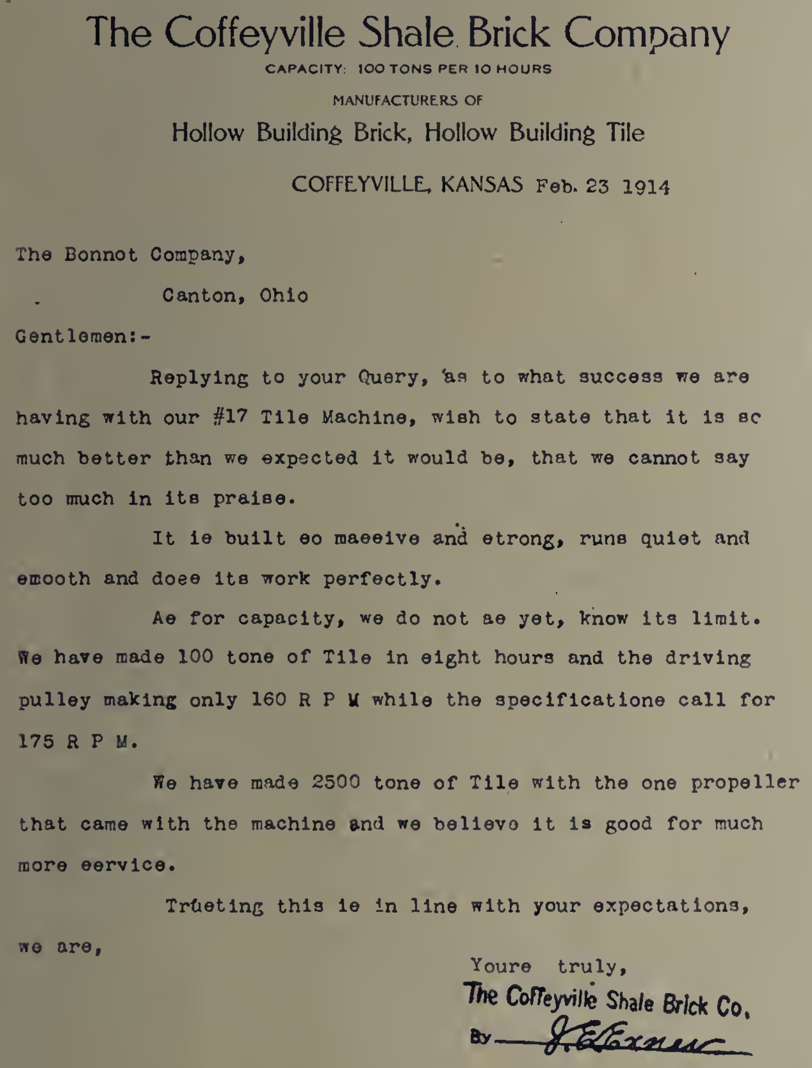
The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

# MAKING HOLLOWWARE FOR PROFIT



## Bonnot No. 17 Hollowware Machine.

Hollowware is made most successfully on a machine built especially for that purpose. The No. 17 is just such a special machine, and it combines also the very best in design and construction from the standpoint of durability and output.



The Coffeyville Shale Brick Company
CAPACITY: 100 TONS PER 10 HOURS
MANUFACTURERS OF
Hollow Building Brick, Hollow Building Tile
COFFEYVILLE, KANSAS Feb. 23 1914

The Bonnot Company,
Canton, Ohio

Gentlemen:-

Replying to your Query, as to what success we are having with our #17 Tile Machine, wish to state that it is so much better than we expected it would be, that we cannot say too much in its praise.

It is built so massive and strong, runs quiet and smooth and does its work perfectly.

As for capacity, we do not as yet, know its limit. We have made 100 tons of Tile in eight hours and the driving pulley making only 160 R P M while the specifications call for 175 R P M.

We have made 2500 tons of Tile with the one propeller that came with the machine and we believe it is good for much more service.

Trusting this is in line with your expectations, we are,

Yours truly,
The Coffeyville Shale Brick Co.
By J. E. Exner

# THE BONNOT CO.

## Canton, Ohio

**Branches**

909 N. Y. Life Bldg. KANSAS CITY, MO.
211 Higgins Bldg. LOS ANGELES, CAL.

(Sign and mail this coupon)

..............................1915

THE BONNOT CO.
Canton.

Please send me specifications and full information on No. 17 Hollowware machine.

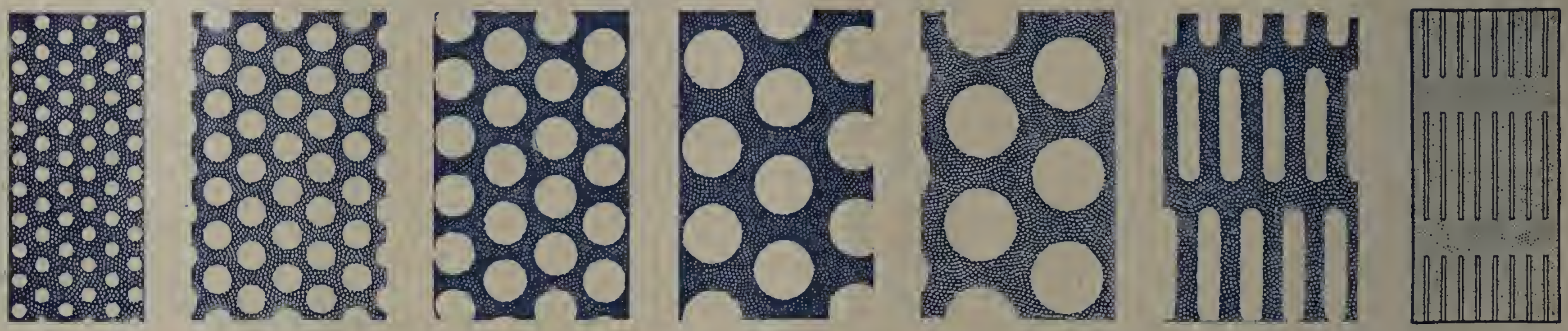
.................................. (Signed)

..................................

PERFORATED STEEL SCREENS

FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

Put Half Your Wheeling Gang to Work on a Gravity Brick Conveyer

You won't need the other half.
Their salaries can be added to your profit.
You can save the cost of wheelbarrows also.

Catalog on Request

It's very simple—

Just put the brick on the steel, ball-bearing rollers—two, three or four at a time and let them run quickly and gently down into the car. Just a slight slant will cause the brick to run over the easy-running rollers for long or short distances, or turn corners, as desired. Made up in connecting sections for easy moving.

MAIN OFFICE AND FACTORY
ELLWOOD CITY, PENN.

SPEED
MATHEWS GRAVITY CARRIER COMPANY
The MATHEWS WAY
The SAVING WAY
ECONOMY

BRANCH FACTORIES:
TORONTO, ONT.
LONDON, ENG.

## ARE YOU STILL "MARKING TIME"?

It's time NOW to equip to march. The 1915 Brick War is at hand and the fighting will soon be fast and furious.

As you will fight to win, look well to your equipment, for poorly equipped you will wage a losing fight.

If you realize the need of better equipment, investigate the implements of modern brick warfare of our design and manufacture.

NOW is the time to get in readiness---BEFORE the battle cry is sounded.

**EQUIP NOW.**

---

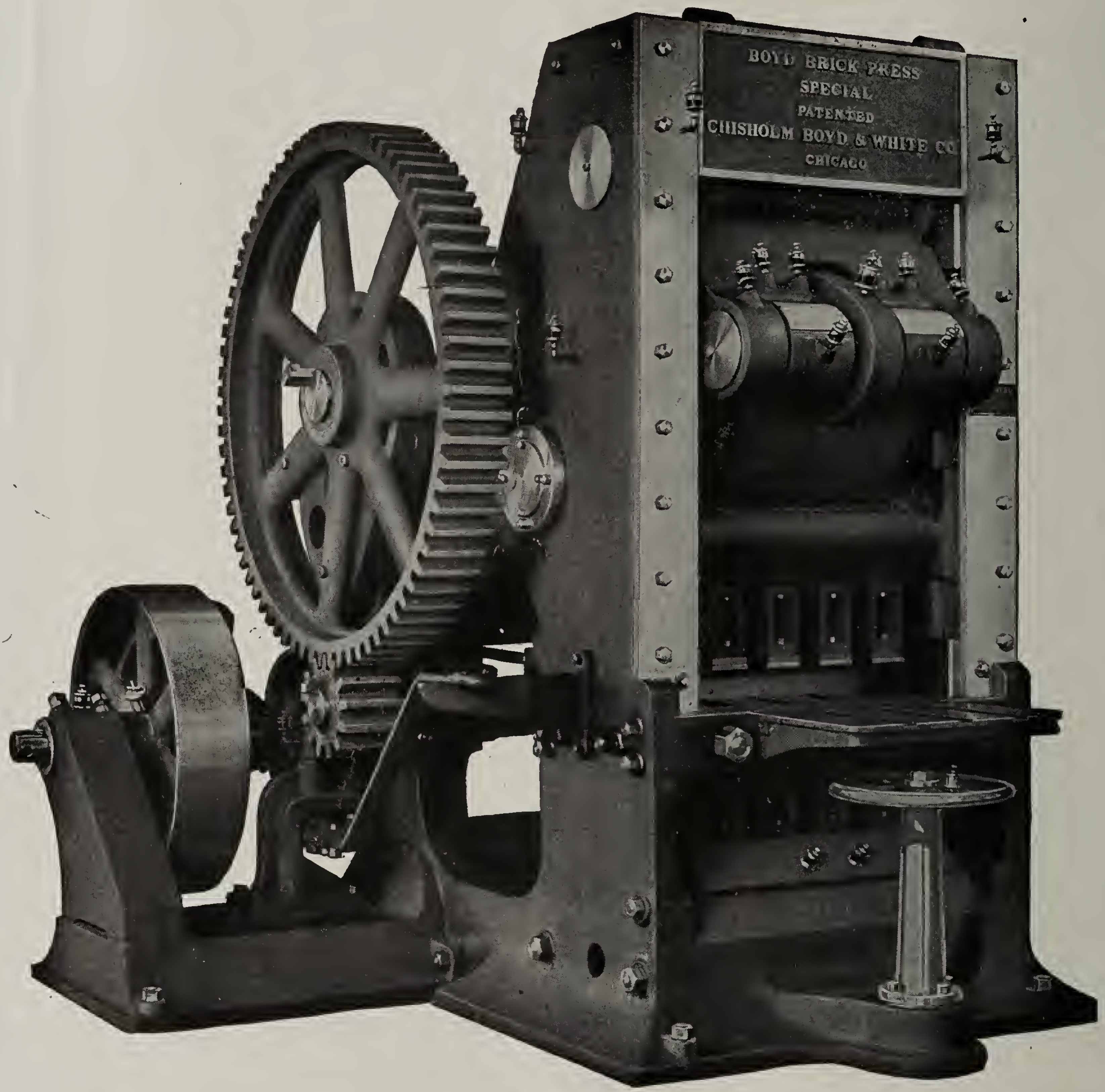
**L. E. RODGERS ENGINEERING CO.**

Waste Heat Dryer Specialists
Brick Works Engineers

Largest Manufacturers of Brick Drying Equipment in the United States
30 North LaSalle St. .:. .:. CHICAGO

**The Boyd Brick Press**

**"Built Up to a Standard—Not Down to a Price."**



SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED=PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

---

### Ammeters.
TheBrown Instrument Co.

### Analysists and Chemists.
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Automatic Clay Bin Emptier.
Fate Co., The J. D.
Raymond Co., The C. W.

### Automatic Cutting Tables.
(See Cutting Tables.)

### Barrows and Trucks.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Barytes, Carbonate of
Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

### Bearings, Roller.
(See Supplies.)

### Belting.
Gandy Belting Co.
Sawyer Belting Co.

### Belt Conveyors.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Blowers.
American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

### Brick (Building).
Bloomfield Clay Co.
Hydraulic Press Brick Co.
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.
American Clay Machinery Co.
Mathews Gravity Carrier Co.

### Brick and Tile Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.
Wellington Machine Co.

### Brick Machines (Stiff Mud.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press.)
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

### Brick Recutter.
Raymond Co., The C. W.

### Brick Setting Machinery.
American Clay Machinery Co.

### Buffing Machinery.
American Clay Machinery Co.

### Burning and Drying Systems.
American Blower Company.
Boss, John C.
Buhrer, Jacob.
Dennis, F. W.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
National Dry Kiln Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

### Cars.
(See Dryer and Dumping Cars.)

### Castings.
Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.
American Pulverizer Co.
Arbuckle & Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Clays.
Bloomfield Clay Co., The.

### Clay Dryers.
American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.
Stevenson Co., The.

### Clay Gatherers.
(See Scrapers.)

### Clay Steamers.
Raymond Co., The C. W.

### Clay Technologists.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.
(See Supplies.)

### Coloring Materials.
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.
Orton, Edward, Jr.

### Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick and Tile.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

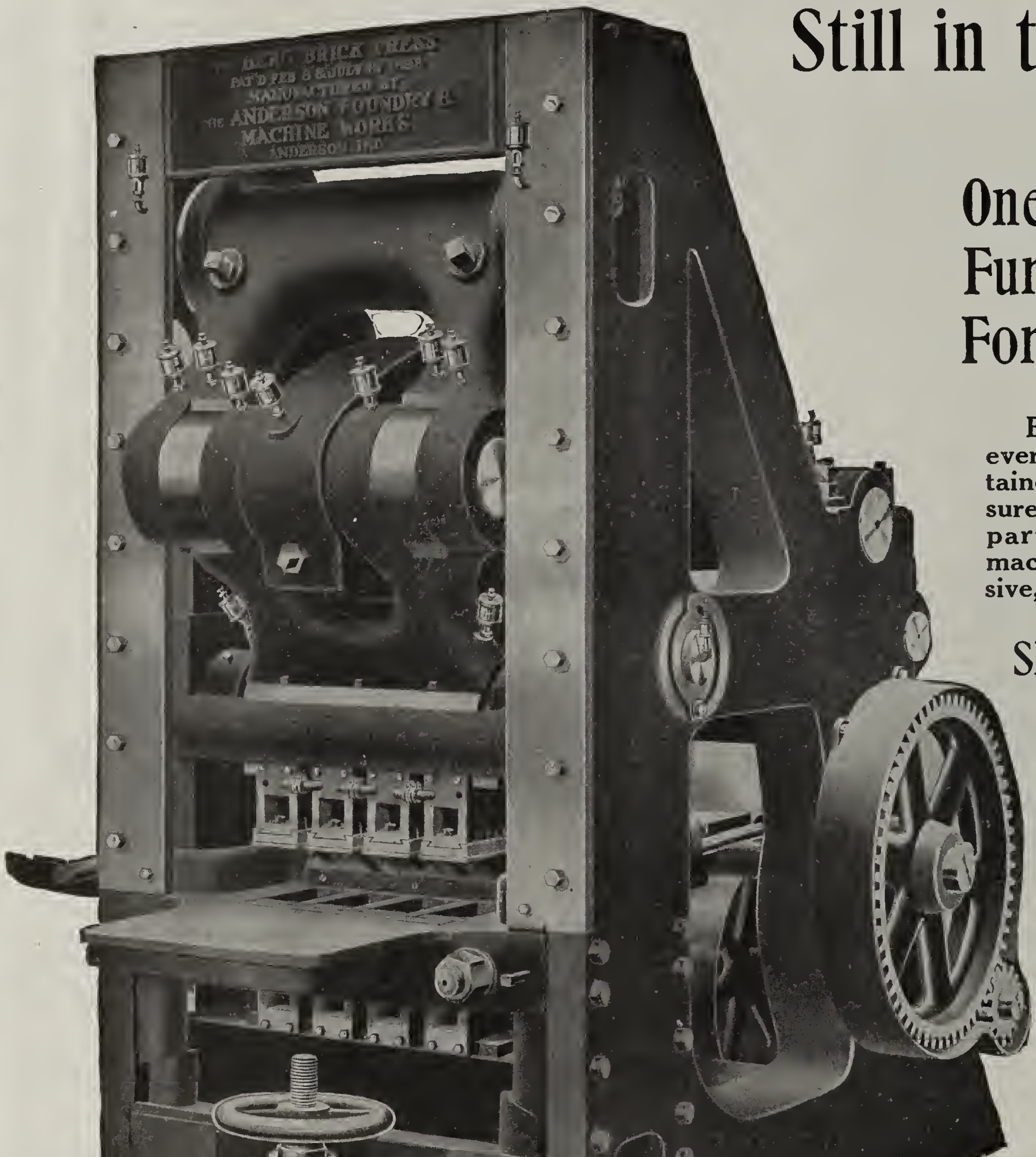
### Dryers.
American Blower Company.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co., H.
National Dryer Company.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
National Dryer Company.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.

(Continued on page 321.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

SHIPPED IN ONE PIECE.

All Machines Are Equipped With

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Standard Dry Kiln Co., The.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

**Dry and Wet Pans.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Dump and Clay Cars.**

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wellington Machine Co.

**Electric Instruments.**

Brown Instrument Co., The.

**Electric Shovels.**

Thew Automatic Shovel Co.

**Electrical Furnaces.**

Brown Instrument Co., The.
Richardson-Lovejoy Engr. Co.

**Electrical Locomotives.**

Atlas Car & Mfg. Co.

**Electrical Supplies.**

American Clay Machinery Co.
Raymond Co., The C. W.

**Elevating Equipment.**

(See Conveyors.)

**Engines.**

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

**Engineers.**

Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

**Fans.**

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Feed Water Heaters.**

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

**Filler (Paving).**

Barrett Mfg. Co.

**Filter Presses.**

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Fire Brick and Fire Clay.**

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

**Fire Clay.**

Bloomfield Clay Co.

**Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Flower Pot Machinery.**

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The.
Taplin-Rice-Clerkin Co.

**Friction Clutch Pulleys.**

(See Supplies.)

**Furnaces.**

Brown Instrument Co., The.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

**Gas Fire Continuous Kilns.**

Raymond Co., The C. W.

**Gears.**

(See Supplies.)

**Granulators.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Gravity Carriers.**

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

**Gravity Haulage.**

American Clay Machinery Co.

**Hand-Power Presses.**

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

**Hand Winch.**

(See Supplies.)

**Hangers.**

(See Supplies.)

**Hoists.**

(See Supplies.)

**Hollow Block Machinery.**

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Illustrators.**

Lamb, J. & R.

**Insurance.**

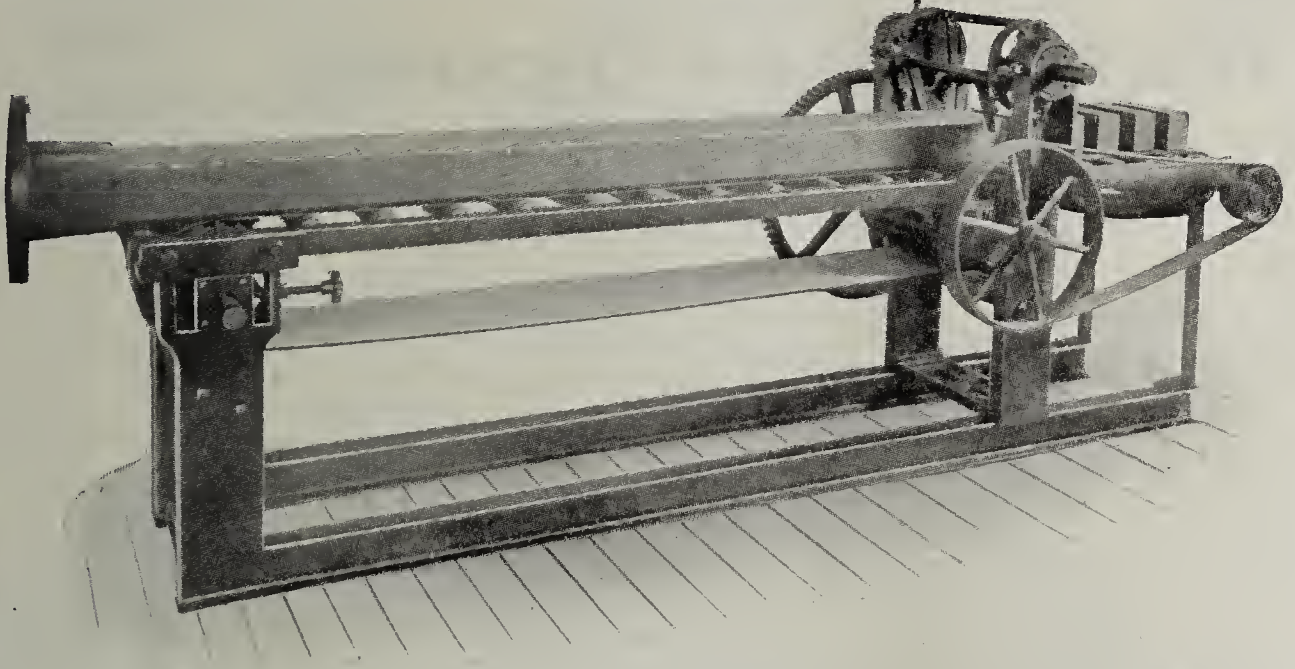
Mantel, Tile & Grate Monthly.

**Jacks.**

(See Supplies.)

(Continued on page 323.)

MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

MUELLER BROS.

1436 Macklind Ave. (on Friso Tracks) ST. LOUIS, MO.

The Layton, Pa., Plant of the Kier Fire Brick Co.

**BUILD WITH BRICK**

# 25,000 Silica Fire Brick

**are being dried every day by the**

## Sirocco

TRADE MARK.

## Waste Heat System

and dried economically, at the Layton, Pa., plant of the Kier Fire Brick Co.

They decided to convert their waste heat into a valuable drying element. You can do the same. The cost is small as compared to the results obtained.

Our Brick Engineering Department will lay out a Sirocco System for you, by the installation of which **you** can turn a **waste** into a **gain.**

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
San Francisco, Cal., 667 Mission St.
Dallas, Texas, 1908 Commerce St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 705 Merchants National Bank Bldg.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

**Kilns.**

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Vogt, Anton.
Yates, Alfred.

**Kilns, Doors, Castings and Frames.**

(See Supplies.)

**Kiln Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Kiln Furnaces.**

Illinois Supply & Con. Co.

**Knives.**

(See Supplies.)

**Locomotives.**

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

**Manganese.**

(See Coloring Materials.)

**Mechanical Draft.**

Boss, J. C.
Rodgers Engr. Co., The L. E.

**Mineral Paint.**

(See Coloring Materials.)

**Molds (Brick).**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

**Mold Sanders.**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

**Mortar Colors.**

(See Coloring Materials.)

**Motor Trucks.**

Wm. E. Dee Co.
Fate, Co., The J. D.

**Oil Burners.**

Illinois Supply & Con. Co.

**Paints.**

(See Coloring Materials.)

**Pallets.**

Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

**Pans (Dry and Wet).**

(See Dry and Wet Pans.)

**Paving Brick or Block.**

(See Brick.)

**Perforated Sheet Metal.**

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

**Pitch (Paving).**

Barrett Mfg. Co.

**Plows.**

(See Scrapers.)

**Poidometers.**

Schaffer Eng. & Equip. Co.

**Portable Track.**

Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

**Pottery Machinery.**

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Power Plant Equipment.**

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Presses.**

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

**Pug Mills.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Pulleys.**

(See Supplies.)

**Pulverizers.**

American Pulverizer Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Taplin-Rice-Clerkin Co.

**Pumps.**

Dean Bros. Steam Pump Wks.

**Pyrometers.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

**Rails and Railway Equipment.**

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

**Rattlers (Paving Brick).**

Ceramic Supply and Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

**Recording Gauges.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

**Represses.**

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson & Co.

**Revolution Indicators.**

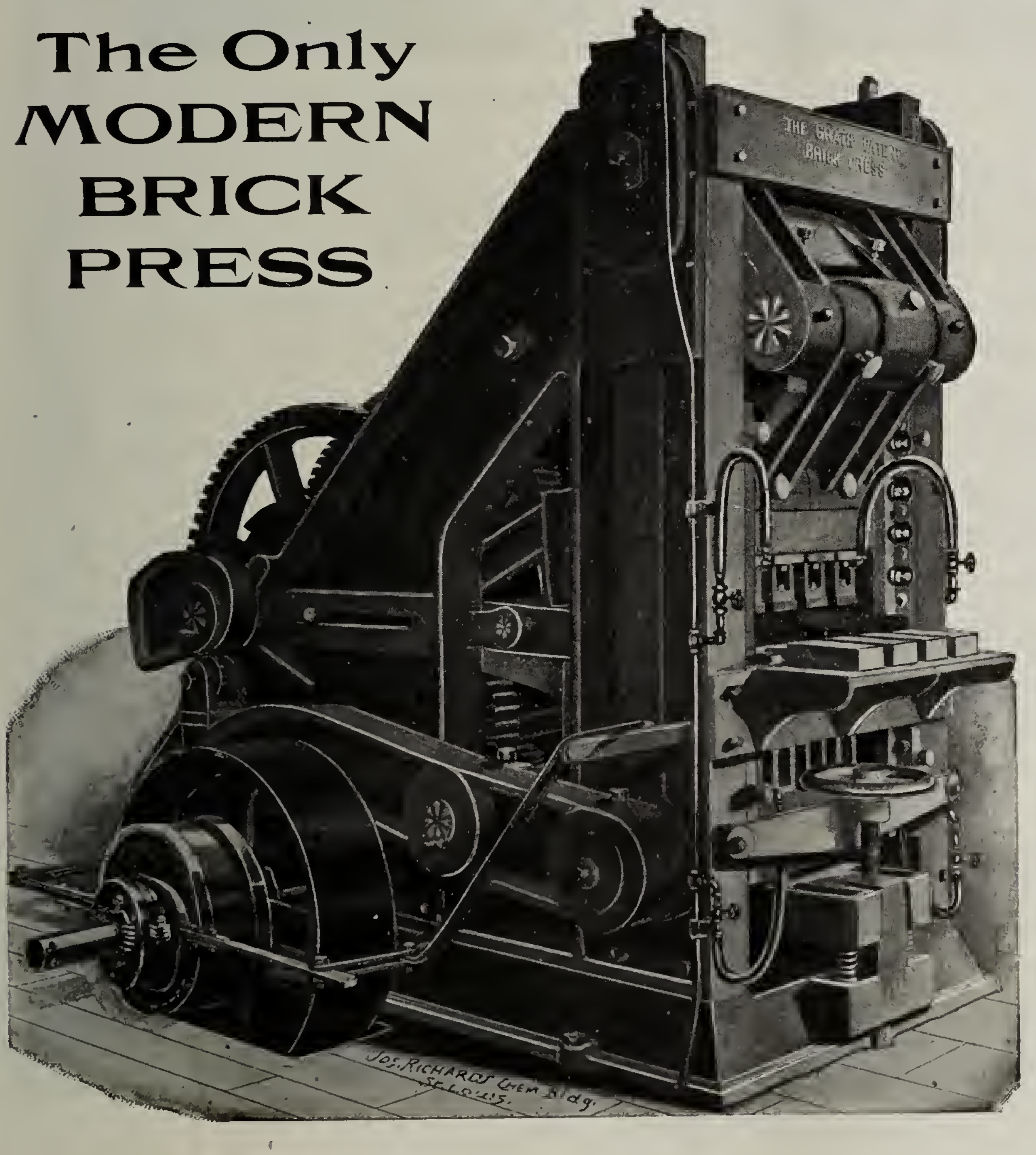
Brown Instrument Co.
Ceramic Supply & Constr. Co.

**Revolving Steam Shovels.**

Thew Automatic Shovel Co.

(Continued on page 325.)

The Only
MODERN
BRICK
PRESS


THE GRATH PATENT BRICK PRESS
JOS. RICHARDS CHEM BLDG. ST. LOUIS.

THE GRATH
PEERLESS PRESS

Simplest, Strongest and Most Easily and Quickly Regulated Press ever built.

Thickness of brick changed in one minute's time.

Guaranteed capacity—40% more than any other press.

Capacity on surface clays, 30,000 in ten hours. On shale and fire clay in proportion.

The Jersey Clay Products Co., Newbern, Ill., are turning out over 30,000 per day on this Press.

Ill. Supply & Const. Co.
722 Century Bldg., St. Louis, Mo.

# Barrett's PAVING PITCH

Irving Park Boulevard, Chicago, Ill. Brick and Granite Pavement filled with Barrett's Paving Pitch.

## The Seal of Superiority

A FILLER that seals the pavement both winter and summer, so that water and frost cannot attack the foundation, is absolutely essential.

Only one filler can be relied upon to maintain a perfect bond for all seasons, and that is a *reliable paving pitch.*

Brick shrinks away from asphalt in cold weather, causing cracks between the blocks. Cement does not allow for expansion in hot weather, and cracks and "blow-outs" result.

Good paving pitch has none of these faults. With ft street repairs can be easily, quickly and economically made. It will outlast the pavement itself—and the initial cost is low.

Not all pitch is reliable—don't take chances—use a proved pitch, made especially for the purpose. Barrett's is just that.

*Illustrated booklet free on request.*

BARRETT MANUFACTURING COMPANY

New York Pittsburgh Chicago Detroit Philadelphia Birmingham Boston Kansas City St. Louis Minneapolis Cleveland Salt Lake City Cincinnati Seattle

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Wellington Machine Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Constr. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Central Iron Works.
Eagle Iron Works.
Illinois Supply & Con. Co.

### Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

Thew Automatic Shovel Co.

### Steam Specialties.

Dean Bros., Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

### Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply and Com. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Steele & Sons.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Switches.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., H.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Com. Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

POTTERY ADVERTISING NOVELTIES

Majolica and Terra Cotta Work
for Sculptors a Specialty.

DUANE F. ALBERY
421 Sherman Ave., Evanston, Ill.
Correspondence solicited.

# Begin Reducing Costs at the Clay Pit

# USE A THEW—IT PAYS

Type 0 Thew Shovel in J. W. Wells' Clay Pit, Chattanooga, Tenn.

This shovel is loading clay for 100,000 brick daily.

One man on the shovel and one man on the ground the only men in the clay pit, as usual. The total cost of loading the clay and moving the cars to the foot of the incline is, in this case, less than six dollars. Can you afford to be without a THEW?

**Made in six sizes. Operated by steam or electricity of any commercial voltage.**

| | | | | |
|---|---|---|---|---|
| Type 0, | 18 Tons— | ⅝ yd. dipper, | for ordinary clays; | capacity 100,000 |
| Type A-1, | 24 Tons— | ⅞ yd. dipper. | for ordinary clays; | capacity 150,000 |
| Type 1, | 32 Tons— | 1⅜ yd. dipper, | for ordinary clays; | capacity 200,000 |
| Type 2, | 35 Tons— | ¾ yd. dipper, | for ordinary shales; | capacity 125,000 |
| Type 3, | 40 Tons— | 1¾ yd. dipper, | for ordinary clays; | capacity 250,000 |
| Type 4, | 55 Tons— | 1¼ yd. dipper, | for difficult shales; | capacity 200,000 |

These outputs may be materially increased by the addition of a fireman and an extra laborer.

The Thew is the standard for the clayworker. 300 Plants now using Thews.

108 of these plants furnished accurate reports which reveal the average time their Thews have been in service to be 6⅓ years; the average daily capacity per plant 76,000; the average total pit cost including repairs 9⅘ cents per thousand brick.

Write for catalogue "B" and list of Thew owners near you.

## THE THEW AUTOMATIC SHOVEL CO.

LORAIN, OHIO

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**

The above is a miniature of a sheet steel sign with blue background and embossed white letters. These signs are 20 inches long and 7 inches high. Price, $5.00 per hundred, F. O. B. factory. With firm name in place of "The Everlasting Material," $6.00 per hundred. A "PAVE WITH BRICK" sign similar to above supplied at same price.

# BUILD WITH BRICK

### A Nation-Wide Movement for Boosting the Brick Business.

THE CLAY-WORKER'S BUILD WITH BRICK campaign has taken on nation-wide importance. We have shipped thousands of posters to enterprising brickmakers, from New England to California.

Have you received specimen posters? If not, you can have them for the asking. We have nine different designs, adapted to various uses, from street cars and brick wagons to barns and fences. If you are doing any local advertising, you will find these posters useful in that connection. The Standard Brick Company, Evansville, Ind., has used some of them in its local papers with telling effect.

There is no doubt about it, you can boost the brick business in your own locality by using these posters, and the expense is but a trifle. Poster No. 7 has proven very popular, and No. 1 makes a nice envelope cut. We will be glad to print you a supply of envelopes, or will furnish you an electrotype of this cut at cost for your local printer. In the language of the street, "Get in the game," and help us boost the brick business.

We can supply you with any sort of a poster you want. If you prefer a tin sign or a sheet steel sign, we will furnish same at cost. A two-color sheet steel sign in white and blue, the words "BUILD WITH BRICK," embossed in white letters on a rich blue background, makes an unusually attractive poster. If you want something even better, an enameled steel sign, good for all time, we can get it for you. Write us what you want, and we will do our utmost to supply it.

T. A. RANDALL & CO.,
Publishers The Clay-Worker,
Indianapolis, Ind.

T. A. Randall & Co., Publishers,
Indianapolis, Ind.

Gentlemen:

You may send me........metal signs, also tack card "BUILD WITH BRICK" posters as follows:

...........Poster No......, size 11x11, cost $5.00 per 1000

...........Poster No......, size 11x14, cost $6.50 per 1000
(With Firm Name)

...........Poster No......, size 12x22, cost $8.00 per 1000

...........Poster No......, size 14x22, cost $9.50 per 1000
(With Firm Name)

Posters Nos. 1, 2, 3, 4, 5 and 6 are made 11x11 or 11x14 inches. Posters Nos. 7, 8 and 9, size 14x22 inches. These are printed on substantial 5-ply card.

Print on same my card, as follows:

..................................................

..................................................

..................................................

Very respectfully,

..................................

Address ..........................................

..................................................

Tear off this coupon and mail us your order today.

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**

MAKES THE STRUCTURE BEAUTIFUL.
NO PAINTING. NO COST FOR REPAIRS.
FIRE PROOF. TIME PROOF. WEATHER PROOF.
COOL IN SUMMER. WARM IN WINTER.

Miniature of Poster No. 7.

**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country."
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

**SHAWMUT VITRIFIED PAVING BRICK WORKS**
Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

**ALTON BRICK COMPANY**
Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION
**The Barr Clay Co.**
C. C. Barr, Pres. • Streator, Ill.

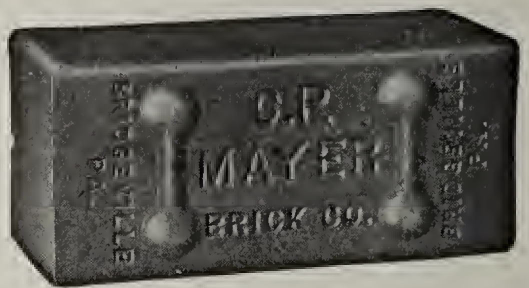
**McAVOY VITRIFIED BRICK COMPANY**
PHILADELPHIA, PA.
*"McAVOY BLOCK"*

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED
**KUSHEQUA**
Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

**VITRIFIED PAVING BRICK.**
A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of $2.00.
T. A. RANDALL & CO., Publishers, Indianapolis.

**PROMENADE TILE**
Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

**C. P. MAYER BRICK CO.**



The MAYER BLOCK is Unequaled in Abrasion Test.

**Tile Underdrainage.**
By J. J. W. Billingsley. Price 25 Cents.
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

**THE DECKMAN-DUTY BRICK CO.**
CLEVELAND, OHIO.

THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

**"Best Paving Block Made"**

Daily Capacity
500,000
The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

**IRONSTONE BLOCK**

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

Terre Haute Vitrified Brick Co.
TERRE HAUTE, IND.

Murphysboro Paving
Brick Company

Manufacturers of

The Celebrated

**EGYPTIAN PAVING BLOCK**

The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

**Do You Want Clay?**

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,
(C. A. Bloomfield, Treas. and Manager)
P. O. Box 413. METUCHEN, N. J.

**CLINTON PAVING BRICK CO.**

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

Clinton Paving Brick Company
Clinton, Indiana

Milton Brick Co.

Manufacturers of

PAVERS, BUILDERS and
ROUGH TEX BRICK

Milton, Pa.

**Bessemer Limestone Company**

Youngstown, Ohio.

Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

PURINGTON PAVERS

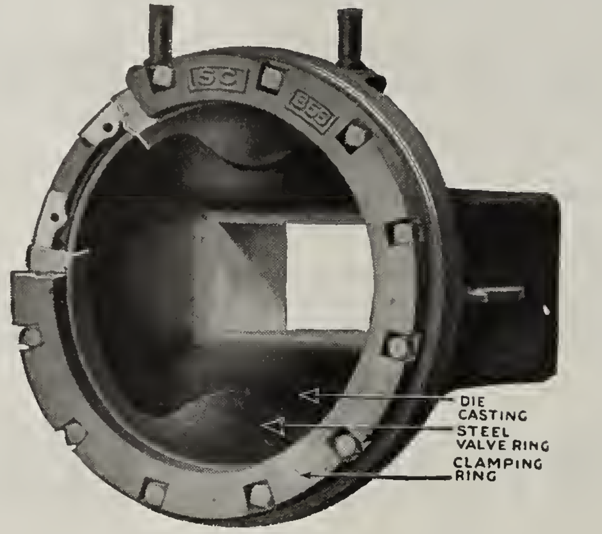
ARE MADE OF

GALESBURG
SHALE

PURINGTON PAVING BRICK CO.
GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

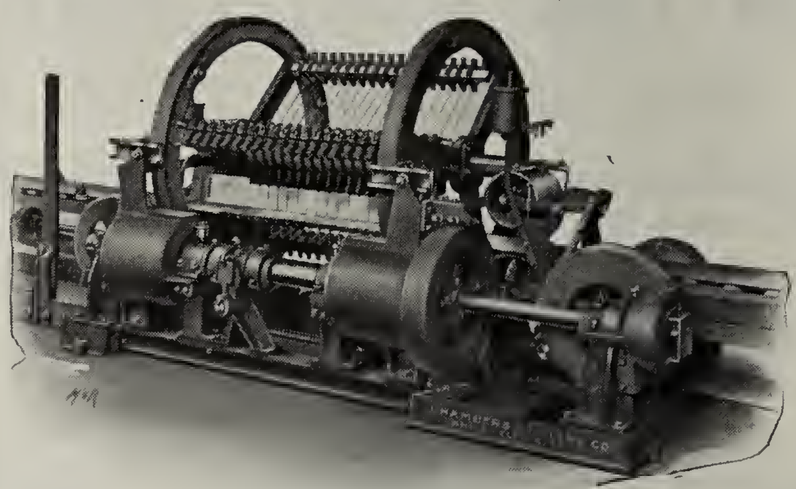
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

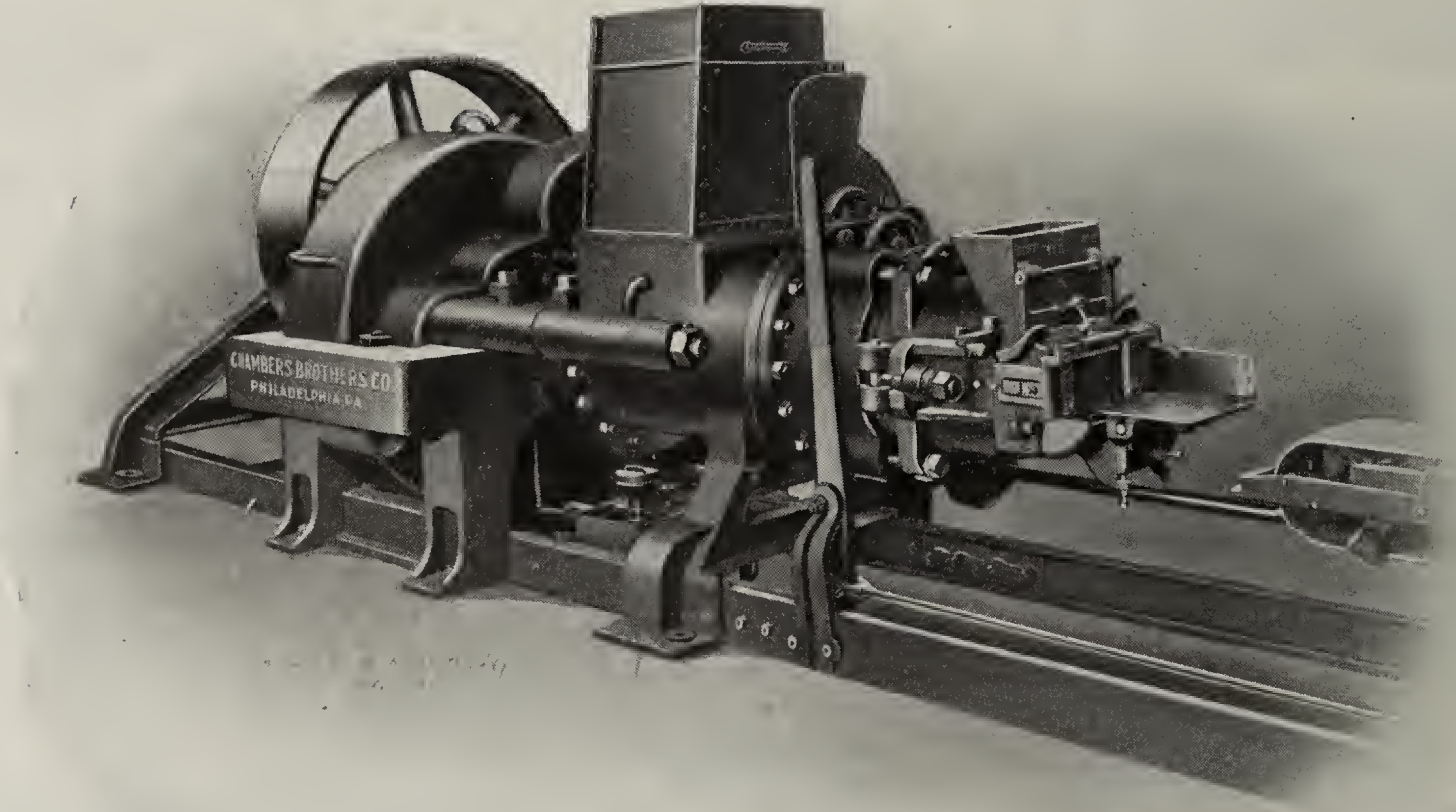
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

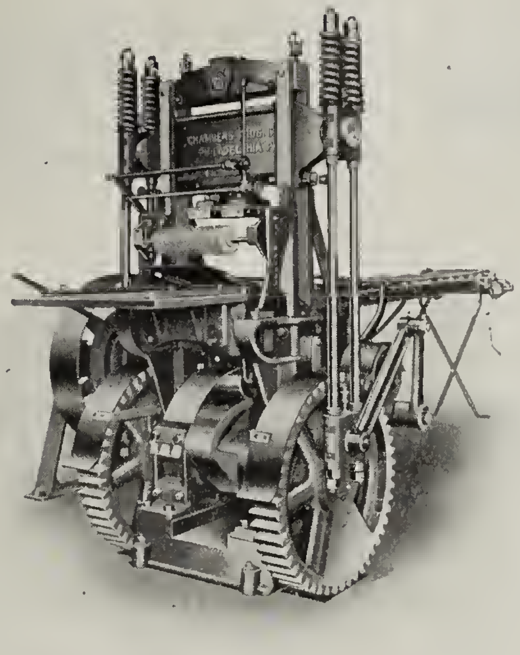
# Chambers Brothers Co., Philadelphia, Pa.

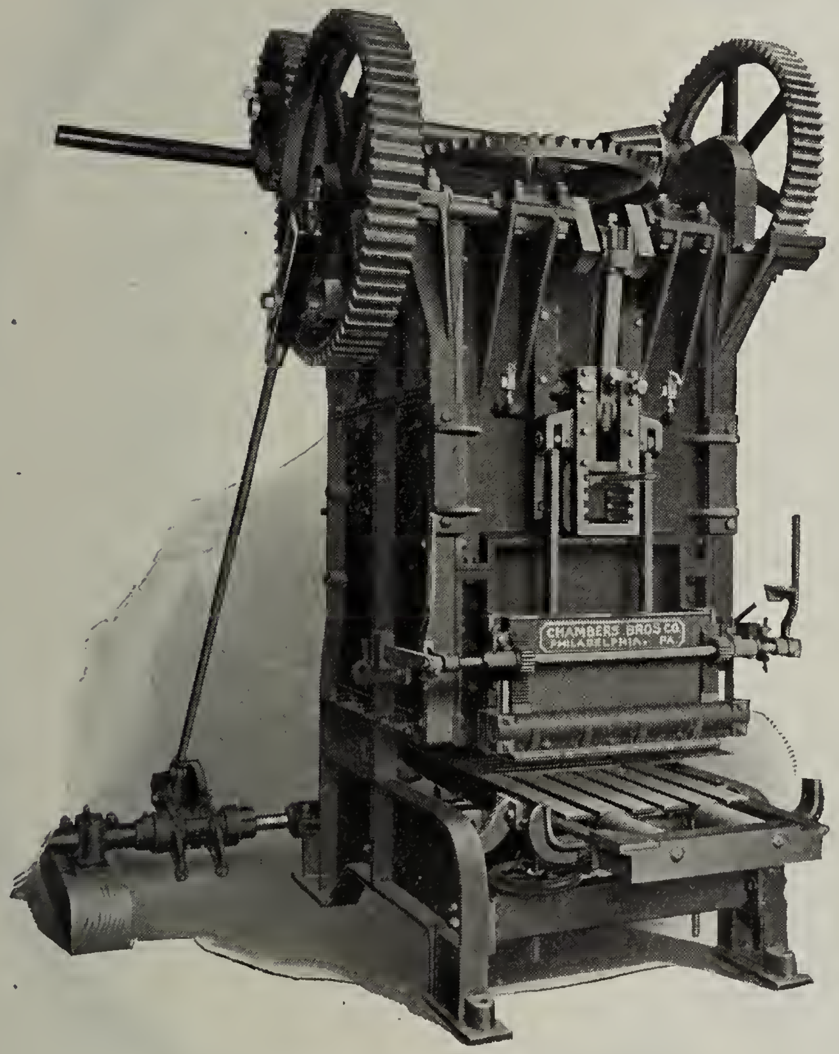
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





THE BELMONT
SOFT MUD BRICK MACHINE

## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

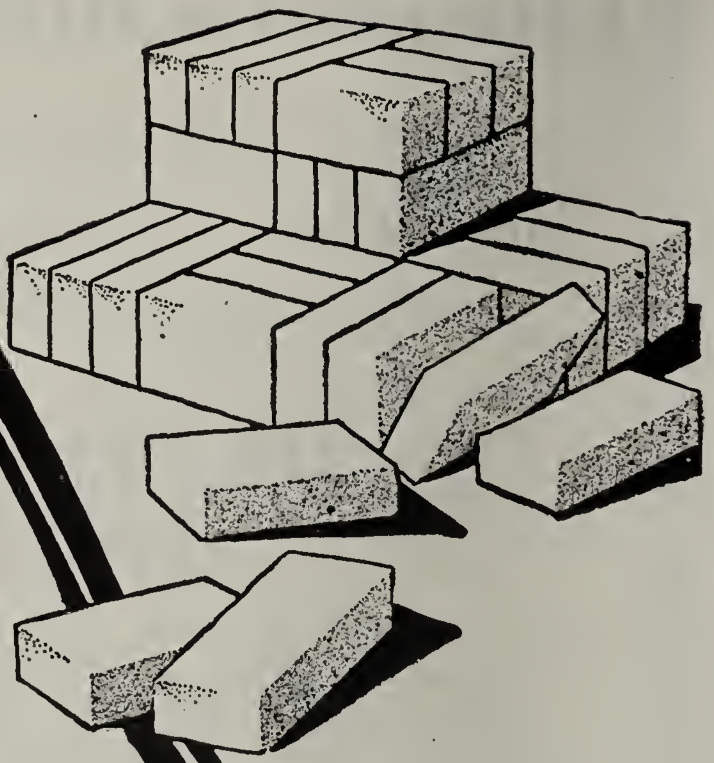
Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

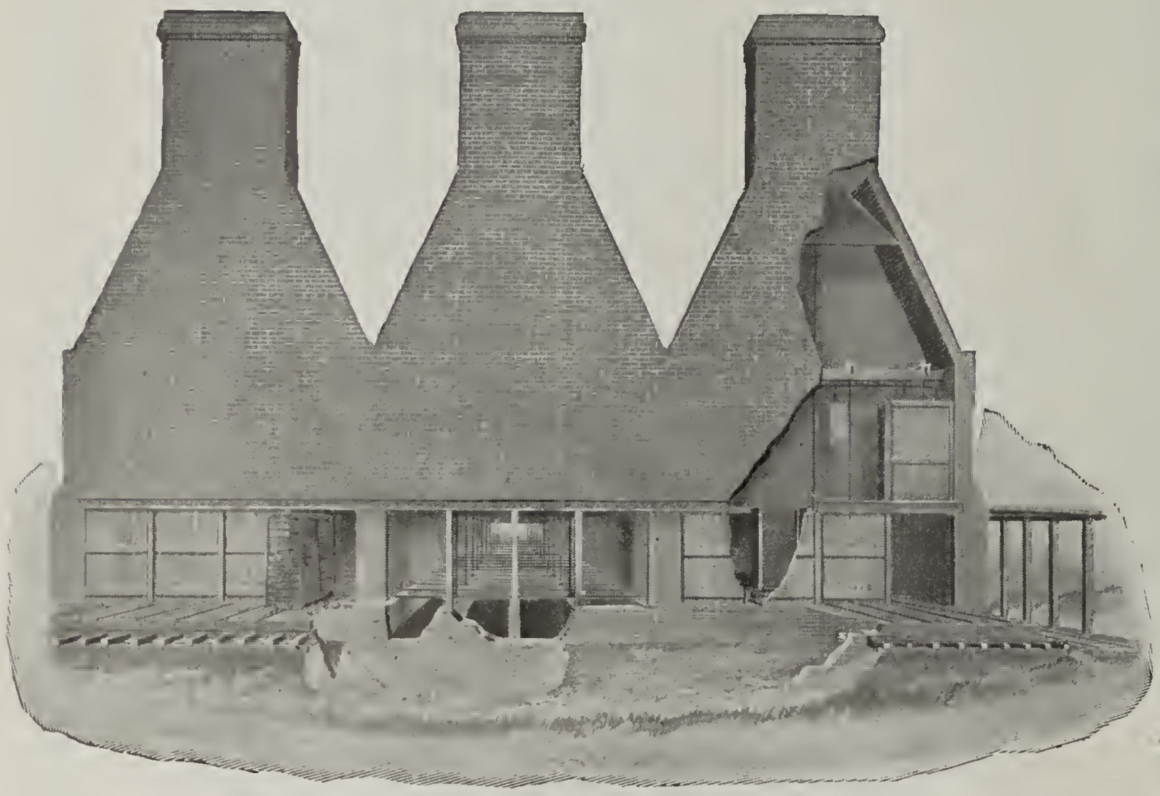
Molds sharp clean edge brick as stiff as can be dumped from the molds.

The
Right Drier
for *YOUR* clay



is The Standard Natural Draft Steam Drier. Because our system permits the *closest possible control* of the drying elements. It's easy to adapt the drying conditions in The Standard Drier so as to secure the most satisfactory results, no matter what the nature of the clay.

This is *proved* by the testimony of many brick manufacturers who have had years of experience with The Standard Drier.



Our catalog, containing a list of users, will be mailed to you on request. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.

THE CLAY-WORKER

The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIII. INDIANAPOLIS, IND., MARCH, 1915. No. 3

# OFFICIAL REPORT OF THE TWENTY-NINTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION, HELD IN DETROIT, MICH., FEBRUARY 15-20, 1915.*

AT LAST, THE TRITE QUERY, "What is so rare as a day in June?" has been answered: Convention week in Detroit was seven times as rare as any day in June. Such delightful weather has never before been experienced convention week. The city where "Life is worth living" was certainly on her good behavior in every respect and particular, and surpassed her own enviable reputation for amiability. The oldest inhabitant cannot recall another such a week in February.

The bright sunlight which pervaded all outdoors was but a reflex of the good cheer within the Statler. The advantage was with the Statler, inasmuch as the days within were twenty-four-hour days; it was hard to tell when one day ended and another began, for the lobbies were never lonesome at any time from Sunday to Saturday. Those who arrived early, and a few came on Sunday, found some of the local committee there ahead of them with glad hand extended; and then and there began a solid week of buttonholing.

President Eben Rodgers, Alton, Ill.

If all the trade lore that was swapped those seven days could be committed to cold print what an invaluable book of knowledge it would make. The convention papers and proceedings are valuable, very, but they do not go to the very heart of trade knowledge in many vital elements as do the confidential lobby talks. That's where those who attend such gatherings have such deserved advantages over the stay-at-homes.

### The Social Features.

The members of the local committee were both numerous and efficient. They planned, provided and carried out a series of entertainments which left nothing to be desired in that respect. The first of the evening entertainments occurred Tuesday when a Night of Good Roads was enjoyed by all and particularly by the members of the N. P. B. M. A., among whom the orator of the evening, Jesse Taylor, is an old-time favorite, his stirring appeals for better highways always being keyed high and combining good humor and horse sense, the chief essentials in effective argument. Professor Menefee's illustrated lecture proved both interesting and instructive.

### The Smokerette.

The marked innovation in the form of entertainment came Wednesday night, when for the first time, the ladies participated in the Smoker, rechristened "Smokerette" in honor of their presence. It proved so delightful in every way that no future N. B. M. A. convention will be complete without one. The ladies, young and old, enjoyed the evening immensely, smoking their chocolate cigars with grace and gusto. The entertainment was largely musical, a number of rollicking songs with instrumental accompaniment being rendered by the Union Glee Club of the University of Michigan, and proving a great hit. A series of parodies on popular songs was rendered at intervals between smokes, the smokers and smokerettes joining in the chorus. At the conclusion of the formal entertainment, which, in fact, was quite informal, the floor was cleared and dancing was enjoyed until the wee small hours.

### The Banquet and Side Trip.

The banquet which was given the following evening was a rare occasion. Seldom are banqueters treated to after dinner speeches so lofty in theme and so cleverly presented. The vocal music was in itself a rare treat and fitted in nicely with the wit and wisdom of Toastmaster Groesbeck and his star performers. Last, but by no means least, in the order of entertainment, the side trip to the plants proved most enjoyable. The special train, composed of four comfortable coaches and a commissary, from which a substantial lunch was served en route, afforded an opportunity for social chit chat, in which the ladies again played a conspicuous part. Indeed, it may be remarked, that "there never was a minute that the women weren't in it," and they seemed to enjoy the trip through the Ford plant just as much as did their escorts.

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### More Than Seven Hundred in Attendance.

The attendance was all, and more, than was anticipated, totalling, including the ladies, more than six hundred registered delegates and guests, and there was an unregistered attendance of more than one hundred. The sessions of all the bodies were well attended, and the first session of the N. B. M. A. was an inspiration. The ladies were present in sufficient numbers to give the necessary color scheme which completed a charming picture. The convention hall, an immense beautiful room, was filled with as fine an audience as any orator might wish for. President Rodgers' genial face was radiant when, at the appointed time, he wielded the official gavel and called for order.

## FIRST SESSION.

Wednesday, 2:30 p. m., February 17, 1915.

President Eben Rodgers: The twenty-ninth annual convention of the National Brick Manufacturers' Association will please come to order. As usual, our meeting will be opened by prayer. The Reverend Dr. W. S. Sayre, of the Episcopal church of this city, being with us for that service.

### The Opening Prayer.

Dr. W. S. Sayres: Let us pray. Our Heavenly Father, Thou hast created us and all that is. Thou hast made and built this whole universe; Thou hast prepared the substance that resists all eternity; Thou hast burned it in the kiln of the nebulae; Thou hast caused it to harden, Thou hast molded it and shaped it into planets; Thou hast made this earth of the dust of the ground; Thou hast breathed Thy spirit into the substance and fashioned all that live upon the earth, and with Thy spirit Thou hast imbued it with beauty; Thou hast caused the flowers to spring from its surface; Thou hast made the mountains and the river beds; Thou hast filled it with beauty and goodness. Thou hast made us in Thy image and in Thy mold, and stamped us with the trade mark of divinity. Thou hast caused us to spread over the earth and by Thy holy spirit and wisdom, Thy strength and beauty, caused us to imitate Thy works and build with the material Thou hast made out of the dust of the earth. Thou hast reared palaces and towers and dwelling places for the sons of men, for the lowly on the plain and the rich in the city. We acknowledge Thy goodness to us, O Lord, and we would learn how to take that which is cheap and make it into that which is costly. We would ask Thee to inspire us more and more with Thy Holy Spirit that we may work more in harmony with Thee, more toward better government and for the upbuilding of Thy church; that none of us may be without charity; that all may see that we are Thy workmen, and that we may regard our business not as a source of buying and selling, but one that is going to be for the upbuilding of the world; that it may be for the building up of character; that it may be for the education of the world, and not for personal profit and gain. Grant the laborer may receive his due and the capitalist may receive what is coming to him, and the sons of men may be brothers wherever they may meet; that we may all be members of one common family. Imbue us with Thy spirit that we may have the spirit of invention, the spirit of discovery, that the work we may have done may be but the introduction of greater work. Grant that we may have the spirit to feel that we have a mission in this world, not only a personal one, but that we may be able by our efforts to make the world better, that in the future we may build on the principles of honesty and truth and brotherly love. Grant that this, our nation, may be built upon a firm foundation of justice and religion, and by building with love and power and honesty and truth may it be a nation everlasting and strong. May our nation and our people, and all the people of the world at last enter the gates of Thy heavenly city, whose streets are of gold and whose walls are of precious stones. All this we ask in the name and mediation of Jesus Christ Thy Son, and the Saviour of man. Amen.

President-elect C. P. Mayer, Bridgeville, Pa.

First Vice-President Charles J. Deckman, Cleveland, Ohio.

Second Vice-President Fritz Salmen, Slidell, La.

President Rodgers: We will be formally welcomed by the representative of Mayor Marx, Mr. W. T. Dust, Commissioner of Parks and Boulevards of the city of Detroit. (Applause.)

### Welcome to Detroit.

W. T. Dust, Detroit: Mr. President, Ladies and Gentlemen —I regret with you the absence of his Honor, Mayor Marx, but the Mayor's wife is ill, and it was necessary that he accompany her on a trip to regain her health. I have been requested in his name to come to this gathering and welcome this Association. I am sorry indeed that the Mayor is not here, because we are proud of our Mayor. We wanted you to meet him. You men make brick, and our Mayor is one of the best human bricks there is in America. We are very proud of him, and we would have liked to have you met him. I know if he were here he would welcome you with more fitting words than I have at my command. You are welcome to our city; we want you to claim and take the city for your own; we want you to do as you please, go where you like, and stay as long as you please. The police have orders to take care of you after dark, so it will not be possible for you to get into trouble. I know you are sensible men, because a majority or a great many of you have brought your ladies with you. If the police cannot keep you in order, I trust and hope the ladies will. It is a good thing to bring the ladies, for sometimes, when the men get together, they forget when it is bedtime, and if the ladies are with you, then you will be on your good behavior all the time. The key to the city is yours; have a good time. On behalf of the Mayor, I bid you a very hearty and earnest welcome to the city of Detroit. (Applause.)

President Rodgers: Mr. A. R. D. Johnson, of Raleigh, N. C., will respond to Mr. Dust's welcome on behalf of the Association.

### Mr. Johnson's Response.

*Mr. President, Commissioner Dust, Representing His Honor, Mayor Marx, Ladies and Gentlemen*:

It is indeed a pleasure to visit the Detroit of today. I say today because of your rapid progress and wonderful development, not merely a large city of magnificent opportunities in industry, trade and commerce, but also into the city beautiful, where life is truly worth living.

You doubtless perceive that I am not accustomed to speaking in public, and I hope you will pardon my use of notes.

Every practical clayworker here will, I am sure, agree with me in saying that a man trying to operate a brick plant and at the same time build and equip another is the wrong man on whom to impose a duty of this kind, but my name was on the printed program before I knew anything about it.

You know Secretary Randall has a way of his own of doing things, and it seems our members have a way of following whereever he leads, and so I find myself in a situation entirely out of my line.

Your beautiful city appeals to every visitor—your beautiful streets, attractive parks and many palatial homes, your elegant hotels and magnificent public buildings, together with the great and wonderful equipped factories cannot fail to arrest the attention and arouse the admiration of every stranger within your gates.

I find it almost impossible to conceive that just one hundred years ago Detroit was incorporated as a mere village, and that only ninety-one years ago was chartered as a city, the population of which was but a few hundred.

I say it is indeed a pleasure to visit this wonderful city as we find it in the good year of 1915, but so cordial a welcome is, I am sure, more than appreciated by everyone in this large and representative gathering.

The glad hand we find extended at every turn and, may I not add, the unstinted hospitality of your local brick manufacturers, will surely make doubly pleasant the short while we are to spend with you.

This Association has held its convention here once before, in the year 1900, and, by the way, that was one of the most successful in its history. We know, therefore, whereof we speak, and have good reason to hope that this present session will be the best of all.

Though fifteen years have passed since last we met here, still remembered and often spoken of on the floor of this convention, is the hearty welcome and cordial hospitality of your city, and especially the co-operation and assistance of the local brick manufacturers which contributed so much to the success of the convention held in 1900.

While Detroit delights every true American, the enterprising men of our craft here get inspiration and a larger vision of the importance and possibilities of the clay working industry, for here they see how important a part the products of their industry have had in making your city famous. Here they observe on every hand the limitless artistic possibilities of brick and terra cotta.

The permanent character and splendid architecture of your large and imposing buildings, the neat and substantial appearance of the homes of moderate cost, all delight and inspire the clayworker with a noble purpose and a stronger determination as he here beholds the extensive use of paving brick, fancy building brick, common brick, hollow block, terra cotta, tiling of all sorts—and with such good effect—and withal so safe from fire and the well nigh irresistible forces of nature, such as water, heat, cold and even time itself—a grand and inspiring sight to the men of our craft, however meaningless to others.

I say, therefore, Mr. Dust, that your beautiful and progressive city is attractive in a peculiar way to the men here assembled.

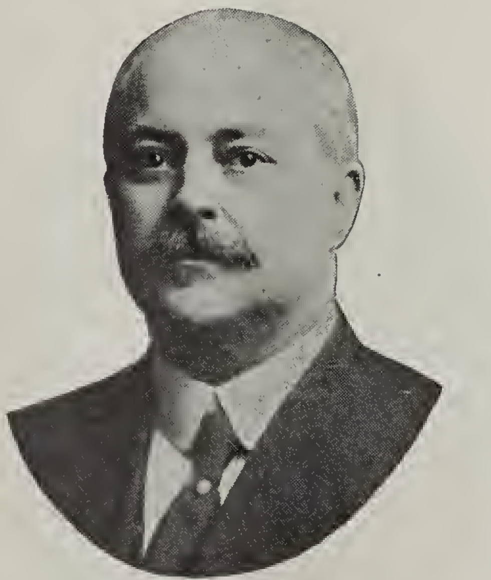
Moreover, brick manufacturers feel that they are mutually interested in the success of one of your chief industries. For here as nowhere else is the automobile being perfected and its use extended.

But of what use would be the finest touring car or the most efficient truck without good streets, not to mention good walks and what other paving material is to be compared to paving brick, when put down according to modern engineering practice, whether for city streets, where traffic is heaviest, or for country roads, where permanence and minimum expense for upkeep is so essential. Paving brick, if brought into much more general use, would tend to double and quadruple the demand for automobiles, greatly to the advantage of your whole city, for with improved roads everywhere the automobile would soon be regarded as a necessity rather than a luxury, and the automobile truck would likewise come into much more general use.

Then, too, the automobile is the means more than any other one thing of creating and increasing interest in and demand for good roads throughout this great country. Good roads advance as perhaps nothing else can the cause of education in the rural districts of a country, and greatly promote the material prosperity of both urban and rural population, with the inevitable result that our people will have better and more substantial houses as well as better and more permanent streets and roads, and this spells increased business and unprecedented prosperity for manufacturers of all kinds of clay ware.

I mean to say, that the manufacture of brick and kindred products, like the automobile industry, is a factor in the mightiest forces that make for the advance of civilization, namely, good roads, more permanent and less expensive for upkeep, efficient and rapid transportation and travel over country roads. Good houses to live

Third Vice-President George H. Clippert, Detroit, Mich.



Secretary Theo. A. Randall, Indianapolis, Ind.

Treasurer John W. Sibley, Birmingham, Ala.

in, houses safer from fire, more permanent and more beautiful, as well as less expensive for maintenance, and not only so, but the automobile industry and the clayworking industry are mutually interested in a strikingly similar way.

Our Association is not one for greed. It was organized along altruistic lines, and, yet, lives and moves and has its being by reason of steadfastly holding to the policies and ideals of its charter members. This is a voluntary Association and one of mutual help and co-operation. It has a history of which we are proud, one of noble achievement.

In these annual meetings our craft come together, exchange experiences and discuss methods of manufacturing. This Association promotes and encourages investigation and research. It has been influential in establishing and developing technical training that has come to be so essential in our business since the manufacture of clay products has been put on a scientific basis. It seeks to establish standards, to disseminate information, to co-operate with the manufacturers of the wonderful and highly efficient machinery used in modern clayworking and in further improving and perfecting machinery and labor-saving devices, and therefore, of course, encourages co-operation one with another. Seeks to promote mutual esteem and confidence and to establish higher ethical standards, all, however, with a view to increasing efficiency in the manufacture and distribution of our products, and all to the end that our success may be assured, not by pools and combines for the purpose of raising or maintaining prices or for keeping down cost of labor, or for dictating terms and conditions of labor, but rather to the contrary; for it is our ambition to improve conditions of labor, to develop greater skill and increased earning capacity of our operatives.

As evidence that we have been measurably successful, we point only the limitless utility of burned clay and its great artistic possibilities, but we would also learn the value of co-operation and of highly developed efficiency.

It is, therefore, with peculiar pleasure and confidence of an unusually successful and profitable meeting that we have gathered in this beautiful city from all parts of this great and truly united country.

There is no place where the men of our craft could hope to derive more benefit, or greater inspiration, and I know that every one here thoroughly appreciates and is extremely grateful for so cordial a welcome as is extended us on behalf of his honor, Mayor Marx, and I sincerely hope it won't be fifteen years more before Detroit is again chosen as our convention city. (Applause.)

Secretary T. A. Randall: The next on the program is the President's Annual Address, by our President, Eben Rodgers. No introduction is necessary. (Applause.)

### PRESIDENT'S ANNUAL ADDRESS.

EBEN RODGERS, ALTON, ILL.

*Ladies and Gentlemen:*

One year ago in that beautiful, pleasure giving, peaceful city of New Orleans, we adjourned the twenty-eighth annual convention of the National Brick Manufacturers' Association. We returned to our homes with the feeling that the spirit of progress was more than ever permeating business, finance and civilization throughout the world.

None of us ever dreamed that before the convening of the twenty-ninth annual convention, the business fabric of the world would be strained almost to the point of disintegration, the financial systems subject to a revolution and that our civilization would meet, what on first thought, would seem to be its death blow.

A. R. D. Johnson,
Raleigh, N. C.

Mayor Oscar B. Marx,
Detroit, Mich.

A. S. Reid,
Newark, N. J.

to the fact that while the quality of our products has been greatly improved, prices have remained quite as low as prevailed years ago, notwithstanding higher cost and improved conditions of labor. Though prices of lumber and many other kinds of building material have steadily advanced, I am glad to say (and I think largely as the result of the policies of the National Brick Manufacturers' Association) that such is not so with the products of our industry. We proclaim, with pardonable pride, we hope, that burned brick for all sorts of buildings, all things considered, is the most economical and most satisfactory, as well as the most universally approved by architects and engineers, everywhere, as superior to any known substitute.

Now that we are rapidly becoming a nation of great cities and good roads, as well as a country of superior advantages of citizenship, and now that the economy and superiority of brick is everywhere recognized, and now that farming is on a scientific basis, farmers having learned to make two blades of grass grow where but one grew before, I, for one, confidently believe that the day of great prosperity for the clayworking industry is at hand.

With better roads, better schools and a more prosperous rural population, is not the day of universal use of brick for homes of moderate cost, as well as for the larger and more pretentious buildings, close at hand. Certainly the automobile industry is in the enjoyment of a degree of success and prosperity that had not been dreamed of when we met here fifteen years ago. We congratulate you, sir, on the success achieved by the automobile industry which has been so important a factor in the unprecedented growth and development of your great city.

From the object lesson your city affords we would learn not

The manner in which this country has met this sudden crisis, speaks volumes for its institutions and the character of its citizens.

While the country has felt the shock of this situation, there seems to have been one city that has withstood it better than all others, and I think we are quite fortunate in having chosen that city for our meeting place at this time. We will, without doubt, be greatly benefited by coming in contact with the people of this city of wonderful progress.

It is generally conceded that the worst has passed and that we are about to enter a period of great prosperity, but there are so many new problems arising daily that must be correctly solved, if our prosperity is to continue, that I think my message to you today should be one of co-operation. Co-operation with the government, co-operation with the state, co-operation with the community and co-operation with each other in the clayworking industry.

Our government has rightly undertaken to remedy some of the abuses that have crept into business and financial methods, but it will require the co-operation of the business man to make these remedies beneficial rather than detrimental. For this purpose we are associated with the Chamber of Commerce of the United States. I believe this is the one organization in this country that is able to crystalize and present to the government the best business sentiment of the nation and I urge you to co-operate with it.

There are now and will be selfish interests clamoring for recognition of policies that are only of benefit to them as individuals and are detrimental to our general welfare and embarrassing to our government.

It will require the combined effort of every unselfish right-thinking citizen to uphold those in authority in order that our neutrality may be maintained with honor and dignity. Your government needs your co-operation today more than ever in its history.

Our states are rightly undertaking through legislation to provide for the victims of accidents in industrial pursuits and to generally improve the conditions under which labor is performed.

These legislators through enthusiastic or other motives are liable to bring about a condition that will be harmful rather than beneficial to the very people they are trying to help.

It is our duty to study these questions and see to it that this legislation assumes the right form.

Just, solid and workable laws can only be framed with the active, earnest co-operation of the business man.

Community interest has developed in a large degree during the past few years.

The man of questionable business and of questionable motives is rapidly losing his influence in the community and organizations are being maintained to develop the community spirit and improve the living conditions and to throw safeguards around our children in order that they may have a better opportunity to become good and valuable citizens. I urge you to co-operate with these organizations.

How can we co-operate in the clayworking industry?

Have any of us secret methods of operation that are too valuable to disclose to our neighbor?

It seems to me that local or district meetings of superintendents and burners to frankly discuss problems common to all would be of great benefit. The attendance of representatives of clayworking schools and research laboratories at these meetings would be of great value.

Such co-operation would produce a literature that would be useful to those who come after, and our experiences would not be buried when we die.

I would urge renewed co-operation in trying to induce every manufacturer of clay products to keep an accurate cost system This system need not be uniform, but it should be practical and adapted to the branch of the industry to which it is applied.

A competitor that really knows his cost is not dangerous. We may perfect our manufacturing processes and reduce our production cost to a minimum, but unless we can convince the public that it is to their advantage to use our material we will not prosper. There has been much good publicity given to clay products in the past few years, but these efforts have not had the support that they deserve. The many have reaped what benefits have accrued at the expense of the few.

Hearty co-operation in this field will place our industry where it belongs. We must have close order fighting, combining all our scattered efforts to the one purpose of truthfully exploiting the advantages of burned clay.

Personalities must be forgotten. Manufacturers of inferior competitive materials have used co-operative methods and placed their products where burned clay would have been of far greater value to the user.

So long as we stand around and whine about the use of concrete and other substitutes for burned clay, and deplore the shortcomings of our fellow clayworker, just so long will we progress backward.

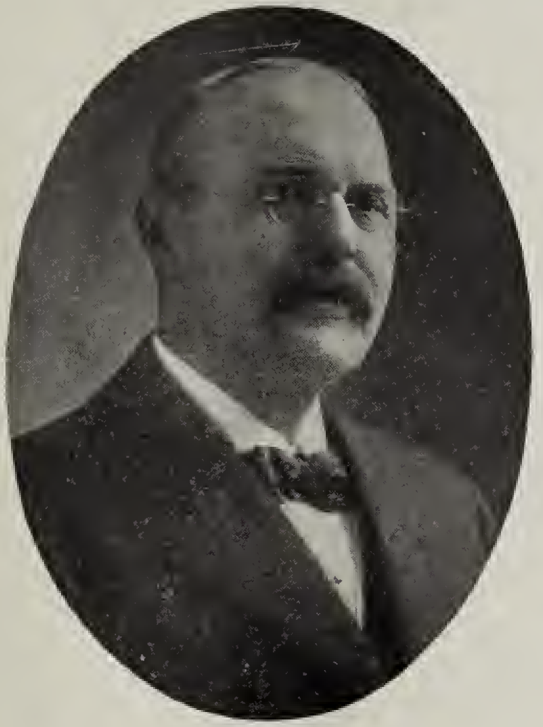
Each of us must determine to put a fair share of money and personal effort into one common fund to promote our business. Unquestionably we have the goods, we admit it to one another, but it would seem that we are trying to keep this a secret from the general public.

Our material is of sufficient merit that only the truth need be told about it to convince the public of its worth, but truth does not disseminate of its own momentum, it must be pushed and constantly urged, while misstatements and false representations travel as if they had wings. Let us co-operate to put the truth about our product in such a form that it will be constantly before the eyes of the public. Other materials have volumes written describing methods and cost of using them. We have comparatively little of this information at hand. This cannot be prepared by the individual, but only by the co-operative effort of all. I sincerely hope that before this convention adjourns some constructive program will be outlined that will enable us to better co-operate in this field of promotion. These suggestions are directed with particular emphasis to the common brickmaker, as I believe this branch of the business has done less of this co-operative work than any other.

I would urge a greater co-operation with the man that places our material in its final resting place. Our interests are common and I believe a closer relationship with the brick layer will result in cheaper and better construction with more profit to all concerned.

I have but touched in a general way the many phases of the clayworking industry. It would be impossible to go into details in an address of this kind. I hope you will think over these things and confine the best of your individual thoughts for their proper solution. Our business is one of the most important in the world's progress and it is our duty to put forth our highest ability in developing it to the point of greatest usefulness to the public and leave it to the next generation on a higher plane and freed from some of the problems that it contained when we received it. (Applause.)

R. D. Lindsay, Denver, Colo.


Jotham Post, East Williston, N. Y.

Anthony Ittner, St. Louis, Mo.

### Treasurer's Annual Report.

Secretary Randall: The next in order is the report of the Treasurer, John W. Sibley. Mr. Sibley is not able to be with us this year. He has missed but one convention since he was elected twenty-two years ago, but matters of much importance to him and his family, the failure of a bank which involved an estate in which he is interested, and which requires the appointment of an administrator at this time, demands his presence in Birmingham. Vice-President Deckman will read his report for him.

Mr. Deckman: Before reading the report I will first read a letter from Mr. Sibley to our esteemed Secretary.

Birmingham, Ala., Feb. 13, 1915.

Mr. Theo. A. Randall, Secretary N. B. M. A., Detroit, Mich.

My Dear Teddy—Your esteemed favor of 11th just to hand. It now seems practically certain that I shall be detained here all of next week in connection with matters of my brother-in-law's estate in the chancery court, and will thus be debarred from the pleasure of meeting with all my dear friends of the N. B. M. A.

I am sending you herewith by special delivery my report as Treasurer, which you or some other married man will read for me. I will be with you in spirit, though it is the disappointment of my life not to be there in person.

Once, when I was living at Coaldale, we had a very obstreperous mule that was forever breaking out of the stable, and out of patience I remarked that I would sell him and be relieved of the annoyance. One of the men spoke up and said, "Boss, if you will just have that mule put 'in chancery' I guarantee he'll never get out."

Give my warmest regards to all the boys and my best love to all the ladies, God bless 'em. May you have the most enjoyable convention ever held. I shall eagerly await the coming of The Clay-Worker telling all about it.

Yours cordially but sorrowfully,

JNO. W. SIBLEY Treasurer.

P. S.—Mrs. Sibley sends love to all. As they call a man's wife his better half I suppose that means he is only worth half as much as she, but would it necessarily follow that when he marries the second time he isn't worth anything at all?

### REPORT OF TREASURER SIBLEY.

*To the Officers and Members of the National Brick Manufacturers' Association.*

Gentlemen—I herewith submit statement of the receipts and disbursements for the year just ended, and regret that it shows a small deficit of $7.47.

This amount reads the same coming and going, and by adding the middle to either end, it makes eleven, come seven, caused no doubt by the convention having been held last year in the land where the game of "craps" flourishes.

Considering, however, the fact that we met so far away from the clayworking center of the country we did pretty well, for if we had gone any nearer the Mexican border it might have been worse; and that reminds me of a story they tell on an Irishman bearing the unnatural name of Mike.

He met a friend on the street, and seeing him looking very despondent, inquired the cause, to which Pat replied:

"Oh, I went home last night and found a strange man in the room with my wife, so I killed him."

"Oh, don't mind that," said Mike. "It might have been worse."

"Might have been worse?" said Pat, "how is that possible?"

"Well you see," said Mike, "if you had come the night before you would have found me."

So, notwithstanding a small deficit for the current year, we can rejoice that there is still a surplus of $449.46 still in the treasury.

Respectfully submitted,

JNO. W. SIBLEY, Treasurer. (Applause.)

### RECEIPTS.

| | | |
|---|---|---|
| Balance in Treasury account 1913 | | $456.93 |
| 45 New Members @ $5.00, account 1914 | $225.00 | |
| 516 Old Members @ $3.00, account 1914 | 1,548.00 | |
| Pamphlets and reports sold, account 1914 | 95.80 | |
| Total receipts | | 1,868.80 |
| | | $2,325.73 |

### DISBURSEMENTS.

| | | |
|---|---|---|
| Paid for Convention program, mailing etc. | $110.10 | |
| Paid for Convention report, mailing, etc. | 296.57 | |
| Paid for Membership American Testing Society. | 10.00 | |
| Paid for Printing Casson pamphlet | 21.50 | |
| Paid for Need Greater Thrift pamphlet | 35.00 | |
| Paid for Brick Pavements as Investment | 38.00 | |
| Paid for Miscellaneous printing | 197.55 | |
| Paid for Membership Nat. Chamber Com. | 30.00 | |
| Paid for Letter duplicating outfit | 35.00 | |
| Paid for New Orleans Convention expenses | 90.51 | |
| Paid for Postage, expressage, etc. | 176.04 | |
| Paid for Number buttons | 48.00 | |
| Paid for Clerk hire | 300.00 | |
| Paid for Numerical Roster | 38.00 | |
| Paid for Assistant Secretary | 200.00 | |
| Paid for Secretary's travelling expenses | 250.00 | |
| Total expenses | | $1,876.27 |
| Balance in Treasury | | $449.64 |

### RECAPITULATION.

| | | |
|---|---|---|
| Balance, account 1913 | | $456.93 |
| Total expenses 1914 | 1,876.27 | |
| Total receipts 1914 | 1,868.80 | |
| Excess expenses over receipts | | 7.47 |
| Balance in Treasury | | $449.46 |

### Election of Officers.

President Rodgers: The next in order is the election of officers. Nominations for President are now in order.

Elisha K. Kane, Kushequa, Pa.: Mr. President, I want to claim recognition for the State of Pennsylvania. In our State the Almighty Himself was the original clayworker, and He covered the State generously with shales and clays, and then, as one State Geologist has said, "After He completed the work He dumped the scraps over into West Virginia." Perhaps this accounts for the well-known advice that if a man wants to move the world, he should go to Wheeling West Virginia (laughter). Now, I don't want to move the world; I want the world to be stable, and instead of moving West Virginia, I want you to go to Pennsylvania, the State that was second in the Union in the output of clay products last year, and by having within its borders such remarkable works as they have at Bridgeville—to say nothing of those at Kushequa (laughter)—has come to be known as a great brick State. I shall go down in the vicinity of Pittsburg, a suburb of Bridgeville, and find a man who is president of the Pennsylvania Clay Club. His duty in connection with that is principally to keep men straight, and if a man can keep Pittsburgers straight, he can keep any association on the face of the earth straight. (Applause.) This man is a worker first, a clayworker next. He commenced working when he was twelve years old, in a mine, picking out the inferior article known as coal. A few years later he appeared with his pick in hand on the Cook farm at Bridgeville, and located for himself a coal mine. Soon he was a prosperous merchant of Bridgeville, one of its leading citizens, though it is true he lapsed into error, I am ashamed to confess, and became a lumberman and caused people to build inflammable buildings when they should have built of brick. In 1903 he repented and became a brickmaker. He first made building brick and then paving brick. He has been active more recently in associations for the promotion of the interests of the trade itself. He was the first president and is now treasurer of the Eastern Paving Brick Manufacturers' Association, a loyal member of the National Paving Brick Manufacturers' Association, and holds the office of First Vice-President of our own great National Brick Manufacturers' Association. It has been a good custom for the conservation and stability of this Association that we have elected our First Vice-President to be President. It has given us three years to investigate and know thoroughly the character of the man who to-day we are to elect as President, and we have found him reliable. It is an old proverb that "it is not wise to swap horses while crossing a stream." We know that in Detroit, as well as in the Ozark Mountains of Arkansas—the two extremes of civilization, perhaps—they used to cross a stream with a ford (laughter). But usually we prefer a well-paved highway, leading to a substantial bridge, and a good steed to ride. For the bridge let us go to

Elisha K. Kane, Kushequa, Pa.

Bridgeville, and for the steed let us take the gray mare (laughter). I nominate C. P. Mayer, of Bridgeville, Pa., for President of this Association. (Applause.)

C. A. Bloomfield, Metuchen, N. J.: I second the nomination and move that nominations be closed, and the Secretary cast the unanimous ballot of this Association for Mr. Mayer for President.

R. G. Eisenhart: I second the motion.

Motion carried.

President Rodgers: I declare Mr. Mayer elected President. Nominations are now in order for First Vice-President.

D. E. Reagan, Columbus, Ohio: Mr. Chairman and Gentlemen of the Convention, and last, but not least, the Ladies—I believe you will agree with me that the Norsemen of old were bold seamen and good fighters, and it looks as though we might need both in the near future. You have with you a genial, plausible gentleman, well known to all of you, who necessarily must have been a Norseman, since all Norsemen were deckmen, and I want to assure you that, being a Deckman, he will always be on duty, and being of the Deckman-Duty Company, he will certainly watch his duty (laughter) and observe it closely. I believe, gentlemen, in placing before the convention the name of Mr. Charles J. Deckman, of Cleveland, who is not only a Norseman, as proven; he is a son of his father, and proud of it, for he belongs to the Sons of Veterans, having passed through the chairs of that order. He is a joiner; he belongs to all the fraternal organizations there are, and if any new ones are coming, he will join them if he has an opportunity. I think we cannot place this great office of ours in any better hands than Charles J. Deckman, of Cleveland, Ohio.

A. R. Root, Philadelphia, Pa.

The only member beside the Secretary who has never missed a Convention.

Wm. Conway: It gives me great pleasure to second that nomination, and I move the nominations be closed and the Secretary cast the unanimous ballot for Mr. Charles J. Deckman for First Vice-President of this Association.

F. L. Manning: I second the motion.

Carried.

President Rodgers: You have elected Mr. Charles J. Deckman First Vice-President. Nominations are now in order for Second Vice-President.

C. A. Bloomfield: Mr. President, Ladies and Gentlemen—The Holy Scripture informs us that all flesh is clay. Most of us, no doubt, remember the story of the sculptor, Pygmalion; how he took a lump of clay, molded it into that beautiful form, and by reason of the love of the artist for his work, brought it to life, and of his surprise as she stepped down from the pedestal, and who, realizing that the love of the good man for the good woman was not there, in her disappointment stepped back on the pedestal, and, with the word Pygmalion ringing in his ears, turned back to stone. How different is the story I can tell you to-day. About sixty years ago, in that far-off land of Switzerland, a noble mother gave to this earth a lump of clay—about eight pounds, I am told—and she modeled it and molded it, and, with that mother's love, breathed into it the breath of life, until she brought up to full manhood a noble, honorable man and gave to the world a gentleman. That man I am now about to place in nomination for the office of Second Vice-President, a man who, by constant association, you and I and all the members of this Association have learned to love, Mr. Fritz Salmen, of Slidell, La. (Applause.)

W. H. H. Rogers: I second the nomination, and move that the Secretary cast the unanimous ballot for Mr. Fritz Salmen.

John T. Hummert: I second the motion.

Motion carried.

President Rodgers: Mr. Salmen is elected Second Vice-President, and nominations are now in order for Third Vice-President.

Charles H. Bryan, Detroit, Mich.: Something was said by Mr. Johnson, in his response to the representative of the Mayor, about pioneers of the city of Detroit and the city beautiful. It is largely due to the foundations laid well in the past. I have a man in mind to place in nomination for the office of Third Vice-President who is a pioneer brickmaker, the family were pioneer brickmakers and pioneer citizens in this commonwealth, and they built well. This Association will be better for the wise counsel of this man, who is a progressive and up-to-date brick manufacturer. Words fail me with which to eulogize my candidate for this office, and all I need to do is to mention his name. Detroit takes great pleasure in presenting the name of Mr. George H. Clippert, of Detroit. (Applause.)

Fritz Salmen: I want to second that nomination and move that the nominations be closed and the Secretary cast the ballot of this convention for Mr. George H. Clippert, and suggest we do so by a rising vote.

M. E. Gregory: I second the motion, Mr. President.

Motion carried.

Cries of "speech."

President Rodgers: Mr. Clippert has been elected, and you will be given an opportunity to hear from all the candidates later. Nominations are now in order for Treasurer.

Mr. Bloomfield: I nominate Mr. John W. Sibley to succeed himself as Treasurer.

C. H. Bryan: I second the nomination and move the same course be followed as with the other officers.

Mr. Salmen: I second the motion.

Motion carried.

President Rodgers: You have elected Mr. Sibley Treasurer. The next is Secretary.

Wm. Conway: I nominate Mr. Randall for Secretary.

A. R. D. Johnson: I second the nomination and move we follow the same procedure, and that the Assistant Secretary cast the ballot for Mr. Randall.

Seconded by many.

President Rodgers: You have again elected Mr. Randall your Secretary. I will appoint as a committee to escort the officers to this platform, Mr. R. G. Eisenhart, W. H. H. Rogers and Mr. Wm. Hanley. (Applause.)

The committee escorted the newly elected President to the platform.

### Installation of Officers.

President Rodgers: Ladies and Gentlemen, your new President, Mr. C. P. Mayer. (Applause.)

President Mayer: Mr. President, Ladies and Gentlemen—I wish to thank you for the honor you have conferred upon me by electing me to the highest office in the world's greatest clay manufacturers' association (the N. B. M. A.). In my lifetime I have been elected president of many associations, but of all such elections I prize this the most highly. I assure you I will give the N. B. M. A. the best service within my ability. Again, I thank you from the bottom of my heart for the honor. (Applause.)

President Rodgers: The committee will now escort the First Vice-President to the chair. Your First Vice-President, Mr. Charles J. Deckman, of Cleveland, Ohio. (Applause.)

Charles J. Deckman: Mr. President, Ladies and Gentlemen—I do not intend to attempt to express my appreciation of your kindness by making an address at this time. I shall endeavor during the sessions of this convention to make the best of any opportunity that may be presented to talk upon any questions that may be of interest to me, and I trust the President will not hesitate to "call me" if I do not conform to the requirements of the Association, and I assure him that in the discharge of his duties, if I can at any time, in any manner, co-operate with him for the advancement of the interests of the National Brick Manufacturers' Association, I shall be only too glad to do so. I sincerely appreciate the honor you have conferred upon me, and I trust that after the two years' warfare that I have served in the interest of the Association, and the year that is to come, if life is spared, and it seems wise to honor me with the presidency of this Association, that at that time I may reflect credit upon the Association and honor upon myself. I thank you. (Applause.)

M. E. Gregory, Corning, N. Y.

Thomas M. Wilson, Milton, Pa.

Wm. Hanley, Bradford, Pa.

President Rodgers: The committee will please escort the Second Vice-President to the platform. Your Second Vice-President, ladies and gentlemen, Mr. Fritz Salmen, of Slidell, La. (Applause.)

Fritz Salmen, Slidell, La.: Mr. President, Ladies and Gentlemen—You well know I am not a speechmaker, and if I attempted to make a speech I would come to grief, because somebody sitting in this audience told me this morning to behave myself or I would get into trouble. She is frowning at me now, so I will only say I thank you and will do the best I can. (Applause.)

George H. Clippert, Detroit, Mich.: Mr. President and friends, I am proud indeed to be elected Third Vice-President of this Association today. I consider it a very high honor to be chosen by some of the best men and women in the United States and Canada. This is the kind of an organization I like to belong to. (Applause.) It is going to be a great pleasure to me to follow in the footsteps of my friend Mr. Salmen. I doubt very much if my friend and our Secretary, Mr. Randall, could have got me to consent at this time, being so young in this game, if it had not been for my friend Salmen. But he comes up here in the summer time and talks it over, and then he comes in the winter time and talks it over again, that finally I could not say "No." Now I am glad I accepted, and I want to say, my friends, that I am going to do all in my power to keep up the high standard of this Association, and I hope you will never have any occasion to regret your action today. I thank you. (Applause.)

President Rodgers: We are unfortunate in not having our Treasurer with us today. I know you all miss him very much, and I know he will feel honored in being retained in the position he has held with perfect satisfaction for so many years. The next official to be introduced is our Secretary. Can the committee find him? (Applause.)

Secretary Randall: Mr. President, ladies and gentlemen, it hardly seems possible, looking back over the years, that it has been more than an average lifetime that I have served you continuously. I am just as happy as I can be this afternoon. I have accomplished something I have longed for for years. Fifteen years ago I had the pins set up to elect George Clippert President, but he beat me to it and nominated my friend Gates. But all of these years I have had my eye on him. I have said to him time and again, "I will get you yet," and now we have landed him, and we have one of the best and brainiest men in the brick business when we have George Clippert. I, of course, am happy. I fully appreciate the honor of re-election and hope I may avoid any serious errors. I am reminded of a little story I heard recently. A little boy stumbled and fell down and his mother, who was a Christian Scientist, picked him up and said, "You must not cry, you are not hurt. When you fall down again, just smile and brush yourself off and say, 'Error, error.'" A day or two later the little lad took another tumble and this time he fell on his little pet dog. The youngster picked himself up and tried to smile, while the little dog was yelping, "Error, error, error." (Laughter.) So he had the little dog to speak for him. If I make any errors, you will be charitable as ever, I am sure. I thank you very much indeed for this renewed honor, and like my associates, I am going to do the best I can to sustain the high standards of the N. B. M. A. For the twenty-ninth time I thank you. (Applause.)

President Rodgers: Fellow clayworkers, I wish to take this opportunity to thank you for the honor you have given me, the uniform kindness and courtesy you have accorded me. I shall always remember it, and I shall always be loyal to this organization, my interest will never lapse. I think the kindest thing I can wish for my successor will be the same courtesy and kindness you have shown me at all times. (Applause.)

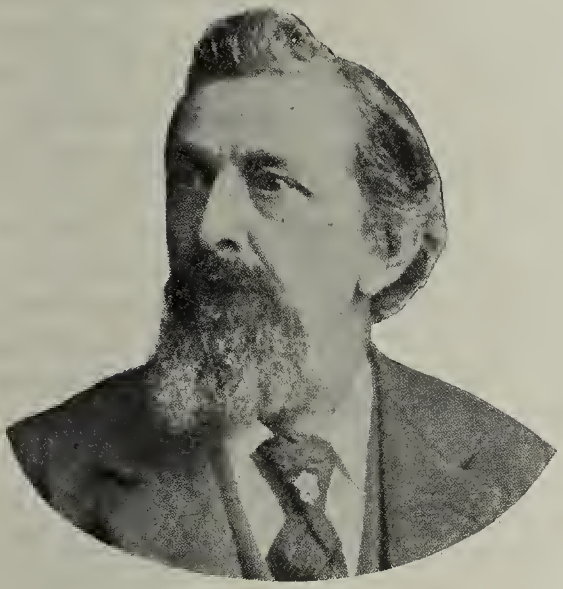
Fritz Salmen: In the absence of our Treasurer, I think it would be immensely proper to send him a telegram notifying him of his re-election to the office of Treasurer. I move that the Secretary send him a message to that effect.

W. D. Richardson: I second the motion.

Carried.

### Committee on Technical Investigation.

Secretary Randall: We have a Committee on Technical Investigation composed of five members, the term of one of each expires each year. This year there are two vacancies. The term of one member, Mr. D. V. Purington, has expired by death, the other, Ross C. Purdy, by limitation of time. This committee has to do with the technical side of our work, and therefore should be selected with unusual care, and I do not know at this moment any of us could select the man to carry on this work. The work is in the hands of Prof. Edward Orton, A. V. Bleininger and W. D. Richardson, and they can carry the work on in a wholly satisfactory and efficient way, but we ought to elect on this committee men who can work with them. If any member has in mind any one whom he thinks specially fitted for this committee work, he can nominate him now. Perhaps we had better hold the matter in abeyance until the matter can be considered further, and a motion to leave it in the hands of the President to appoint these two members, or take the matter up at a subsequent session, would be in order. You will notice, if you will turn to page 20 of the program, that the committee consisted of D. V. Purington, Prof. Edward Orton, W. D. Richardson, Prof. A. V. Bleininger and Prof. Ross C. Purdy. Prof. Purdy, whose term expires by limitation of time, is no longer a member of the Association, having allowed his membership to lapse, as he is not now identified with the brickmaking interests, and therefore would not care to be re-elected. I have in mind a young man, I do not know that any one could have any objection to him, the only serious objection is that he comes from the state of Ohio. Mr. Kanengeiser, of Youngstown.


John T. Hummert, Quincy, Ill.

J. M. Powell, Brooklyn, Ind.

C. A. Bloomfield, Metuchen, N. J.

G. W. McNees, Kittanning, Pa.: I move that the Chairman appoint a committee of five members of this Association who shall make these nominations. They can talk the matter over with other members of the committee, and then report to this convention at a subsequent session.

Wm. Hanley: I second the motion.

W. D. Richardson: I wish that motion could be amended so that Prof. Orton could be a member of that committee. I think it would be a good idea to consult him in the nominations.

President Mayer: The President has already written down the name of Prof. Orton pending the adoption of this motion.

Anthony Ittner: It is perhaps with a little diffidence that I rise on this occasion, but I do so to suggest to whoever may be on the committee that my son, Warren W. Ittner, who is a graduate of Prof. Orton's school, be considered in that connection. (Applause.)

Motion carried.

C. A. Bloomfield: Mr. Chairman, I rise to a point of special privilege. We have in the state of New Jersey an association of clayworkers, many of them members of this Association and members in good standing and enthusiastic. They are very desirious that next year being the thirtieth anniversary of this Association and the thirtieth convention, that they may have the pleasure and privilege of entertaining this convention in the state of New Jersey, and the following resolution was passed at the recent convention of the New Jersey clayworkers:

### An Invitation to Hold the Next Convention in Atlantic City.

"Resolved, That the New Jersey Clayworkers' Association, in convention assembled on the 28th day of December, 1914, invites the National Brick Manufacturers' Association to hold its next annual meeting in Atlantic City, N. J."

This is signed by C. A. Bloomfield, president, and C. W. Parmelee, secretary, of the association. New Jersey, although one of the smallest states in the Union, ranks sixth in the value of its manufactured clay products. In the value of the natural resources in the clay line is really the first in the Union, and within an hour's run from Atlantic City, is one of the greatest pottery districts in the world, Trenton. Within a few hours' ride of Atlantic City is one of the greatest metropolis of the world, New York City. New Jersey is noted for its hospitality, and the clay men of the state want to ask the ladies and their worser halves to come and be our guests. Now, Mr. President, knowing full well that this matter is entirely within the hands of the Executive Committee, but with a view of getting some idea of how this convention feels toward a convention in Atlantic City, I am going to offer a resolution that it is the sense of those present now that we accept if in the judgment of the Executive Committee they deem it wise to do so, the invitation of the New Jersey Clayworkers' Association to hold the next convention of this Association in Atlantic City.

President Mayer: Since we have permitted our friend Bloomfield to pull this off, I am going to state right now, that the next man who rises for the privilege of the floor will have to tell the Chair something about his privilege before he gets it. (Laughter and applause.)

Hubert Somers, Atlantic City, N. J.: Coming, as I do, from Atlantic City, I desire to second the adoption of Mr. Bloomfield's resolution, and in doing so I express the hearty wish of the Hotel Mens' Association of Atlantic City, the Atlantic City Chamber of Commerce, to invite this Association to make Atlantic City their next meeting place. We have met in various places offering various inducements, from automobiles in Detroit to gin fizzes in New Orleans, but we have never met in a city whose business has been exclusively to extend hospitality. Atlantic City is a city whose business is purely that of accommodating visitors. There are two classes of people who visit Atlantic City, convention people who have been to Atlantic City and want to come again, and people who have never been there, but are anxious to come. It gives me great pleasure to second Mr. Bloomfield's motion.

E. K. Kane: I would like to move to refer this to the Executive Committee. The reason is, while we would like to go to Atlantic City and take a nice bath at this time of the year (laughter), yet there may be so much in the claims of some other city inviting us that without hearing from these other cities we are not at this time in a position to accept this invitation.

Secretary Randall: I second Mr. Kane's motion to refer this to the Executive Committee. Mr. Bloomfield knows he is in the hands of his friends, and he himself is a member of the Executive Committee. I was waited upon last evening officially by a committee from the American Ceramic Society, who asked for a committee from this Association. We picked up what members of the Executive Committee we could find and had a conference with the committee from the A. C. S. to talk over the time and place for our next convention. The American Ceramic Society is anxious to go to Atlantic City for obvious reasons. Their membership lies in that immediate section of the country, and it would be very convenient for them to take an outing and run to Atlantic City, and I know many members of the Association are in hearty sympathy with Mr. Bloomfield and are desirous of accepting his invitation, and I think if the matter was decided at this moment he would get the decision. However, the Executive Committee has proven itself abundantly able to meet all emergencies, and for that reason I second Mr. Kane's motion to refer this matter to the Executive Commitee.

Charles Bonner, Chicago, Ill.

A Member: There is already a motion before the convention.

Vice-President Deckman: A motion to refer is always in order.

President Mayer: Mr. Deckman is correct, and the motion now before the house is Mr. Kane's motion to refer the matter to the Executive Committee.

Motion carried.

Secretary Randall: According to the program, we were to have been given a treat in the form of an illustrated lecture by Prof. Edward Orton, of Columbus, Ohio, on "Progress in the Education of Clayworkers," but he has not been able to complete his labors with the American Ceramic Society and cannot be with us, so I would suggest that we take up the next number on the program, "Fire Prevention," by Mr. Floyd E. Waite, of the Society Advocating Fire Elimination, Cleveland, Ohio. I have been requested to announce that the local committee would like to have the ladies retire and participate in an afternoon tea that has been prepared for their special enjoyment.

President Mayer: The President would like to make an announcement before the ladies leave the room. Someone has sent this beautiful bouquet of American Beauty roses to the newly elected president with love. Now someone is entitled to something and I do not know who it is, so I want to say, "I thank you."

Secretary Randall: Just another matter before we listen to Mr. Waite. Mr. Justin A. Runyan, secretary of the St. Louis Convention Bureau, has come here to talk with us and tell us something about the attractions of St. Louis as a convention city. Those of us who were present at the St. Louis convention will remember that we had in many respects the largest and best convention in the history of the convention at St. Louis, and I think it would be well for us to hear Mr. Runyan at this time.

### St. Louis Extends an Invitation.

Mr. Runyan: Mr. Chairman, ladies and gentlemen, it seems to me almost like imposing, but I am glad of this opportunity to say a word for St. Louis. I was impressed by the fact that I should come so far from home to hear my cousin the mule abused, but "chancery" nor anything else can keep the Missouri mule in the barn. (Laughter.) Gentlemen, I do not happen to have a personal acquaintance with many of you, but I have heard so much of this Secretary of yours that it seems to me as iw I had known him from the beginning of time. We recall with great pleasure your visit to our city in 1907. I haven't a word to say about the large state of New Jersey. They have finished clay products there. We are doing new things now in central Missouri with the help of the State Board of Agriculture. We are surveying the clay land all through that state and have discovered a new clay. We would like to have you come down and make a trip in the Ozark regions where these wonderful clays are being discovered. I will not promise you anything more than we gave you once before, but we have learned how to do some things down in our town, and I declare if you visit us again you will want to come the third time. I will not take time to read them, but your Secretary has invitations from the Mayor, the various commercial organizations, etc., urging the advantages of St. Louis as a convention city. (Applause.)

Carl DeHoney, Cincinnati, Ohio: Mr. President and gentlemen of the convention, I am here representing the Cincinnati Chamber of Commerce. The things that have been said here by New Jersey and St. Louis remind me of a story. A gentleman was passing a place where a political meeting was being held, and he turned to a colored man and said, "Mose, who is that orator that is talking so much?" Mose said, "I don't know, sir, but he certainly does specify himself most highly." (Laughter.) Your Association in determining the place for your next meeting has very wisely left it in the hands of your Executive Committee. We are very glad to have it determined either by you or by the Executive Committee, because the thing for you to consider is not the wishes and desires of those fellows who come to persuade you to come to their various towns, but the best interest of the Association is to be considered. I believe your best interest can be served by meeting in a centrally located city, such as Cincinnati. If you will look over your program you will see that Ohio looms up in every way. It was your first convention city. I don't believe it is just chance that so many of the men on the program come from the State of Ohio, but because of the part Ohio is playing in this great industry. We hope you will celebrate your thirtieth anniversary in Cincinnati, the central convention city. (Applause.)

Secretary Randall: Another town has a representative here, and, while we are about it, let us hear them all.

S. K. Aukenny, Dayton, Ohio: Mr. President, gentlemen and ladies, I did not come here prepared to make a speech, but, as it is the idea to have all of the cities represented, I want you to know that Dayton is not going to be left behind. The previous speaker has just told you about Cincinnati being the central city. We believe that Dayton is just a little more centrally located and can give you the advantages of a central location and one that appeals to organizations, and particularly to this organization, because Ohio is the greatest clayworking State in the Union. Dayton is about as near the center of Ohio as any city extending an invitation today. I represent the Greater Dayton Association, which is one of the largest civic associations in the country, and we are prepared to work with your local committee. Dayton can give you as good accommodations as you can find anywhere. A new hotel is now being built that will be modern in every respect. We are prepared to show you a convention that will be a business meeting for the men who are interested in the convention itself. We have arrangements for amusements for those looking for amusements. As this matter is to be left to the Executive Committee I presume they will decide the matter, but if any of you have an opportunity to say a good word for Dayton, the city of a thousand factories, I hope you will do so. (Applause.)

Fred Talbot, St. Louis: Mr. President, on behalf of the clay manufacturers of St. Louis, I want to speak. I do not come from the Bureau of Conventions, but the clay manufacturers, and we want to extend an invitation for the convention to come to St. Louis in 1916. In 1907 the convention was held in St. Louis, and I really believe it was the best and most successful convention ever held in the history of the National Brick Manufacturers' Association, and you will receive the same treatment you received in 1907 if you will come again. This invitation comes from the clay manufacturers themselves and we would be glad to have you consider it. (Applause.)

Mr. Runyan: I had a preacher friend who, after having served a small church for some years, was called to a big church, and he was called on to perform a marriage ceremony. It was a fashionable wedding, and after he had declared the couple husband and wife, he did not know what to do, and he looked around and said, "The friends and relatives will now have a chance to see the remains." (Laughter.) If you come back to St. Louis, there won't be any remains. (Applause.)

Secretary Randall: This reminds me that we have invitations from the Chamber of Commerce of Cleveland, and also from the city of Birmingham. Our own John W. Sibley writes as follows:

Birmingham, Ala., Feb. 15, 1915.

Mr. T. A. Randall, Secy.,
Detroit, Mich.

My Dear Theo:

As it is impossible for me to get away to the Convention, I am enclosing formal invitations from our various civic bodies and the manager of Hotel Tutwiler, to hold the next Convention in Birmingham. I guarantee that the local clayworkers will outdo themselves in the way of entertainment.

We have grown immensely in ten years and want you to come and see how much. If you grant woman's suffrage on this proposition I am sure Birmingham will win.

Yours cordially,
JNO. W. SIBLEY.

Mr. Bloomfield: I would like to say a word.

President Mayer: You have talked twice on this subject.

Mr. Bloomfield: I will not be long. I remember the great hospitality that was extended to us at St. Louis. It cannot be beat, but you want to beware of the "Greek bearing gifts." You all must remember the siege of Troy, how Troy was taken after ten years' siege. I understand they have passed an anti-treating law in St. Louis, and if that is so they can't treat us as well as they did before, and we would pay all our money out in fines. (Laugher.)

President Mayer: You can see how popular the Association is, when we have representatives here from four different cities wanting to entertain our next convention. The chair remembers right well what St. Louis did to us when we were there last. I remember along about 3 o'clock in the morning coming along up some wide street, there were twelve in the line with arms linked, every one singing a song in his own way, and a big policeman stood on the corner—some of those fellows were singing pretty loud. He called to them and he said, "You are disturbing the public." One of the fellows said, "Disturb nothing," and we kept on singing. The policeman said, "You will have to make less noise," and we told him the mayor had told us we could do as we pleased, and——

Mr. Aukeny: Dayton has wider streets than St. Louis and the policemen quit business at 12 o'clock. (Laughter and applause.)

Fred Talbot, St. Louis, Mo.

President Mayer: St. Louis, I can do no more for you, but I want to say to Atlantic City, if you can just warm up about twenty acres of the Atlantic Ocean you would have more show. A while ago Mr. Randall took great credit for having had George H. Clippert elected as third vice-president. I thought when Mr. Clippert understands what Secretary Randall has given him when he gets further along in the work, when he realizes that there are 700 members, every one of whom wants to act the part of mother-in-law to him, he would want to assassinate our secretary. But still I believe now that all this preliminary work was worth while, and I wanted Mr. Clippert to know what is coming to him, and he ought to be encouraged. We will now take up the regular order of the program. I take pleasure in introducing Mr. Floyd E. Waite, of the Society Advocating Fire Elimination, Cleveland, Ohio.

Mr. Floyd E. Waite, Cleveland, Ohio: I am very glad to be your guest this afternoon. I have been attending a number of conventions the past month, and I am glad on looking over this audience to see so many of you sober. In fact, all of you are sober, so far as I can see. That speaks highly for the ladies who have been here today. Because at none of the conventions I have been attending have there been any ladies, and I cannot say always that the men attending the conventions have been sober. The retiring president of this Association has, it seems to me, struck the key note of what I would say to you, or what any other outsider would say to you after he knew some of the conditions that go with your business. I do not come as a clayworker. More properly speaking, I am a human worker, insomuch as I am a lawyer. I come to deliver this message of the Society Advocating Fire Elimination. It seems to me that the watch word, the special thought of your organization, might be co-operation, and I heartily second the address your President delivered to you today.

## FIRE PREVENTION.

BY FLOYD E. WAITE, CLEVELAND, OHIO.

*Mr. President and Gentlemen of the Convention:*

The spirit of this age is PROGRESS. It is the age of great inventions; of rapid change; of gigantic undertaking. Time was when men traveled by horseback from state to state, consuming weary days to encompass distances which are now spanned by a day. It has only been a few years that the world has been joined together by the means of swift travel. Conditions for all mankind have bettered; in the shop, on the farm and in every industry. We are a more charitable people than we were. Suffering brings from us a ready response. We are doing big things in a big way. "We are living; we are working in a grand and awul time; in an age on ages telling, to be living is sublime."

In no field of human endeavor has there been a greater or more advanced progress than in the building of homes and business structures. The question is, "Have we the courage to go on, to keep step with the progress of the times?"

Floyd E. Waite, Cleveland, Ohio.

The ancestors of the race made brick in the crude and simple process of mixing the clay by driving oxen through it. The lime was burned out painfully and at great cost of labor. He had about him on every hand acres upon acres of lumber. He was profligate and his descendants have likewise been profligate. Lumber was a drug upon the market. Every man was his own manufacturer and builder, and we have been brought up with that in our minds, until it has become second nature with us to think of lumber when we think of a home. However, experience soon demonstrated that it was unwise to use such material in all structures. We learned our lesson at great cost of life and property, and so through legislation in many states and in all municipalities there has been a limit placed upon its use, but it has been only partially restricted, and it is our battle that it shall be further restricted, not only through legislation but through an awakened public sentiment which will demand another and better quality of building material.

Have you ever been awakened in the night time by the clang of the fire engine as it hastened past your home? Have you stood out in the quiet of the night and seen the heavens lighted by a great conflagration? If you have, then you know the sensation that comes at such a time, but did you think as you stood there of the lives that were being sacrificed in those flames to the God of Fire, and have you thought of the property that was being destroyed upon her altars? We build each year this tremendous funeral pyre, and without apparent thought each year we build it higher and higher. We pick up the papers of our metropolitan cities each morning and we read with apparent unconcern of some conflagration where hundreds of thousands of dollars may have been lost and lives sacrificed. It has become a part of our daily existence. We look for it, we expect it; we are no longer shocked. Cities have had terrible lessons and yet they have jogged along in the same old course, filled with horror one day and absolutely forgetful on the next.

The people of this country must learn; must be made to realize the terrible price that is being paid to this god of fire.

May I ask you a dirct question, "What are you doing to get this information to the people?" What are you doing in your localities to prevent this condition? Perhaps some of you do not realize the seriousness of the danger. You will pardon me if give you some facts and figures which are more eloquent than any picture that can be drawn of this holocaust of fire.

The loss by fire in the United States and Canada during the twelve months ending December 31, 1914, aggregate the enormous sum of $235,591,350.00, or nearly $11,000,000.00 more than the sum charged in the preceding year. In December alone the losses aggregated $23,527,150.00, an increase of seven million for the month, which brings to a climax the continued heavy loss during the last ten weeks of the year. Of the aggregate amount of fire loss, $13,000,000.00 was added by the great fire of Salem, Massachusetts. It is interesting to note that this loss has been general and well distributed over various sections of the country. It is interesting to note that during the last thirty-eight years, the property destroyed in the United States and Canada has amounted to $5,866,981, and the loss of 1914 is double the loss in 1896, and the figures are constantly increasing year by year.

It might be interesting for you to consider the loss in cities in the Middle West. These figures cover a period from 1909 to 1913 inclusive. In Cleveland, the loss is $992,597.00; Cincinnati, $1,190,792.00; Toledo, $267,684.00; Pittsburg, $988,520.00; Buffalo, $1,028,594.00; Detroit, $1,296,826.00. The average per capita of loss for these six cities is $2.18.

There were in 1914, 3,502 fires in which there was a property loss of over $10,000.00, but this great collection of statistics as to the fire loss does not begin to cover all of the loss occasioned by these fire hazards.

There is the great loss of the fire insurance premiums. I do not have the figures for 1914, but most any year will serve as an example. For instance, 1912, United States records show that fire premiums amounting to $410,000,000.00 were paid into 620 insurance companies in that year. Fire losses paid by the same companies in the same year amounted to $207,900,000.00, showing a difference of $203,000,000.00 in the amount paid in and the amount paid out.

It might be well at this point to give the per capita loss from fire in some of the foreign countries for the year 1913:

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| Austria | 8 cents |
| Russia | 17 cents |
| Germany | 21 cents |
| Italy | 31 cents |
| England | 53 cents |
| Scotland | 56 cents |
| France | 81 cents |
| And the United States | $2.63 |

The average loss in all of the above foreign countries is thirty-eight cents. The loss in this country exceeds that by $2.24.

As I said before the aggregate loss in this country and Canada during 1914, amounted to $235,591,000.00. We get a better idea of the enormous amount of this sum when we compare it with the silver circulation of the United States in 1913, which only amounted to $226,000,000.00, or when we compare it with the appropriations made by Congress in 1914, of $234,000,000.00 to support the army and navy of this country.

There is no end to this subject of loss by fire, for there must be taken into consideration the tremendous expenditure each year in each municipality for the maintenance of fire departments and other systems to combat this terrible conflict of the flames, and the many millions which are lost each year by the business world through the closing down of factories, the throwing out of employment of thousands of men and a general business depreciation, but the most terrible thing about this fire loss is not the gold that it consumes, but the lives which are given yearly to the demon of the flames. We might overlook the loss of money. It is a material thing. It comes and goes, very often like a thief in the night. Fortunes may be made and lost in a day. The down-and-outer may be a millionaire tomorrow, but when a life is taken out of the world, its exact counterpart can never be supplied. It is the spirit of all Christian nations to preserve human life, to guard it from all dangers.

I know you will be more interested in this than in any other phase of the subject, because it comes to us more startingly than the loss of dollars. Beginning January 18, 1914, and ending March 18, 1914, a period of only sixty days, 119 lives were lost in dwelling fires alone. To this could be added hundreds of others who lost their lives in factory and commercial fires, and this is the most startling thing about the loss by fire.

In New York City alone during the year 1913, there were 2,207 dwelling house fire as compared to 583 factory fires, and these figures do not include tenement houses where the fires total 8,008 for the year. What is true in New York is also true in every part of the country.

The United States Geological Survey made a study of the loss of life by fire in 1907, which showed that 1,499 people lost their lives and 5,564 were injured.

The buildings consumed by fire if placed on lots of 65 feet frontage would line both sides of the street extending from New York to Chicago. A person journeying along this street of desolation would pass in every thousand feet a ruin, from which an injured person was taken. At every three-quarter of a mile in this journey, he would encounter the charred remains of a human being who had been burned to death.

This is the story of the loss of property and life through fire. They are cold figures but they do not lie. It tells the tale of the greatest economic loss and economic waste in our business life. The question comes, "How are we going to eliminate or minimize this loss?"

I was very much interested in reading the remarks of Chief John Kenlon of the New York Fire Department, before the International Association of Fire Engineers, in which he states that fire preventions has three very distinct divisions. The first division is GOOD BUILDING CONSTRUCTION, and that is to my mind, the first principle of fire elimination, and it is in behalf of this great principle that I come here today to address you who are in sympathy with such a movement.

When we consider the large amount of cheap construction which is always being rushed to completion in our great cities, it is marvelous that the fire loss is not greater than it is, and the day will come when some city will pay a terrible penalty for its negligence and will teach the people at the great cost of suffering and loss of life, the necessity of safe building.

It is not enough for us to advocate safe building construction in the architecture of great buildings, but it is necessary that our greatest interests should extend to the builders of homes, to the very doors of the people. It is here that we have the greatest loss of life, the greatest number of fires, and it is here the greatest danger lurks. What does it avail if we protect people during the day, during their working hours by law and by safe construction, if we send them home at night to tinder boxes and the crowded cheap tenement which is so easily a prey to the flames.

But we are told by the lumber interests that there are many fires in concrete and brick structures and this is true, but they neglect to tell you that it is because of an interior filled with cheap wooden framework that is responsible for the beginning of the fire, and when they tell us that there is no such thing as a fireproof house, we point them to the experiment recently made by Mr. Croker, formerly Chief of the Fire Department of New York City, in which a home was constructed, a fire was set in one of the rooms, burned for several hours and was confined to the room in which it was started, the only loss being to the contents of the room. We have Mr. Croker's statement of his ambition which is as follows:

"For years I have studied the fire hazard from the viewpoint of a fire-fighter and become convinced that a non-burnable dwelling house was perfectly practical, and I made up my mind if, and when my duties as Fire Chief should cease and leave me free, I would devote my time and energy to the solving of this problem and would build a dwelling house that would not burn," and on October 30, 1914, this ambition was realized, and time will demonstrate that this famous fire-fighter was right, and time will bring more and more of this type of structure to the people.

If it is necessary to go into this proposition to demonstrate that the lumber interests are wrong, it might be well to again give figures which have been collected by the Geological Survey of the United States for masonry construction and frame construction.

In the cities for this year for masonry construction there were fire losses of $19,816,000.00. In the rural sections, $11,276,000.00 and for frame buildings in the cities the loss was $30,357,000.00, and in the rural sections, $58,983,000.00. These losses cover the following number of fires:

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| Masonry buildings in the cities......... | 25,297 fires; |
| Masonry buildings, rural sections........ | 10,843 fires; |
| Frame buildings in the cities............ | 80,109 fires; |
| Frame buildings, rural sections.......... | 49,008 fires; |

which demonstrates beyond any doubt that the great fire loss of this country is due in a very large measure to frame construction.

The lumber men have pointed with great glee to the Edison fire at West Orange, New Jersey. Here, the buildings were mostly of re-enforced concrete construction, but they failed to tell us that while the concrete structures have been damaged more or less, the salvage values placed upon these buildings by the underwriters are from 80 to 90 per cent, the contents, trim, etc. only being burned.

In an editorial of the January (1915) number of "The Fire Engineer" there is this pertinent statement which brings the whole proposition into a clear focus: "Had these buildings been of wood the destruction of them would have been almost instant," and it might be added that there would not have been any salvage.

It should also be remembered when considering this fire that it had its inception in a frame building and that Edison's plant would still be in operation today if he had not done the foolish thing that many have done in placing an easily combustible structure in the midst of a higher type of construction. In closing this discussion of the Edison fire, I will again quote from the same editorial of "The Fire Engineer":

"In the planning and erecting of his factory buildings, it appears that Mr. Edison had had the advice, the counsel of foremost experts, disregarding nearly all of them, except in that of concrete construction of the houses, or most of them. He had employed concrete as building material, but had not built fire walls nor used metal doors nor wire glass, nor, except in the old laboratory, had he installed sprinklers."

I believe if the proposition was left to any jury of twelve unbiased men they would agree with this proposition that any type of masonry construction is less inflammable than the corresponding type of frame construction, that while we may, through the exercise of diligence reach a higher degree of efficiency and non-combustibility, at the same time any man who builds of masonry is taking much less chance on the destruction of his building by fire than the man who builds of frame.

But, notwithstanding all of these facts; nothwithstanding the wisdom and logic of our contention, nevertheless, the people continue to build their homes, their tenements, and unless restricted by law, their factories, railroad bridges, apartment houses of frame. The reason for this is very obvious. We have been brought up to regard lumber as about the only building material which should be used in a home. Our ancestors made a little clearing in the wilderness and construted their log cabins. The saw mills came before the brick kiln, and from the log house to the frame building with clap-boards, was only a step, and so we have gone on. The lumber men have had all the best of the argument from the standpoint of hereditary tendencies.

Will Thomas, Detroit, Mich.

The problem is to bring this great question home to the heart of the people; to make them see this great loss as you and I have seen it; to make these figures which I have read to you today, this loss of property and this loss of life, mean something to them individually. There must be built up a sentiment which looks with horror upon this great fire loss, which understands the economic waste and which determines that it must cease. There are two ways of doing this; one is through legislation in providing proper code regulation; the other and more important is to get into the homes of the people; to sit down with them at their table and their fireside and tell to them the story of safe construction. It is manifestly impossible for any one organization of any one particular branch of the building trades or manufacturers, to do this work. It is manifestly impossible for any one corporation or firm, no matter how wealthy it may be, to do this work. There must be something separate and apart, an association which has for its object this one thing, which centralizes upon it and brings the message to the people. Such an organization is the one which I am here to represent, THE SOCIETY ADVOCATING FIRE ELIMINATION. Its membership is composed of men who are vitally interested, of men, who, like yourselves, will gain a tremendous personal advantage by this propaganda.

The people do not understand the advantages of using nonburnable materials. The majority are absolutely ignorant of the fire danger of frame construction. They do not know and have very little conception of the difference between the cost of building a home of masonry and of frame. They know very little about the increase to property value brought about through this better type of construction; neither do they understand the economy in the upkeep of such a building and the saving in insurance premiums. The people must be given these facts. They must be taught these lessons. There is only one method of doing this and that is through proper medium of advertising. It has been said that if you can do a thing better than any other man the world will beat a pathway to your door, although your home may be in the wilderness. Things have changed since those early days and you cannot create a public sentiment or a public demand without proper advertising. There are two methods of advertising, personal contact and the printed page. Both are valuable and both have been neglected. The lumbermen have taken advantage of you on that ground. They have found you asleep and they have taken your pocket book out of your pocket. You have had every opportunity in the world to bring the people to your method of thinking, but you have not carried out a successful propaganda to demonstrate the value of your construction.

Let us consider the proposition first from the standpoint of personal contact; the opportunity which comes to each one of you.

J. A. Mercier, Detroit, Mich.

I have been associated with men in your line of business in Cleveland for several years and I know that until the SOCIETY ADVOCATING FIRE ELIMINATION came into existence there was absolutely no concerted action in boosting the game of fire elimination. Now and then there is an enthusiastic effort made which soon dies a premature death. Every material man, every manufacturer or seller of any clay product, any cement, concrete or metal construction should be always on the firing line doing his share to create this public sentiment. The lumbermen have done this for their product and they have succeeded. You have not done it and you have not succeeded. You will find carpenters everywhere who are drawing plans for homes. They do not talk anything but lumber, but how many masons do you find doing this kind of work? If a man came into your sales room and said that he wanted some brick or concrete for a foundation, or art brick for a mantel, do your salesmen sell him the small order and let him go in peace, or do they teach him the wisdom of building of fireproof and safe material? I know that it has been demonstrated in several cities that they do not. Perhaps you say that you do not have the material ready at hand; you do not have the arguments. Then it is your duty to become a member of this Association and fortify yourself with this information.

Supposing every man engaged in your business became an enthusiastic advocate of fire elimination and talked that proposition every opportunity that presented, it would be impossible for you to estimate the amount of good, healthy public sentiment that could be created through such a tremendous force. The difficulty is we are sound asleep. We do not have the enthusiasm. Instead of being dynamic force, we are simply worn out batteries which refuse to give even the comforting spark.

There are two quotations from Shakespeare which seem proper to describe this condition. "Brutus, awake and know thyself," and the other, MacBeth's dialogue with the ghost of Banquo in which the old warrior says to the ghost, "Thy bones are marrowless; thy blood is cold."

The second method of advertising is to reach the people through the medium of newspapers, magazines and other printed material. As I have stated before, this is not a proposition for any one association, manufacturer or dealer, no matter how large or important that organization, manufacturer or dealer may be. It is a proposition for all men who are engaged in any way in the manufacture or sale of fire resisting materials. I have no doubt that you are wasting thousands of dollars per year in advertising that does not bring you any results and certainly does not do any good to the cause. Why not concentrate these very interests, these units into one solid phalanx? This is a time when all men engaged in the business that you are should get together. Do you know what has been accomplished by the advertising campaign carried on by the Cypress Manufacturers' Association in the United States? This organization took up an advertising campaign in 1910. Almost from the beginning there were immediate returns which increased steadily until 1913, when there was a period of high water in the cypress district compelling them to reduce their assessments for this purpose. Here, however, the effect of past advertising became apparent as during October, November and the first six days in December, 1913, their secretary received more than 60,000 inquiries. They did not have enough literature to meet the demand that their advertising had created and they have since voted a larger fund to be expended in obtaining printed matter. The price of cypress has advanced approximately $2.00 per thousand per year and t output has been more than doubled.

The Red Gum Manufacturers' Association of the United States have, by their co-operative advertising, increased the use of their lumber to such an extent that they have been able to advance their prices from $19.00 to $49.00.

The Society of Electrical Development is raising a fund of $200,000 for co-operative advertising.

The National Commercial Gas Association is said to have pledged a fund of $100,000 for general promotion work, and The German Reichtag has authorized the expenditure of two million by the German Fertilizer Syndicate to exploit pot-ash in foreign countries.

As Patrick Henry said: "Our brethren are already in the field; why sit we here idle?"

There must be some meeting ground for all your varied industries; something that will not only bring your force together but will attract the people to your cause. In order to rivet the attention of any person by advertisement you must bring the measure home to that person in a manner that will not be forgotten. This opportunity is offered through this Association.

What the Good Roads Movement has been to the Paving Brick Industry, this, movement will be to the manufacturers and dealers in fire resisting materials. It places in your hands an argument which stands out like the plánets in their course. It is as plain as a pikestaff on a bald mountain top. Why not bring home to the people the danger from fire which is ever present from frame construction? Why not show them the loss of life? Why not show them the actual economy of safe construction?

Supposing you were a member of this Association, and supposing in your Sunday newspaper or in some magazine of large circulation you saw a full paged advertisement teaching the danger of fire, couldn't you use this material to great advantage in persuading people to use your material instead of frame construction? Let there be actual scenes of homes that have been destroyed and then write across that startling declaration that their home might be the next. Ask the home owner if he is properly protecting his family by building with cheap construction?

There should be constantly in the public mind the story of this fire loss. Every great fire should be heralded throughout the country in order that the people might understand the lesson that it teaches. Supposing you had the plans and specifications showing that the difference in the cost of building a home of fire-resisting materials was in the first instance only slightly increased and that this sum was soon made up through the saving of painting, upkeep and insurance. A sensible man, and the great body of the American people are sensible, would see the wisdom of the argument, because there is not one word that can be said against it. T opportunity is here. All things are now ready. The question is, "Are you going to be a part of this great forward movement?" It is already reaching into every city and town of this country. There are those who will always stand on the side lines and look on, but the strong, the aggressive, the virulent man of affairs, wants to be in the thick of the fight where the battle is hottest, and those are the men who will carry any cause to victory. The others do not count. (Loud applause.)

President Mayer: I would like to ask Mr. Waite if these big depreciation figures of the different cities cover all construction, or only fireproof construction.

Mr. Waite: All construction.

M. E. Gregory, Corning, N. Y.: I would like to ask the privilege of the floor for a few moments. During the past year, gentlemen, as you all know, we have lost one dear friend of the Association. I have reference to Mr. D. V. Purington, and among the many kindly and courteous things that Mr. Purington did that endeared him to so many of us, he always provided a fine bouquet for the assistant secretary's desk. Yesterday a few of us were in the lobby talking, and we thought it would be nice to present Miss Wallace with a bouquet and to perpetuate this custom established by Mr. Purington so many years ago, and so we present these flowers. Included in the little group, Miss Wallace, are William Conway, Fritz Salmen, C. P. Mayer, M. E. Gregory, C. A. Bloomfield and George B. Mentz, and we ask to be allowed this privilege so long as we are spared and Miss Wallace is spared to be with the Association. (Applause.)

### Memoriam to D. V. Purington.

W. D. Richardson: I have something along the same line I desire to present. While not on the program, it is a duty placed on me by our Secretary. It is a sad duty and I did not dare to trust myself to speak extemporaneously, so I have written out what I wish to present:

### IN MEMORIAM.

#### Resolutions adopted on the death of D. V. Purington.

The Committee on Resolutions will, at the closing session, report on the members who have died during the year and, in the customary manner without discrimination, will pay brief tribute to their virtues and to their services to our organization, and express our sympathy to their families. But there passed from this life soon after our last Convention, one member, a charter member, whose value to society, whose important part in the history of brickmaking in America, whose active interest in ceramic education and in every movement for the progress and elevation of the clay industries and whose untiring zeal, for so many years, in promoting the welfare of this Association, deserves special notice at this meeting and in our published records.

D. V. Purington was a brick manufacturer, possessed the imagination, the breadth of view, the clear analytic mind, the physical and intellectual energy, the enthusiasm in his vocation and belief in the superiority of brick for constructive purpose that made him a recognized power in the industry.

D. V. Purington as a citizen took a prominent part in the social and political activities of the community in which he lived and of the nation. Though a man of positive views and an earnest supporter of what he believed to be right, his broadmindedness, his sense of justice and fair play, his partiotism and his honesty and sincerity of purpose, commanded the respect of his fellow citizens. Though he gave his services and risked his life for his country in the Civil War, when it was over he bore no malice to any man nor to any section and in his last years was proud to be a citizen of a state that represented much that was antagonistic to his early New England training and against which as a young man, he took up arms that it might not be separated from our Union.

D. V. Purington as a man possessed the qualities of mind and heart that placed him high in the esteem of all who knew him and gained for him the loyal friendship of his associates. His genial nature and kindly spirit, his sympathetic interest in his fellow workers, his generosity and helpfulness, without ostentation, his clean mind, his unswerving integrity were characteristics that made him so much admired and loved. Many were his generous and noble deeds known only to a few or only to the recipient.

In this brief memorial I speak not for myself alone, but in behalf of all the members of this Association and especially of those who had the privilege of knowing D. V. Purington more intimately. To the younger members who did not know him we recommend a thoughtful study of his character and a careful reading of his contributions to the transactions of this Association, as found in every volume of our reports up to the last few years. We recommend to you also his spirit of service and helpfulness. He not only never missed, for twenty years or more, a convention of this Association, but he was present at every session of every convention, giving the courteous attention that he believed was due to every man invited to prepare a paper for us. He was himself eager for knowledge, for new ideas, and experiences, and was ever ready to give freely from his own wide and successful experience.

Though in recent years he was unable to meet with us, he never failed to send us greetings nor to provide the beautiful bouquet for our Assistant Secretary. Those of us who were at New Orleans last March, treasure the privilege we had there of meeting Mr. Purington again, of looking again into his kindly eyes and genial countenance, of feeling his old-time handgrasp. We are the richer also for his noble words, his parting advice to our Association in the speech he prepared for the banquet, but which he was too feeble to deliver. We felt then that we would never see our beloved friend again, yet his passing away so soon after the meeting was a shock to all.

The ranks of the Old Guard, the men who started this get-together movement among brick manufacturers are thinning out. Who will be the next to fall? We must close ranks and march on followed by a long line of recruits. To the older members, no one can take the place in our hearts of D. V. Purington. Let us hope that such is not the case with the loss to our Association, but that there is someone among the younger members who will fill the gap.

We want more men like D. V. Purington to carry on the good cause he helped to inaugurate and to which he gave so much thought during the best years of his life. There is yet much good work yet to be done by this Association, whatever views others may hold to the contrary. May the noble example of our deceased brother and his last words to us be an inspiration for renewed activity toward the attainment of the high ideals that have been set before us.

Mr. Bloomfield: I move this resolution be placed on file.

Mr. Blair: I think it should be incorporated in the minutes of the convention.

Secretary Randall: Mr. President, I move this memoriam or tribute be adopted by a rising vote and incorporated in the proceedings of the convention and a copy of the same be sent to Mrs. Purington.

W. D. Richardson, Shawnee, Ohio.

John T. Hummert: I second the motion.

Carried, the convention rising as one man.

President Mayer: I will appoint as the committee having in charge the nomination of two members of the Committee on Technical Investigation G. W. McNees, Pennsylvania; Prof. Edward Orton, Ohio; Ellis Lovejoy, Ohio; M. E. Gregory, New York, and Will P. Blair, Ohio. Mr. McNees is chairman. He does not seem to be in the room. Will some of the other members of the committee ask Mr. McNees to get his committee together as soon as possible and report at a later session. I will appoint the following Committee on Resolutions: Warren Griffis, Baltimore, Md.; Hubert Somers, Atlantic City, N. J.; W. D. Howells, Toledo, Ohio; Marion Blair, Kushequa, Pa.; A. F. Kleymeyer, West Point, Ky.; Charles Bonner, Chicago, Ill.; Christopher Steadman, New York.

Secretary Randall: It is not late, and unless there is a special desire to adjourn, I think it would be well to have another paper. It was our intention to have Mr. Harrop present his paper on "Kiln Expansion" this afternoon in place of Prof. Orton's paper, but his paper is a very lengthy one, and instead I would suggest that we hear a very short paper by Architect Fitzpatrick. If we can have it now, it will enable us to thresh out the subject considered and appoint a committee if that is the will of the convention. Those of you who keep tab on the work of the Association know that Mr.

Fitzpatrick addressed a communication to the members of this Association through its official organ last month, in which he urged an awakening to the necessity of publicity, and supplementing that he has sent this paper, which I will read for him.

### MEETING COMPETITION.

BY F. W. FITZPATRICK, Washington, D. C.

*Mr. President and Gentlemen of the Convention:*

Perhaps the mere sentiment of the thing does not appeal to you overmuch, just the fact that you represent a product that has made good and held its own and has never been found wanting and all that for some six thousand years—a splendid inheritance that, one that ought to spur men on to noble deeds, a most valiant defense of that splendid product. But then something more material certainly must appeal to you, the fact that you have millions of dollars invested in your plants, and the further fact that the profits are not what they once were, nor are your sales what they ought to be under the natural, orderly growth of business. Conceding that the past few years have not been banner building years, yet, taking what building has been done as a basis of calculation, you have not had your just proportion or share of that business. Altogether too many of your plants have been shut down for too long spells. You are suffering from slightly more than a mere "psychological," imaginary depression.

You have a competitor, a rival. He's not as old nor as respectable as you, nor has he any long line of noble ancestry back of him. He's only a kid, scarce twelve years old. Ten years ago you hardly knew of his existence. But he is endowed with endless impudence, his aggressiveness is admirable, he is a bit careless with facts and truth, but you can't help but admire his grit and readiness with the gab and the fists if need be. You held him in contempt five years ago. He but pleaded for a show. City laws and insurance boards looked at him with disfavor and legislated against him, people only tolerated him where something very cheap and second class could pass muster.

F. W. Fitzpatrick, Washington, D. C.

He went through some hard sledding, but he stuck together, he fought with a common fund, he had all sorts of vicissitudes, his work panned out badly, it crumpled on him, it fell down, it acted so that had he not had the grit of a born fighter it would have run him off the face of the earth.

Stickativeness, even with an inferior product, spells ultimate success. Today Concrete, in spite of its bad behavior, its palpable defects, its more downs than ups, advertised by its very collapses, has become a competitor worthy of your steel. He has danced around in public, subsidized papers, waved banners before the engineers and generally capered about in such a flood of white light, such publicity, that he is accepted everywhere not as a mere substitute for, but as an equal of his betters. Insurance rates recognize that equality; building codes tacitly accept it. Speak of a fireproof building and people think you mean concrete; mention building in any way and the popular mind pictures concrete. They have so persistently kept the speckled rods before the ewes that seemingly nothing but concrete has been conceived. Newspapers that are not subsidized rave over concrete because they've heard of nothing else and know no better. I tell you the nation has gone concrete-crazy. We're a people of fads, and public opinion is easily molded by persistent reiteration. Advertise it sufficiently and bleat loudly enough about it and you'll induce people to eat concrete pies and sleep in concrete beds as a sure cure for rheumatism.

And you can't help but admire the gall of the thing. They seize everything and turn it to their advantage. It's fairly certain that the Edison concrete buildings that didn't crumble will have to come down, at least most of them, yet they puff that fire up as a supreme test of concrete and proof of its wonderful stability. A group of engineers are commenting upon the fine condition of one of those walls, a workman happens to lean up against it and it and he topple over. Are the engineers at a loss or flabbergasted? Oh, no; they take even that as an advantage and remark: "See, the slightest test shows if there is weakness and it can be remedied. In any other building material that wall might have stood quite a load and then collapsed!"

They've advertised and boomed and worked and lied until today you are the people asking for a fair show; you are asking to have your material "considered." You've almost conceded the point that concrete has first choice and the lead. It has so hypnotized the architects and engineers that they think and figure in terms of concrete and you are expected to produce results "equal to concrete." Here in New Orleans the other day, on most important state work, the engineers (whom, I would say, were merely hypnotized, not subsidized nor partisans for gain), noted men in their profession, big guns, claimed in open meeting that they had NOT considered seriously either brick or fireproofing terra cotta, but had selected reinforced concrete because it was the best and cheapest construction. They averred that if they had had a little house to build, instead of a $5,000,000 cotton storage plant, they would, perhaps, have used brick because it was pretty, especially the "tapestry" kind! And, further, they voiced the surmise and opinion and belief of a very great number of engineers and affirmed in loudest of terms that the brick industry of America was a dead industry!

Wake up! It is not a dead industry. It is a giant who has done much and for so many thousands of years that he has grown a bit fat and flabby and tires easily and does love to snooze in the sun. Shake him up a bit, do a little training to get him into condition again, get him out of his satisfied, complacent lethargy and self-sufficient stupor and, ye gods, what will he do to his detractors, the pigmies that mistook his repose for death and tried to bind him down with cobwebs?

You have the numbers, you have the intelligence and the skill, you have the money, you have the goods—the best that man ever devised—have you the Gumption? (Applause.)

### General Discussion.

Fritz Salmen: I want to say a few words in reference to this paper of Mr. Fitzpatrick's. He incidentally mentions the fact that we were submerged by our cement friends recently. I want to say to you that there is a great cloud of danger overshadowing the brick industry of this country, fostered by our wide-awake competitors, cement manufacturers, pushing for reinforced concrete construction. These cement manufacturers are a very energetic people indeed, and have combined for the purpose of advancing the cause of cement. I am told they pay into a common treasury two cents per barrel for every barrel they ship. The proceeds of this assessment are used to flood the country with literature advertising their goods, and also to hire the best experts as well as engineers to advocate cement construction.

While there is active competition between the different cement manufacturers for business, yet they all stick together, and in disputes they are one unit and of one accord when it comes to defending or putting forward their product. They co-operate and spend money whenever there is an opportunity to advance their cause, and that is the secret of their success in having their material substituted for the far better material that we brick manufacturers produce.

All we require as an industry is to get together and realize the danger that is menacing our industry. We haven't the arduous duty of introducing a new article, but only have to preserve the good quality of a material that has been known to be the best ever since the ancient days, as far back as history goes. It is a known fact, and conceded by every intelligent man, that brick is the only everlasting material, and in a class absolutely by itself when it comes to strength, durability, fireproofness and adaptability. It seems to me that we brick people are not the kind of people that the material we sell represents. If we were, things would be quite different.

Gentlemen, our great trouble is that we are too tight-fisted. We cannot see beyond the narrow confines of our own immediate field. We should realize that this is an age of co-operation, and this is the one thing we lack and need most. Co-operation is needed for the success of any and all business, and I am not surprised when I have heard myself, in our controversy in New Orleans, a well-known firm of engineers, with a nation-wide reputation, as well as individuals, say that the brick industry is on a decline and a dying one before public boards and committees. Now the article, brick, is not a dying one, but the people who have the same in hand, the brick manufacturers, are the dying ones, and it behooves us to wake up to this fact. Nearly every national meeting that I have attended of late I have heard more or less complaint about our great competitor cement, but never has there been a solution offered for combating our competitors. Why should we not imitate the cement or other industries, such as slate, marble or yellow pine manufacturers. This latter association recently organized in New Orleans for the purpose of bettering the conditions of yellow pine manufacturers. We joined them, believing that good will result from the efforts that are going to be made to advance this product. The brick industry is one of the leading industries of the country. I haven't any data at hand to say to you how large it is, but every section of the country is supplied with brick manufacturers, and I think that at these national conventions such as we are holding now in this beautiful city of Detroit is the time and place to discuss this problem and devise ways and means how best to protect our industry. That is really what we have organized our Association for. I do not mean to say to make prices or anything of that nature, but I mean to say what we need to do is to advertise our product, to maintain at some centrally located city a bureau of information where we can obtain the necessary and absolutely reliable data required to meet our competitors.

In our recent controversy with one of our public state boards who are building large cotton warehouses, we, as laymen, had to meet competent engineers, who were unalterably wedded to cement. The board was inclined to be fair, but was unwilling to assume the responsibility in the face of their engineers' denunciation of brick, even when it was shown that money could be saved by the use of brick. Many of our fellow brick men, such as my friend C. A. Bloomfield, and our worthy Secretary, T. A. Randall, and others, assisted us very materially in obtaining competent men whom we engaged to come to New Orleans and meet this board and show them conclusively that brick could have been used at less money, and results would have been better. Unfortunately the contract had already been let before we attempted to have the plans changed somewhat so as to admit brick, but the engineers were instructed to include brick construction in the other units to be built later.

I sincerely hope that at this meeting we will take such steps and devise means whereby we will unite, establishing an association for the purpose of protecting our future existence, and follow in the footsteps of other building material manufacturers. Doubtless our Southland is not the only section of this great country that has to meet the keen competition of cement, but some of you gentlemen coming from other sections of our confines are meeting with the same competition, and, if so, I would like to hear from such men at this time, their experience, and that further delay in organizing will not be tolerated by this industry.

I think this is a question of vital importance to the brickmakers of the country. We must do something to keep our industry from dying from dry rot. I was glad that our retiring President sounded the key note. We must have co-operation. I would like to offer as a resolution that the chair appoint a committee of twenty-five, or a larger number, so as to cover as much territory as possible, to consider the advisability of forming a separate organization for the propagation of the use of brick and the best means by which it can be done. I would like to have this committee appointed at this session, and have a meeting of the committee tomorrow so we can get down to business and canvass the members here present and see whether it meets with the approval of the building brick manufacturers. Gentlemen, I hope this will go through. (Applause.)

C. A. Bloomfield: I second the motion.

Secretary Randall: Before that motion is put I would like to read a resolution prepared by Mr. Fitzpatrick that you may have a better idea of what it is we have in mind.

Whereas, It having been decided in convention that drastic, immediate and widespread action, a systematic and thorough propaganda in behalf of BRICK is most necessary, and that a sufficient fund for the comprehensive carrying on of that work is required; be it

Resolved, That the members of the N. B. M. A. here assembled actually, by this vote, do subscribe one-half cent (or whatever amount is agreed upon) per thousand of their total output of building brick for the term of one year, which subscription is to be paid in monthly installments on the first of each month, into the hands of the Executive Committee of the N. B. M. A., or a duly appointed special committee; and further, that the members here present are to constitute themselves a "Committee of One" to interview and secure like subscriptions from the brickmakers of their vicinities, whether the latter be absent members of this Association or not; and further, that the members here present will render all the assistance they can (by quick response to letters, work with local government and other builders and all other possible efforts) to those in charge of such a propaganda to further its ends, and therefore, their own best interests.

H. C. Kleymeyer, Evansville, Ind.

Mr. Blair: I would suggest that the communication or resolution just read be referred to the committee to be appointed.

Motion carried.

### Concrete Not a Safe Building Material.

C. A. Bloomfield: You have, of course, all heard of this Edison fire and you have read some of the literature that has been published, making the statement that concrete was all right. I was at that plant after the fire and have been there twice since and saw the building where the fire started and where it got the worst of the heat before the arrival of the fire department, and it was carried away in ashes. The other two buildings adjoining went to pieces in some places and are so rotten that a good many of the piers have been taken down and all of them are now being taken down. The cement construction makes an additional cost, not only in tearing out, but also of carting away. There is nothing left that can be used again. I want to say that the report that has been given out that concrete has stood the fire is absolutely false, and a lie made out of whole cloth.

Mr. Ittner: I am rather surprised to hear Mr. Bloomfield's statement about these buildings. My son Warren took sufficient interest in that matter, knowing they were concrete buildings and that Edison said that concrete was all right, to write to Mr. Edison to find out how these buildings stood the fire, and he got a brief answer from Mr. Edison saying that the buildings stood the fire all right and that he was entirely satisfied with the concrete construction.

Mr. Bloomfield: I would like to say to Mr. Ittner that Mr. Edison is very heavily interested in the Edison Portland Cement Works in New Jersey, not very far from East Orange. He is simply booming his own material.

John T. Hummert: I do not want to speak on this motion except to say that I am heartily in favor of it, but I want to say a word or two. Year after year we have this same matter brought up, and we have lots of speeches and figures and facts, and promises, and we go home and do different things. Our speeches look nice in print, but they are soap bubbles. They shine nicely but they "bust," and the opposite side get their forces together and make an impression on the public. That is where we are lacking. I will give you an illustration. In my own home city, we decided to prevent stucco houses within the fire limits. The council claimed that they were as fireproof as frame buildings. The insurance companies said they classed them and rated them the same as frame buildings. So the matter was referred to the fire commissioner to be referred to the council. There are fourteen lumbermen on that committee, and the fire marshal, who is our corporation counsel, advocated it strongly, but when it came up for adoption at the council meeting, the plasterer who thought he was going to lose his job if the stucco house was barred had gone about and informed the lumber men and the cement men and had said to them, "We must kill that ordinance in its infancy," and the result was that at the reading of that ordinance in the council the house was packed with plasterers, lumbermen and their friends and every trade assembly was represented, but no hod carriers, no brick mason, no brick man, not a single one. The opposite side was there and made an impression on the council and the ordinance failed to pass, of course. That is where we fail. Your money will not do it, your speeches and addresses will not do it, unless there is concerted action. We have got to make an impression on the parties we want to reach. You know on public work you have got to bring your brickmakers and your brick yard laborers and your brick masons and line up all your forces, and they have to say we want a solid brick building, and then it will have its influence. Whenever a public building is to be put up, you must get your forces together and say, "Here, we want good construction." In our case, the council members said they were influenced by the labor interests, and that is always the case. One of the members of the council told me he was surprised that the brick trades were not represented because it was a great industry. Home labor is interested in the construction of the brick building from the time the spade is first put into the ground until the last brick is laid. I told them that in a concrete house they were sending money away from home, sending it to other cities and states, while in brick construction the money was all kept at home.

R. G. Eisenhart, Horseheads, N. Y.

A. C. Ochs, Springfield, Minn.: I fully concur with the gentleman's talk, but there is another phase that has got to be considered. I was putting up a building in a town in Minnesota—I used to be in the contracting business—where they were putting up a blacksmith shop of frame, and I said to them, "Why don't you build that shop of brick?" "Why," they said, "it costs so much more to build of brick." I tried to show them their mistake. There was a vacant lot there, and I said, "Will you allow me to build a wall there?" They consented, and I built that wall and that was twenty years ago. I said, "I want to build you a wall two feet wide and twenty feet long, provided you will let it stand twenty years." The insurance rate was 7 cents and I got it cut down to 2½ cents. That wall stood for twenty years, and you can see what they saved on insurance alone, to say nothing of painting and repairs. The trouble we have in Minnesota is that the people who ought to be our friends cause us the most trouble. I am building silos—clay block silos—and we find in order to be successful we have to build them ourselves, so I break in some man, pick them up among the farmers and break them in and send them out to build the silos at so much a foot, and we have three or four hands, and where we have bricklayers we have fifteen. These bricklayers all belong to a Union and they want about 70 or 80 cents an hour for eight hours' work. It is not that the people don't know what they want, it is not that the material costs so much, it is the labor, and we cannot always get the labor. Some years ago I was teaching bricklaying in an agricultural school. In that way the boys learn bricklaying and are able to build their own silos. In the schools they are teaching them to build with cement, and they are building their hog houses and chicken houses and everything they can of cement. It is so easy for them. They can buy their forms and plans and do it themselves. You talk to a farmer about a brick building and he will tell you he don't want to have the bricklayers out there all summer. You give me bricklayers like they have in the old country—they do brick work right, and they work all around the work the bricklayers in this country do. If the bricklayers were reasonable, the brick business would be the best business in the United States today. In our State of Minnesota we have a union that restricts the membership. If a man has a boy, and he has seven bricklayers, he can teach his boy the trade. If he is unfortunate enough to have two boys, he has to have fourteen bricklayers. We talk so much about Russia—I do not believe, if it comes right down to common sense, they have more of it there than we have here. I believe if the people of Minnesota knew what we had to contend with, they would have these people, these unions, put in jail for making a rule like that. We need men who will come out and say, "We are not going to stand for that." In the first place, a bricklayer ought to know how to read the plans and the drawing so he can go out and build a building. When I send a plan out to a farm I know the mechanic carpenter will be able to read them right. There are ever so many men in our town who can figure out a plan, but not a bricklayer. They have too much time for themselves. They don't have to do these things; I am a bricklayer and belong to the union. These bricklayers' unions are biting off their noses to spite their face. I don't care how much a thousand my brick are sold for, on the cars, say at $6.00 a thousand, and it costs $10.00 a thousand to lay them. I do not believe there are any better building materials made anywhere than in the United States, but I do think we can do the worst work of laying the brick in the wall. Why should we have a beautiful material marred by the way it is put in the wall. Brick are laid in the wall in the old country, not thrown in. If we want to do something for our business we want to get at the root of the evil, and not trim off the leaves when the limb is rotten. (Applause.)

Mr. Will P. Blair: I agree entirely with what both gentlemen have said, but the truth of the matter is, we are up against an existing condition. I see many ways by which that condition can be and ultimately will be improved. I believe and always have believed, and have expressed myself more times than one before this Association—I believe one of the ways of correcting the conditions that are so objectionable to all of us will be information distributed throughout our collegiate institutions with reference to the construction or utility of our clay goods. In visiting the various collegiate institutions of this country, I find that there is a chemical course of study that tells the student what enters into iron and steel, and how it is made; I find the same course pursued with reference to cement, and how cement is made. Then I find in nearly every collegiate institution in this country instructions are given with reference to how iron and steel is to be used and assembled. I find in nearly every collegiate institution that the students are taught how to make and assemble cement. There is not a college or a university in this country anywhere that tells you how to assemble or utilize clay goods in construction work, or the great advantage of clay goods for construction work. It is a condition which is going to take a long, hard campaign to reform and bring about a better condition in this country. I believe in it, and I will continue to talk it in many ways, and I believe we can make a good start by the appointment of this committee and let them consider what is the best and wisest way to start out. I am in hearty favor of Mr. Salmen's motion.

Mr. Hummert: I do not want to be understood as passing judgment on this committee. I endorse it in every way, but I wanted to point out one of the difficulties, and Mr. Blair has shown us another. We have no specification to show, and the cement man has, and when we get to arguing, we may believe what we say, but how are we going to prove it unless we can get it from the Bureau of Standards, or elsewhere.

Mr. Kane: When it comes to college professors, I find that a good many college courses are invented by teachers of sociology who know so little of the difference between labor and union labor that they actually lecture and teach in favor of these extravagant perverters of labor, the unions. Possibly when we get courses showing the adaptation and adaptability of brick, it might not be a bad idea to get something in the course to show the independability of union labor.

Mr. Ochs: I want it understood that I am not against that resolution. Every little helps. We need a lot of help, but I believe that every man should consider himself a committee and try to get them to incorporate a course of the sort suggested in the short courses in the universities. I believe the professors are quick to learn about these things and we should try to use our influence along this line. There is one thing about the attitude of the union labor that puts our material in the wall. They seem to retard the use of our material.

Mr. Ittner: It may be in order for me to say a word on this subject, and especially with reference to the attitude of the last speaker. I was a little surprised when I heard him say he was a union man, from the standpoint of the speech he made. It was a forceful speech. I have always regarded the situation as he does. In 1867 my bricklayers came to me and said, "You have got more apprentice boys than our rules permit." I said to these men, with some of whom I had worked on the scaffold before I started in business for myself, and at which time the unions had not yet got hold of our city. I worked for wages as a free, independent American citizen, and was governed and controlled only by the laws of our common country, and not by the laws of any association or union. I said to my men: "Boys, the question of an apprentice is a matter wholly and solely between the employer, the boy and the boy's parents, or his guardian if he has no parents. This is a free country, and I consider myself a free man in a free country, and if my methods of doing business don't meet your approval, you can seek employment elsewhere, and I will try to get other bricklayers to take your places, but let us continue to be friends." They sought employment elsewhere and I secured other help to fill their places. As an outcome, the Ittner brick were placed under the ban; the word boycott had not yet been coined. We are on a vital subject, and I am glad it was brought up by some one else than myself. The last time I attended a convention, previous to this one, the question of joint co-operation between our Association and the International Bricklayers' Union of the United States and the Dominion of Canada, came up, of erecting a building jointly, the brick manufacturers furnishing the material and the union the labor, so I concluded it was about time for me to get busy, and I got up on that occasion, and I was very brief, as those of you who heard me will bear me out, and I said: "Mr. President," and I think the president of the Bricklayers' Union or some other official of the union was sitting just a few seats in front of me. I said: "Mr. President, I am a charter member of this body, and I have always felt a pride in my membership, and I hope I may always be able to do so and accordingly be encouraged to continue to be a member, but if this body is going to co-operate with the labor unions of this country and Canada, then I want it to be distinctly and definitely understood that you now and here have my resignation as a member of this Association. Where industrial bodies harmonize and work together, it might reasonably be inferred that they stand for and approve of each other's rules and methods, and for myself, individually, I never want it to be said of me that I stand for or indorse in the remotest sense the arbitrary, un-American, unbrotherly and unchristian rules and methods of closed-shop unionism." No, not on your life! The gentleman who spoke about the rules of the union touched a responsive chord in me. The idea that a father will not be permitted to teach his boy a trade; that any father carrying on business cannot teach his own son the trade and calling in which he is engaged, and that, too, in a free country, or, I should say, a country that is supposed to be free. The time I speak of, in 1867—forty-eight years ago—was before the word boycott was coined. It was then called a "ban," B A N. While being in the bricklaying business, I was also in the brickmaking business, and a ban was put on the Ittner brick that existed for two years and three months, and it was not removed until the employers of St. Louis, in the bricklaying line, began to feel ashamed of themselves, as if they were not told where they could buy brick; they were specifically told that they could not handle Ittner's brick, and they told the leaders of the unions that the ban on the Ittner brick

A. C. Ochs, Springfield, Minn.

would have to be removed, and they tried to get an organization of which I was a member to have that ban removed, without removing it themselves. In other words, to use our exchange as a cat's paw to pull the chestnuts out of the fire for them; but I was next and put a stop to it, and in a few months it was removed by a joint meeting of the three bricklayers' unions themselves. These rules are now as they were in 1867, with others as bad added. The brickmakers all suffer from it, because it makes the cost of laying brick in the walls a couple of dollars per thousand more, and the man who wants to build a small dwelling which will take from 25,000 to 40,000 brick at $2.00 a thousand—you can see how much more it will cost him just for the brick work, and it is quite natural for him to turn to some cheaper material. There ought to be something done to right this wrong. I have always advocated freedom in a free country. To prevent a father from teaching his own son a trade, and to have a rule to prevent our boys from learning a trade and to prevent a non-union workman from working to earn a living, is simply infamous and damnable and ought not be tolerated in a free country. (Applause.)

Mr. Ochs: There is another point that we suffer more from than from anything else. Look at the way bricklayers learn their trade. They carry a hod for a while and seldom do they get at learning their trade before they are twenty-three or twenty-four years old. How can they learn their trade thoroughly? I started to learn my trade as soon as I was fourteen years old. I do not believe after a man has carried a hod until he is twenty or thirty years old he can learn a trade, and he cannot get it in any other way. They pick up their trade, they don't learn it. If the boy could learn the trade while he was young he would be all right. You ask these men who are laying brick today how they learned their trade and they will tell you they were hod carriers, and they don't know anything about it. I had to go to a trade school when I learned my trade. I think now when a man is thirty years old and has a family depending on him, he hasn't time to learn a trade. A man cannot learn a trade from a jack of all trades. He has got to learn it from a master of trades. A jack of all trades never was master of any, but when a man knows one trade thoroughly he knows enough to be a master and to teach the trade. I believe that Mr. Ittner and I are much alike. The thing we need is to get men to lay our brick. There is no use advertising so long as we have no men to lay them.

J. Fred Smith, Omaha, Neb.

Mr. Ittner: The reason we don't have skilled mechanics is because our boys are prevented from learning trades. There is what is known as one stealing a trade. They will claim to be mechanics and get work and soon be discharged and go somewhere else and get work and again be discharged, and so on until they have acquired a smattering of a trade, and in this way be able to hold a job. There are young men in some of our States who purposely commit infractions of the law, the punishment for which is consignment to a juvenile institution in which trades are taught, in order to acquire a trade. It is a reflection upon our government that such conditions are tolerated and allowed to exist. In Europe limitation and proscription of apprenticeships is not tolerated. Consequently there, no young man is prevented from learning a trade, and they come over to this country and fill the places where skilled mechanics are required, while our boys, being barred from learning trades, grow up and become tramps, hoboes or common laborers and roustabouts. I hope to live to see the day when America will be forever freed from the curse of "closed shop unionism," and be again in truth the "land of the free and the home of the brave." (Applause.)

Warren Griffis, Baltimore: In selling brick, after you have gone to a great deal of work and demonstrated how much better brick is than concrete, the most common remark is this, "But your bricklayers! We can get common laborers to put up concrete walls." They grant that the concrete walls are not as good as the brick walls, but they can make money by building of concrete. Now, it has occurred to me that, since Mr. Ochs here is a member of the union——

Mr. Ochs: I used to be.

Mr. Griffis: I want to ask you, what is the best way to reach the trouble? How can we educate these bricklayers to the folly of what they are doing—cutting off their noses to spite their faces. They will not see it, they have a monopoly. With us they work just as few days as they have any excuse for, and are ready at the slightest excuse to drop the job, and every contractor thanks his stars when he gets beyond the stage of the bricklaying on the job. If you can show these unions that they are going to be immediately better off, not some time in the future, but immediately, that is the thing to do. If Mr. Ochs can suggest any way by which we can reach them and remedy this evil, I would certainly be glad to hear him.

A. R. Kuhlman, Toledo, Ohio: I started in as a bricklayer when I was fourteen years old. My father was a contractor and I went into the union and was president of a union for five years in Toledo. I am reformed, just like the rest, but there is not a man in this whole country who, if he were laying brick, but would belong to the union, but they have wrong ideas, and wrong principles. All the bricklayer thinks of is making all the money he can. He will get $10.00 a day if he can. I know one year when I was president, they sprung a motion to hoist the wages to $10.00 a day, but there were enough good men in the union that it did not go through. They used to lay 4,000 kiln-run brick in a day, and today you can't get 1,500 laid. I would like to see more young men learn this trade. It is a good trade, and there is only one remedy that I can see, and that is for the brick manufacturers in each city to get together among themselves and start a school and get a practical bricklayer to teach the boys, whoever wants to go to that school and teach him a trade. Right in your own city, where you make brick, start a school and let the men who are making brick put up the money for the teacher and you will overcome the situation.

Mr. Kane: I want to give one suggestion and that is, be loyal to the non-union man. I have seen more than once disloyalty on the part of the brick dealer or contractor to the non-union man. I was in a city not long since and the union men raised the rate abnormally high. The employer, the contractor, refused to pay the wages and got men to go in there, non-union men. There was a hard time for a while, only a few buildings were delayed and the owners brought pressure to bear to effect a compromise. The contractors went to work, and, with the co-operation of the brick men urging them on, they compromised on the basis of reducing the price. The non-union men were all discharged, a few cents difference was made to go into the pockets of the contractors. That was a lesson to every one that the pusillanimous coward in the commercial end of the business could not be trusted, and if the men wanted work they must go into the union. When the brick dealers and the brick contractors will be truly loyal to these men who take their lives in their hands, as they sometimes do, to work for them, then you will find a difference.

Christopher Steadman, New York City: Is there a brick man here who will guarantee a bricklayer steady work the year round? Whoever knew of a bricklayer working two days or three days steady. Our contractors cannot find men ready to go out. They have to get big prices because the building situation is so unsteady. You can't expect skilled workmen to work intermittently for a low wage. It isn't reasonable. That is one difficulty the bricklayer has to contend with.

Mr. Ochs: I do not know whether it is feasible or not, but I have an idea that in Minnesota we have got common-sense people enough to pass a law that it is a misdemeanor or a crime to keep a boy from learning a trade. I am going to work, single handed and alone, if necessary, along that line. I have started out to build a plant. I have some handy men keeping my kilns in repairs. I started the tunnels for my dryer and set these men at it, and it looks just as good as the work the regular bricklayers did. When they came around to lay up the structure, the bricklayers said: "How long are you going to keep these men working?" I said, "Until they get through." One of the men said "I am Jack Stuart." I did not know what he was and did not care. "I am going to watch this job and see there are no non-union men here. What about that man?" pointing to one of my old workmen. I said, "That man has been working for me for twenty years and he is going to have a job as long as he wants it, and if I don't get this building up it don't make any difference to me." They went away and got on a spree, and I got that building up. Gentlemen, we have got to be men, we have got to have some backbone. My father came to this country because it was a free country. I believe that if he were living today he would emigrate to Germany. I believe we could take an army of boys and beat any army in the world. But if you take an army of business men you might have the biggest army in the world, but you would fail.

Secertary Randall: We have wandered far from the subject, although the talk has brought out some interesting points. The matter mentioned by Mr. Salmen is the subject under consideration and it is important. If we can secure a good working organization to take this matter up, we will be able to help the brickmakers very much. I call for the original question.

President Mayer: The motion is that a committee of fifteen or more shall be appointed to talk this matter over in a conference to be held during this convention and report at a later session. It has been thoroughly discussed, and you will be at liberty to say more on the subject if you so desire when it is brought before the convention again.

Motion carried.

President Mayer: I will appoint Mr. Salmen and Mr. Hummert, and these two gentlemen can get in touch with others and get together in some central part of the country. If you are going to have a reform from the conditions that now exist you will have to get busy. It has been said that the cement people spent $100,000 on one circular sent out, and they said they put out 1,000,000 of these circulars. If you reiterate a thing often enough and get it to the people often enough they will begin to believe it. If you kept telling the men in this audience all the time that they ought to go kill a man, finally fifty per cent. of them would do that, if you said it to them often enough. (Laughter.) Why, it is true. You can get a man to believe anything if you will tell it to him often enough. It is getting late, and I will declare a recess until 9:30 tomorrow morning.

## SECOND SESSION.

### Thursday, 10:00 A. M., February 18, 1915.

President Mayer: The convention will come to order. The first thing on the program this morning is the paper on "Kiln Expansion and Bracing," by Mr. Carl Harrop, assistant professor Department of Ceramic Engineering, Ohio State University.

## KILN EXPANSION AND BRACING.

BY CARL B. HARROP, COLUMBUS, OHIO.

*Mr. President and Gentlemen of the Convention:*

That the periodic heating up and cooling down of a kiln is primarily responsible for the bulging and cracking of the kiln walls, no one will likely dispute.

All structural materials expand in varying degree when heat, up to certain temperatures, is applied to them; fire bricks expand at a certain rate; common bricks at another rate; concrete and steel also have their own rates of expansion. This rate is expressed by what is termed the coefficient of expansion, which represents the amount of elongation or lineal expansion occurring in unit length of a material for one degree rise in temperature.

Fire brick has a coefficient of expansion of 0.0000054
Common brick has a coefficient of expansion of 0.0000055
Wrought iron has a coefficient of expansion of 0.00001166
Concrete has a coefficient of expansion of 0.00001430

### Expansion of Brick Walls.

While the expansion of a fire brick should not vary in amount, from time to time, at a given temperature, it seems certain that there is considerable difference in the behavior of a fire brick wall when heated up the first time and when heated up subsequently.

Suppose we consider first the newly laid fire brick wall, taking as a specific case, one lining the side wall of a rectangular kiln and with freedom to expand in all directions. As the temperature increases in the kiln, each brick in the wall will expand a certain amount and if this lineal expansion of one brick, expressed in inches, be multiplied by the number of bricks in a single course required to lay this length of wall, the product will be the total elongation occurring in the bricks composing the wall under the assumed conditions.

Carl B. Harrop, Columbus, Ohio.

However, the clay used as mortar in the joints will undergo a drying shrinkage of about 5%, which will provide some space for the early part of the expansion. If resistance to the movement of the wall as a whole is offered at the ends in the form of steel or other bracing, then further lineal expansion of the bricks will be counteracted by the burning shrinkage and compression of the clay mortar in the joints.

The brick in 16 lineal feet of fire brick wall, when the temperature is raised 1150 degrees C. will expand 1 3-16 inches. This expansion is partly counteracted by the drying shrinkage, but to a greater degree by the burning shrinkage and compression of the mortar joints.

It has been found from practical experience that with 1/8 inch mortar joints, a ½ inch expansion joint is sufficint for a 16 foot length of wall at a temperature of 1150 degrees to 1200 degrees C. This would indicate that for this temperature, the amount of compression is

$$\left(1\frac{3}{16}\text{ inches} - \frac{1}{2}\text{ inch} = \right)\frac{11}{16}\text{ inches or about }58\,\%\text{ of the expansion.}$$

When expansion joints are provided at intervals, as the kiln heats up, the brickwork expands (with possibly some slight compression of the mortar joints) until the expansion joint is closed. From this point on, if damage is to be prevented, subsequent expansion must be counteracted by the same amount of compression in the joints.

If no expansion joints are purposely provided, then as the kiln heats up and expansion begins, compression of the joints must also begin immediately. This counteracting of the expansion by compression of th joints will continue until that temperature is reached at which the compression is complete or 58 per cent. of the ultimate total expansion as mentioned above. This temperature may be approximated as follows:

$$\text{Lineal expansion} = 0.0000054 \times 189.35^* \times \text{temp.} = \frac{11}{16} \text{ inches.}$$

Therefore, Temperature=672° C.

The following curves will show the relative rates of expansion and compression under the two conditions just mentioned.

No. 1 represents the expansion.

No. 2 represents compression, when there are no open expansion joints. "A" indicates probable temperature at which rupture will occur.

No. 3 represents compression when expansion joints are provided. "B" indicates probable temperature at which deformation will occur.

Considering that portion of the 9-inch fire brick wall lining a rectangular kiln from the top of the furnace arches up to the spring line of the crown, we would have a sectional area of say 48 inches by 9 inches or 432 square inches. Cold fire bricks will stand according to the Bureau of Standards from 480 lbs. to 9,000 lbs. pressure per square inch. Taking 500 lbs. as a reasonable figure at 672 degrees C., the temperature at which the compression ceases to counteract the expansion, there will be, with further increase in temperature, a pressure of

$$\frac{432 \times 500}{2,000} = 108 \text{ tons}$$

at each end of the wall—a force which it would be impracticable to resist by any of the ordinary methods of steel bracing.

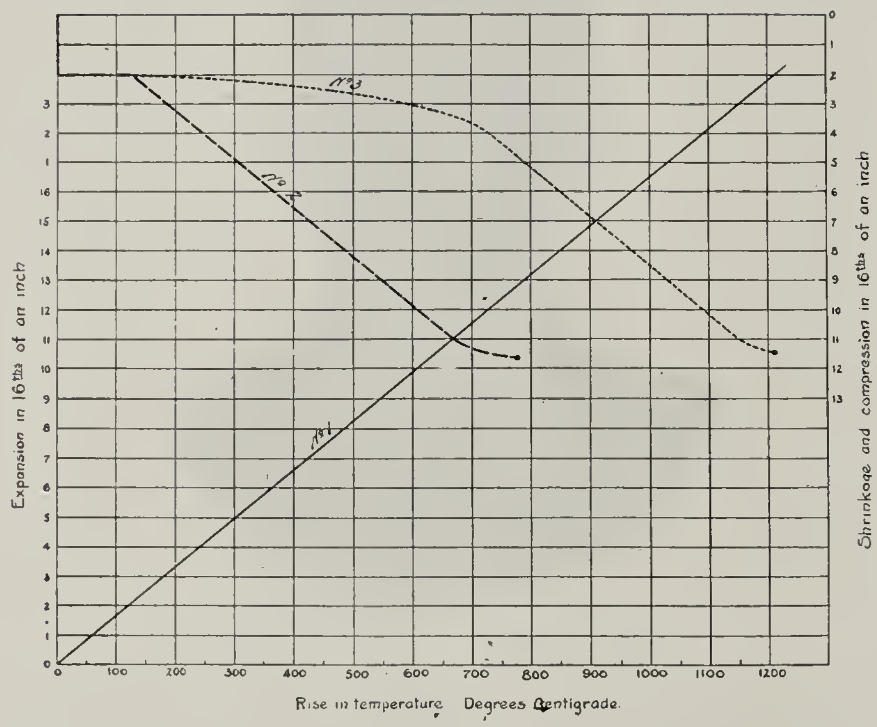


Fig. 1

This would seem to indicate that instead of trying to prevent expansion by heavy bracing, we should make use of such methods of construction as will counteract, or at least retard the crowding action, thus lengthening the life of the kiln and reducing the expense incurred in constantly repairing damage done by this inevitable expansion.

### Expansion Joints.

Expansion joints are often provided in the crowns of rectangular kilns and continuous chamber kilns. Figure 2 is a section showing an expansion pocket in the end wall of a rectangular kiln into which the crown can expand. This prevents, however, any rising and falling of the crown at this point, and damage to the crown will result.

Figure 3 shows a much better form of expansion joint for the end of the crown. In this case the crown can rise and fall without damage.

Figure 4 illustrates in plan, an expansion pocket in the end wall of a rectangular kiln, to accommodate the lengthening of the side wall.

In Figure 5, the same kind of a provision is made for the expansion of a flash wall in a continuous chamber kiln.

Figure 6 is a section thru the side wall of a kiln, showing the proper method of preventing damage to kiln walls by the expanding of floor and flue walls.

Figure 7 represents a plan view of the expansion joints provided in the floor flue walls of a two-side fired continuous chamber kiln. The dotted lines indicate the position of the partition wall betwcen the chambers above.

In Figure 8 is shown the plan and elevation of a flue wall with a better form of expansion joint. These joints may be made small and placed at comparatively small intervals, making a number of short lengths, each with a neutral or stationary center. To carry this idea a little farther, it would be ideal if every vertical mortar joint could be an expansion joint, each brick maintaining i location with relation to the other bricks—expanding and contracting about its own center.

While the conditions covered in this last idea never hold true, yet it is believed that it is the correct principle.

### Vertical Mortar Joints.

The vertical joints should be made heavy enough so that o being compressed they will accommodate half of the expansion of the two adjacent bricks. In this way there will be no strain set up in the wall by each one of its component bricks as an expanding unit, and, therefore, there will be no accumulation at the ends of the wall of increments of expansion and consequent pressure.

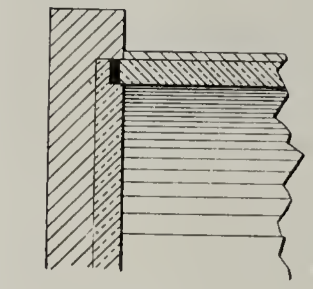


Fig. 2

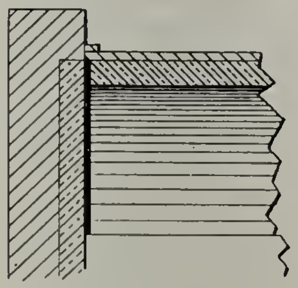


Fig. 3

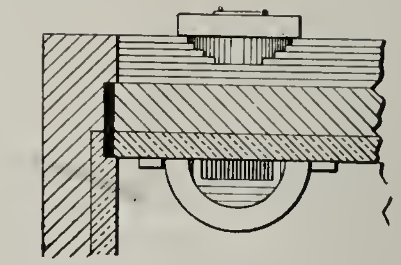


Fig. 4

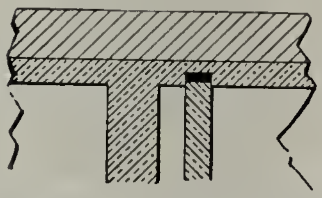


Fig. 5

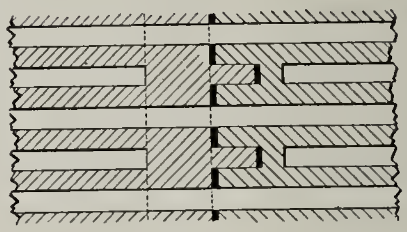


Fig. 7

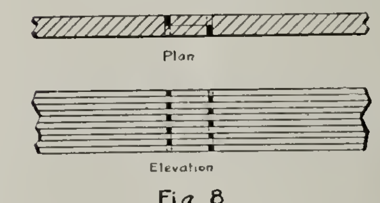


Fig. 8

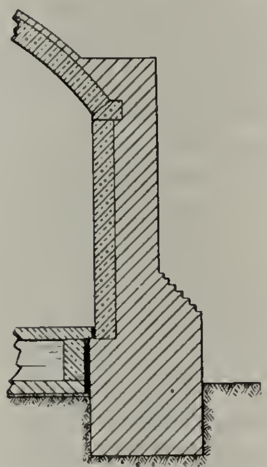


Fig. 6

Kiln specifications usually state that the fire brick shall be dipped in a thin fire clay mortar and hammered into position. The mortar joints produced in this way are usually about ⅛ inch thick.

While this thickness is probably satisfactory for the horizontal joints, it would seem that the vertical joints should be somewhat thicker, at least 3-16 inch and possibly more. This thickness of joint should afford enough compression to take care of the expansion of the bricks.

Let us assume that the vertical mortar joints in a 30 ft. diameter round kiln have no appreciable thickness. The fire bricks in the lining are touching, end to end. The possible compression in the joints will be practically nothing.

Assuming that we have, on the outside of the kiln, a steel band 24 inches wide, and assuming a 27-inch wall with a lining 9 inches thick, this lining will heat first, and considering the expansion in this part of the wall only, there will be a compression section of 24 inches by 9 inches or 216 square inches. As the temperature rises in the kiln, this brickwork expands, setting up compression within itself and also tension in the steel band. Thus, we have a ring of brick being expanded by heat and an encircling steel band opposing this expansion.

---

*16 ft. less 2⅝ inches mortar joints, expressed in inches.

Neglecting the elasticity in the brickwork and in the band, as the temperature continues to increase, there shortly arises a condition which calls for a crushing of the brickwork or the breaking of the band. If we wish a band which cannot be broken by the expansion of the brickwork, it can be readily calculated.

If the brick will stand 500 pounds compression per square inch, then,

$216 \times 500 = 108{,}000$ lbs. compression in wall or tension in the steel band.

$\frac{108{,}000}{16{,}000} = 6.75$ sq. in. steel with tensile strength 16,000 lbs. per sq. in.

and

$\frac{6.75}{24} = 0.28$ in. thickness of band required.

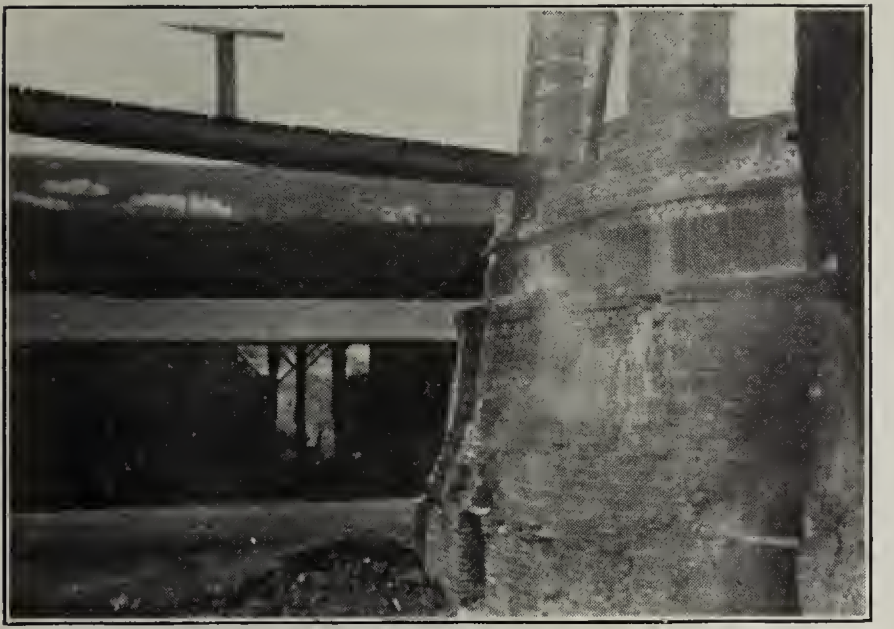


Figure 9.

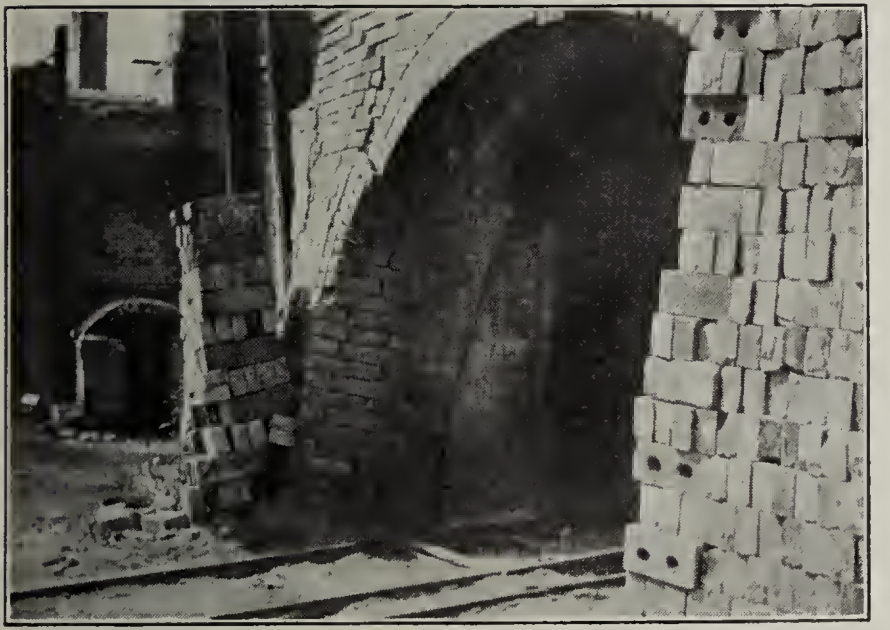


Figure 10.

Suppose there is no band on the outside of the kiln and we raise the temperature 1100 degrees C., then the increase in circumference of the inside of the kiln will be

$0.0000054 \times$ circumference of kiln in inches $\times 1100 = 6\frac{3}{4}$ inches.

This would cause every course in the outside wall to open up a total of 7½ inches, which would probably be divided up between a number of smaller openings or cracks. While round kilns undoubtedly are affected in this way, they are probably never affected to such a degree, which gives ground for the claim that compression of the mortar joints actually takes place and that mortar joints of ample thickness should be provided to take care of practically all this expansion.

### Horizontal Mortar Joints.

Attention might be called here to the fact that if the horizontal mortar joints are too thick, there are apt to be disastrous results. During the spring of 1914, several rectangular kilns were built in which the 9-inch fire brick lining was bonded entirely through the wall every fourth course (i. e., one course of headers to three courses of stretchers).

After one or two burns, the stretcher courses settled down onto the supporting header courses, leaning dangerously far away from the wall with long sections threatening to fall to the floor.

As the kilns were used for flashing, it would probably have been safer to have bonded the lining into the main wall every third or even every second course, altho the real cause of the trouble in this instance was undoubtedly the fact that the horizontal mortar joints were too thick and the corresponding shrinkage so great that when the kiln was allowed to cool, there was not sufficient vertical pressure on these brick to hold them in place, with the result that each three courses supported on a header course had a tendency to draw in toward the highly heated contents of the kiln. This drawing in of the lining often occurs in short sections, especially inside the bags where there is a very intense local heat, but for sections 10 to 12 feet long to draw in, is rather unusual.

### Bonding.

The German practice in kiln wall construction is to use the Flemish bond, i. e., alternate headers and stretchers in every course. In this country, bonding every fifth or even every seventh course is customary.

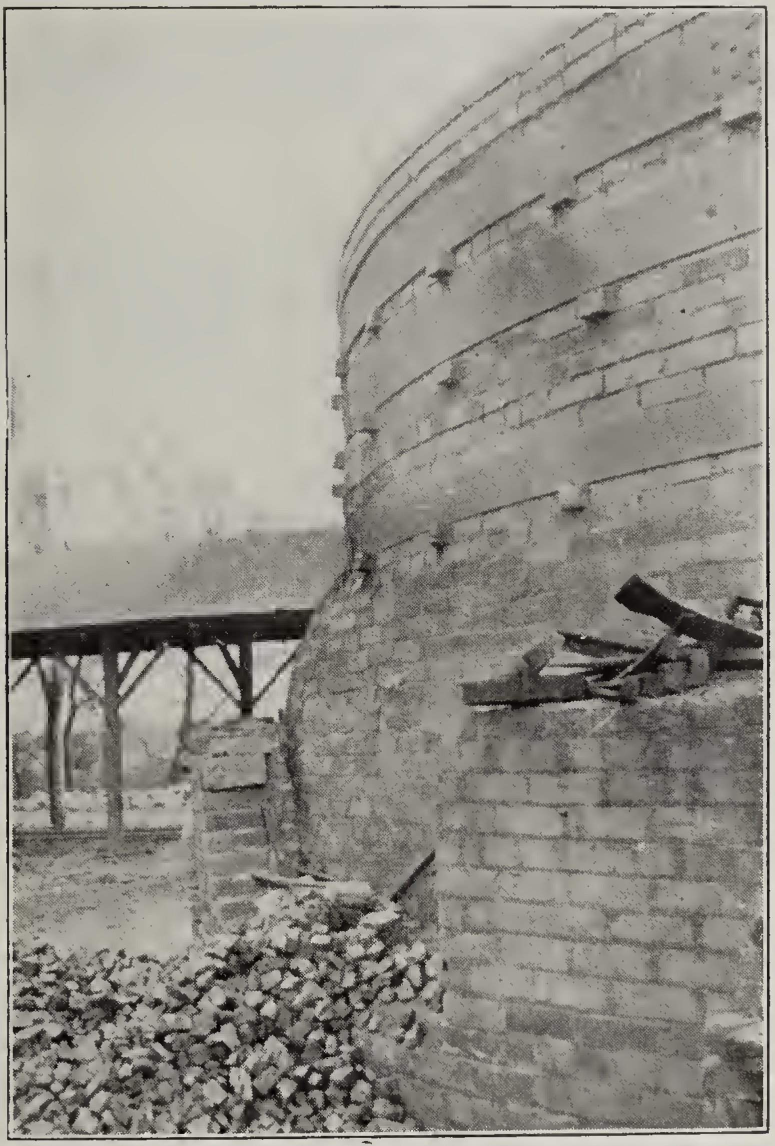


Figure 11.

Realizing that the lining of a kiln is subjected to higher temperatures and therefore expands more than the main wall to which it is tied, it is the belief of some kiln builders that the lining should be left separate from the main wall and with even a small air space between. The reason for this stand is that when removing parts of the linings from kilns, even those which had been fired only a few times, it was often found that every header course had been sheared off, as if cut with a knife, by reason of greater expansion in the lining than in the main wall.

While such construction may be practicable in a round kiln under burning conditions which are not severe, it could be given but little consideration in the building of a rectangular kiln, unless the lining be very thick or special construction be employed, such as pilaster, etc. The probable cause of the shearing off of the headers in most instances is undoubtedly due to an insufficient number of header courses.

### Contraction of Brick Walls.

Thus far, only the heating up or expansion of a kiln has been considered. Let us proceed further with the side wall of the rectangular kiln and see what happens when it cools.

If the wall as a whole has expanded somewhat lengthwise, then, when the kiln cools down, the parts of the wall which have been pushed or crowded towards the ends will not necessarily recede to their original positions, because the wall, being built of units of small size which do not become thoroughly cemented together by the action of the heat on the mortar does not possess the ability of pulling itself as a solid mass back into its original position, unless there be considerable pressure applied at the ends.

Seldom does the wall recede as a unit, but certain places manifest themselves at stationary centers with sections of the wall on each side contracting and drawing towards these centers. The usual result is the appearance of vertical cracks indicating the dividing lines between the several sections.

If joints are left between the bricks of sufficient size to take care of the expansion and there results no lengthwise movement of the whole wall, these same vertical or zigzag cracks will appear upon cooling, with the absence in this case however, of "crowding out" or damage at the ends of the wall.

It will be seen, therefore, that when a kiln has been cooled down after the first firing, it contains within its walls, expansion joints, which theoretically should prevent any damage from expansion during subsequent burns. However, this is not the case in practice, as the damage occurs persistently with the continued use of the kiln.

### Damage to Walls.

It has been often said that poor fire brick laying is responsible for the greater part of kiln repair costs. Thick horizontal mortar joints, unevenly filled; loosely laid backing-up brick; large quantities of mortar and brick chips used to fill up the voids in the wall, all play an important part in the life of a kiln.

As the joints open up in the cooling kiln, small pieces of hardened mortar and chips of brick fall into the openings. When the kiln is again heated up, the spaces left by the contracting brickwork have been more or less filled up, not as previously—by soft compressible, unburned clay mortar—but by hard, dense material. As the bricks expand pressure is exerted on this filling material and if it does not crush, the expansion is transmitted to adjacent bricks and there occurs an endwise movement of the wall, a buckling or bulging and cracking of the wall, or, in the case of the round kiln, a crowding out of the wall, resulting in the opening up of vertical cracks and an increased circumference. Figure 9 shows a round kiln in which the wall has crowded out below the band a distance of fully ten inches.

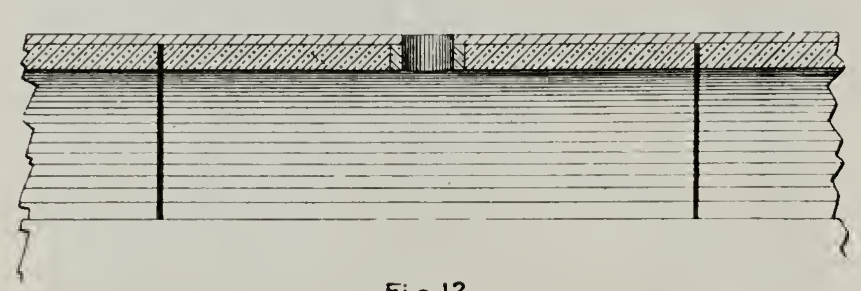


Fig. 12

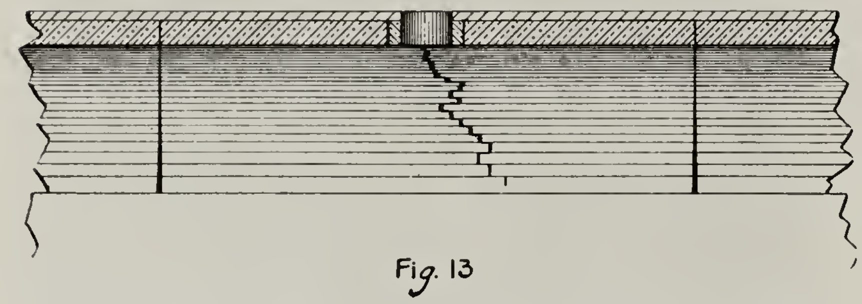


Fig. 13

This action goes on in all parts of the kiln—side walls, flue walls and floor. It takes place at every burn, only to a very slight degree to be sure, in some cases, but in others to a considerable degree. If a kiln has been carefully built with whole sound brick, well bonded and with thin horizontal joints of good fire clay mortar, a kiln may be in use for fifteen to twenty years and still be in fairly good condition. On the other hand, if poor material and workmanship have gone into the kiln, it may be a wreck at the end of a year. Probably the greatest damage is done by the expanding of the floor. All cracks and crevices, occuring in the floor when cooling, are almost immediately filled by sand and burned clay chips. When the kiln is again heated up, the floor is practically devoid of expansion joints. There can be but one result—the end or side walls are pushed out. This performance is repeated with every burn, unless a space is provided between the floor brick and the kiln wall, giving the floor brick freedom to expand in all directions.

Figure 10 shows a rectangular kiln and Figure 11 a round kiln, which have been affected to an unusual degree by floor expansion.

There are instances when an expansion joint is made too wide. Let us consider a section of a new kiln crown 16 feet long. It has been stated that an expansion joint ½ inch wide, together with the compression in the mortar joints will counteract the expansion in that length of wall.

Suppose that instead of the expansion joint being made ½ inch, it is made 1½ inches wide (Figure 12). When the kiln is heated up, the crown expands lengthwise, with little or no compression of the mortar joints, until the expansion joint is almost closed at the middle of the crown. When the kiln cools, no pressure is exerted at the ends of this 16-foot section, and instead of contracting and drawing as a whole towards the center of the section, a weakness shows up (Figure 13), indicated by a crack extending from the vent hole in the center down towards the heel. The section has contracted about two centers instead of one. This is not an uncommon occurrence.

### Cracked Walls.

Seldom is any attention paid to the cracks which appear from time to time in the outside walls of kilns and it may be interesting to give some consideration to their influence on the heat economy of a kiln.

Two pressure zones usually exist in the interior of a periodic kiln. If the clay plug is removed from the upper peep hole, or if a vent in the crown is uncovered, flame and smoke are emitted, showing that there is a pressure in this part of the kiln in excess of atmospheric pressure.

If the lower peep hole is opened, no flame or smoke appears, but there is a decided flow of air through the hole into the kiln, which is evidenced by the cooling down of the ware in close proximity to the hole, if the latter is left open for several minutes. This indicates a pressure in this part of the kiln which is less than atmospheric pressure or we may speak of it as suction or draft. Between these two zones is a neutral level, at which neither smoke and flame come forth nor cold air enters, a pressure just equal to atmospheric pressure.

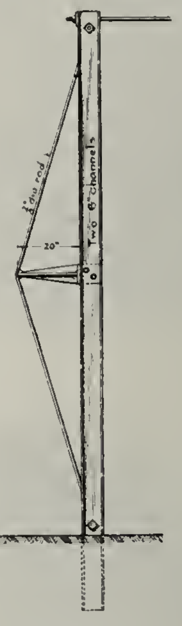


Fig. 16

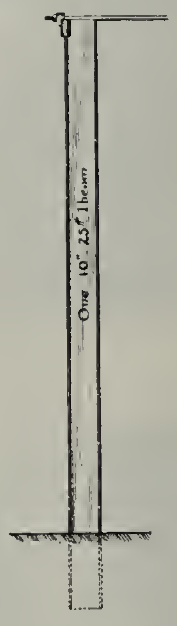


Fig. 17

If there are many cracks in the upper part of the kiln walls, considerable heat may be lost in the escaping gases. However, this leakage can be readily seen and the largest of the cracks filled up and daubed with mud. On the other hand, it is not such a simple matter to find the leaks in the lower part of the kiln, although they can be easily closed when once located.

Some burners realize the importance of stopping these leaks, and make a practice of going around the kiln during the latter part of the burn with a lighted stick, testing all suspicious looking cracks, and daubing all those which show a tendency to draw in the flame.

If the average draft or static head in this part of the kiln is 0.2 inch (water gauge), then in a small crack through the wall, it would probably be reasonable to assume a dynamic or velocity head of 0.1 inch. Introducing this velocity head into the following formula, will give the velocity of air passing through the 3-inch diameter hole in feet per minute.

$$V = 4{,}000 \sqrt{h}$$

$$V = 4{,}000 \times \sqrt{.1} = 1{,}264 \text{ ft. per min.}$$

Area of opening 3 in. in dia.=about 0.049 sq. ft.
Then, 1,264 x 0.049=61.95 cu. ft. air per min.
or 89,194 cu. ft. air per 24 hrs.
or (if burn lasts 7 days), 624,358 cu. ft. air per burn.

Approximately 12½ cu. ft. air=1 lb.

$$\text{Therefore, } \frac{624{,}358}{12\frac{1}{2}} = 49{,}949 \text{ lb. air per burn of 7 days.}$$

The lower or draft zone may extend five to six feet above the floor, depending upon the intensity of the draft. In the lower part of the kiln wall, from the floor up to say five feet above the floor, suppose we find an accumulation of cracks, all of which together would allow as much cold air to pass through as would go through a single hole three inches in diameter.

If the average stack temperature during the 7 days burn is 900° F. and the mean specific heat of air is 0.24, the total heat carried away by this air will be

$$49,949 \text{ x } 0.24 \text{ x } 900 = 10,788,984 \text{ B. T. U.}$$

If coal used has a heating value of 11,000 B. T. U.

$$\frac{10,788,984}{11,000} = 981.0 \text{ lb. coal required to cover this loss.}$$

Besides this direct expenditure or loss of fuel, there is another one, much more important, but which can hardly be calculated.

This leakage of cold air into the lower part of the kiln makes it more difficult to secure the desired temperature on the bottom. The burn is without doubt frequently lengthened 6 hours on this account, which means that all the fuel fired during the 6 hours is lost, the burner's and fireman's time wasted and the kiln tied up on that particular burn 6 hours longer than necessary.

## Rectangular Kiln Bracing.

There seems to be a tendency to simplify the construction of the buck staves used for bracing the walls of rectangular kilns. The usual double channel (Figure 14), or single I-beam stave of small size, stiffened with a truss rod and king post, is being replaced by the single I-beam of larger size and without truss rod, as shown in Figure 15.

It will be noticed that when using single unbraced I-beams, the usual method of securing the tie rod is by use of U bolts and eyes in the ends of the tie rod, as shown in right-hand insert, Figure 15. This method, however, requires forging, which is costly. Another method is to use a special rough casting, placed on the outer flange at the top, which obviates the necessity of any machine work whatever on the I-beam. This casting (left-hand insert, Figure 15) designed by the writer several years ago, serves the double purpose of washer and clamp. The tie rod passing directly over the center of the I-beam and thru the casting, prevents the latter from dropping, while the greater the tension in the tie rod, the greater is the grip of the casting.

A comparison of these two forms of staves, from a standpoint of both strength and cost, is interesting.

Assuming the channel stave to be constructed as shown in Figure 16, using uniformly distributed loads as a means of comparison and using 16,000 as allowable fiber stress per square inch.

Bending Moment of truss rod=stress in truss rod x distance of center of truss rod from the neutral axis of the combination, which ordinarily would be about 1 inch from the neutral axis of the beams.

$$\begin{aligned} \text{B. M. of truss rod} &= 9,621 \text{ x } 22 \\ &= 211,662 \\ \text{B. M. of the 2 channels} &= \text{section modulus x allowable fiber stress} \\ &= 8.6\ 4.3 \text{ x } 2) \text{ x } 16,000 \\ &= 137,600. \end{aligned}$$

$$\text{Total B. M. due to load} = \frac{W\,1}{8}$$

$$\frac{W\,1}{8} = \text{B. M. of truss rod} + \text{B. M. of the 2 channels.}$$

$$\frac{W \text{ x } 14 \text{ x } 12}{8} = 211,622 + 137,600.$$

From which we find that

$$W \text{ (safe load)} = 16,630 \text{ lbs.}$$

Whereas, a single 10 in. 25 lb. I-beam (Figure 17), on the same span is capable of carrying a load of 18,610 lbs., indicating that the I-beam is about 12 per cent stronger than the braced channels.

Assuming that the I-beam and the braced channels are both 16 ft. long, and including the tie rod washer casting in each case, their comparative costs are as follows:

### Cost of One Braced Channel Stave.

| | |
|---|---|
| 2 Channels 256 lbs. @ $1.35 | $3.46 |
| 1 Rod ⅞ in. Rd. x 15 ft. 30¾ lbs. @ $1.45 | .45 |
| 2 Castings 85 lbs. @ 2½ | 2.13 |
| 4 Bolts | .15 |
| Blacksmith and assembling labor | 1.00 |
| | $7.19 |

### Cost of One 10 in. 30 lb. I-Beam Stave.

| | |
|---|---|
| 1 I-Beam 400 lbs. @ $1.35 | $5.40 |
| 1 Casting 25 lbs. @ 2½ | .63 |
| No Labor | |
| | $6.03 |

The I-Beam costs 16 per cent less than the braced channels.

Figure 18 shows a rectangular kiln without the end bracing. In building these kilns, the battered end walls were laid last and contain vertical pockets, into which the side walls may expand.

The principal use of transverse bracing on a rectangular kiln is for the purpose of holding the crown in position, but before this bracing is designed, it is necessary to determine the amount of the thrust produced by the arch. In general, it may be stated that, with the span remaining the same, the flatter the arch, the greater the thrust at the heel and the heavier the arch, the greater the thrust.

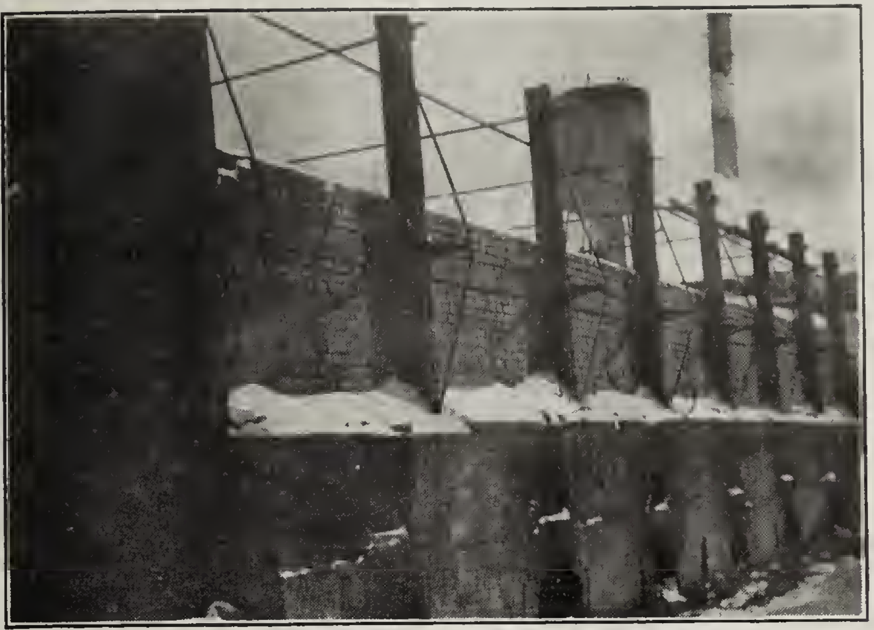


Figure 14.

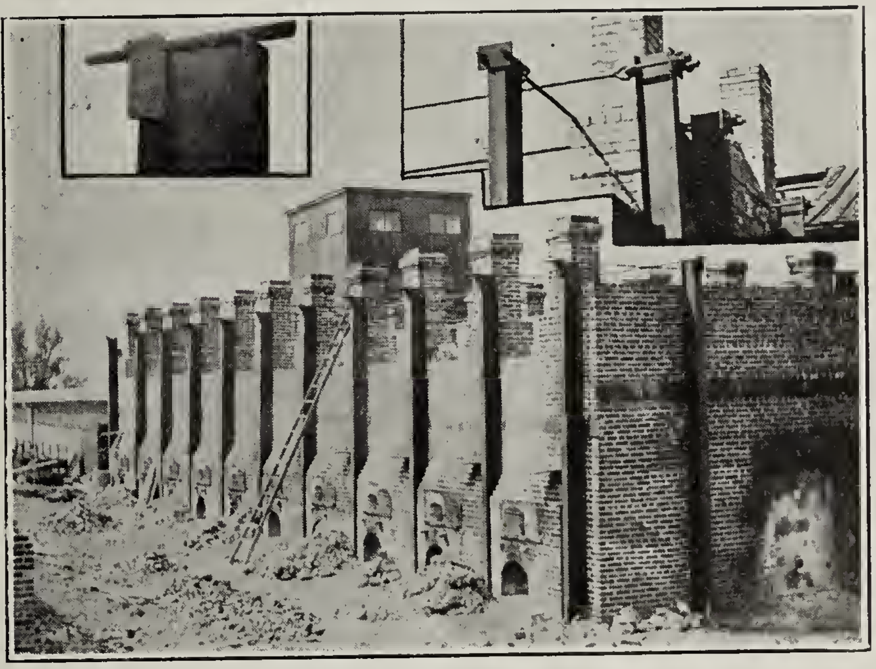


Figure 15.

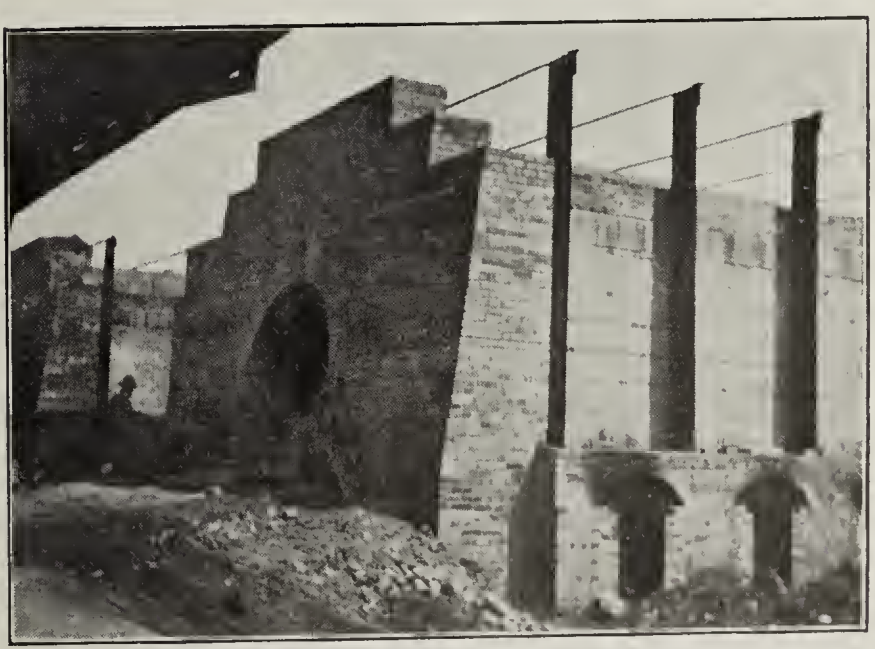


Figure 18.

The usual form of crown consists of a true arc of a circle from spring line to spring line, using the beveled "skewback" brick as a starter. Another form of starter, which has been used extensively by some kiln designers, consists of about seven courses of No. 2 wedge brick, which lay to a radius of 15 inches—the main arch resting on the top course of these wedge brick.

It has been thought that by the use of this latter construction, less horizontal thrust from the crown resulted. As grounds for this belief, an instance is recalled where the band of a round kiln burst after a burn was well under way. Much to the surprise of the observers, the crown did not collapse, but the kiln was allowed to cool, the band replaced and the burn carried to completion. It has been thought that a crown with the ordinary skewback starter would not have stood up under the same circumstances.

The results of calculation covering these two forms of crown show that for the same span and total rise, the one with the wedge brick starter courses produces the greater ultimate horizontal thrust, altho there is some difference in the internal stresses resulting at the heel in the two cases.

Figure 19 represents the usual form of crown, having an 18 foot span and a 4½ foot rise. The total thickness of crown is 12 inches. Taking a section 12 inches wide for calculation, and dealing with only half of the arch, the weight of this one square foot section extending from the center down to the skewback will be 1,400 lbs. (Weight of one cubic foot of brickwork—130 lbs.)

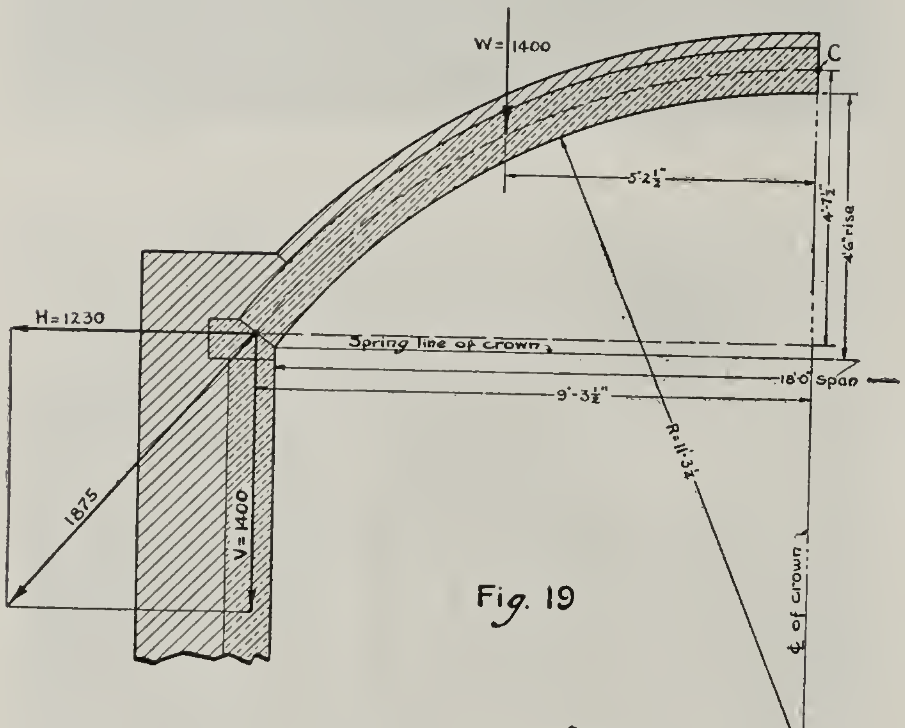


Fig. 19

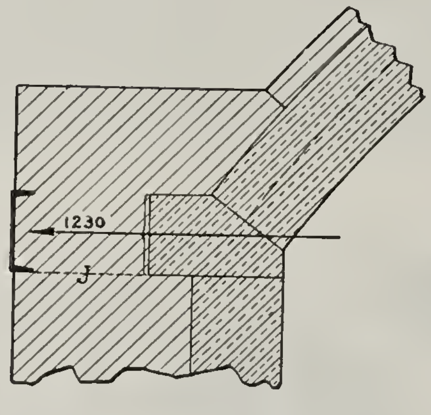


Fig 20

This load, applied at the center of gravity of the section, will produce a pressure R on the skewback, which may be divided into two component forces, V (vertical), equal to the load and H (horizontal), to be determined.

Taking moments about point C,

$$H \times 4.625 + 1{,}400 \times 5.208 = 1{,}400 \times 9.291$$
$$H = 1{,}230 \text{ lbs.}$$

Thus, on each lineal foot of skewback (measured lengthwise of kiln) there is being applied a horizontal pressure of 1,230 lbs. The skewback is 8 inches or three courses of brick high. This pressure is transmitted to these three courses and they, in turn, transmit the pressure to the 8 inch steel channel (Figure 20).

If our vertical braces are 7½ feet apart, there will be transmitted to each buckstave, from the wall channel, a horizontal pressure of 9,225 lbs. which, with kilns of ordinary height, will produce a tension in the tie rod at the top of the buckstaves of 5,600 lbs. Using 16,000 lbs. per square inch as the allowable tension in steel, a tie rod 11-16 inch in diameter will be required.

If the steel brace extends 14 feet above the ground and if this pressure of 9,225 lbs. is applied at a distance of 5½ feet below the top of the brace, the size of I-beam required can be determined.

$$\text{Maximum bending moment} = \frac{(8.5 \times 12) \times 2 \times 922 \times (5.5 \times 12)}{2 \times (14 \times 12)}$$
$$= 369{,}659$$
$$\text{Section modulus} = \frac{369{,}659}{16{,}000}$$
$$= 23.1$$

The smallest standard I-beam having the above section modulus is a 10-inch, 25-pound beam.

Figure 21 illustrates the crown with wedge brick starters. Considering only that part of the arch above the starter courses, it will be seen that this span is almost as great as that of the complete arch with skewback starters and the rise is considerably less. Proceeding to take moments about point C, as in the former case,

$$H \times 3.708 + 1290 \times 4.833 = 1290 \times 8.916$$
$$H = 1420 \text{ lbs.}$$

This shows clearly that, tho the weight of the starter courses is not taken into account, the horizontal thrust is considerably greater than in the case of the crown with skewback starter.

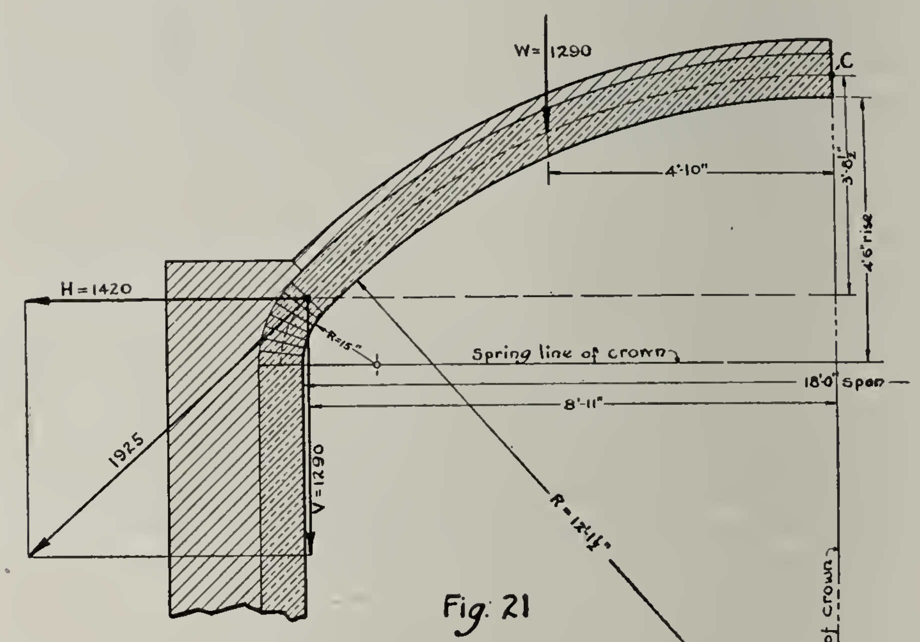


Fig. 21

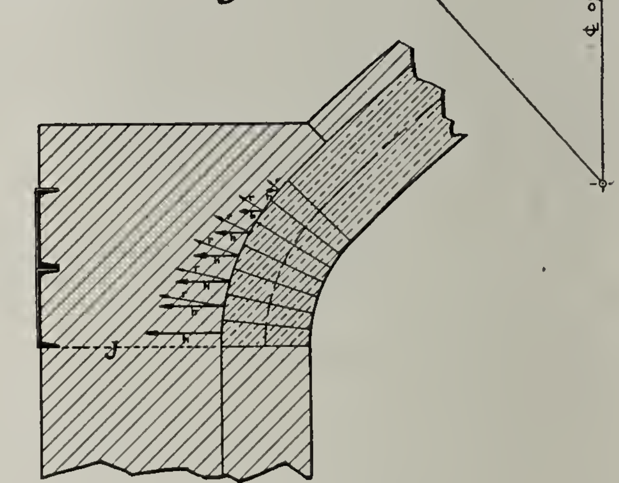


Fig. 22

However, it will be noticed that the bed joints of the wedge brick courses are not radial from the center of the main arch circle, with the result that the arch pressure will not be transmitted from one wedge brick to another in a direction perpendicular to their faces.

The result is that the top course of wedge brick has a tendency to slip (outwardly) off the second course; the second course a greater tendency to slip off the third course, etc. The relative forces causing this tendency to slip are represented by the lines r (Figure 22). Each of these forces may be resolved into two component forces—one vertical and one horizontal, the latter being represented by the lines h. The sum of these horizontal forces will be somewhat in excess of the single horizontal thrust of 1,420 pounds in Figure 21, as the weight of the wedge brick courses is taken into account in this case. It will be noted that, while in Figure 20 the total horizontal thrust is against three courses of brick, in Figure 22 the thrust is distributed in varying amounts over a greater number of courses. However, this does not alter the conclusion that the crown with the wedge brick starter has the greater total horizontal thrust and, therefore, should be more strongly braced.

### Expansion of Rectangular Kiln Crown.

It is generally supposed that as a kiln is heated up, the thrust from the crown increases very rapidly. Theoretically and practically, this is not true in a rectangular kiln. As the crown becomes heated and expands, it is perfectly free to rise. When the crown has risen, say ¾ inch, the rise of the arch will have increased which, with the same span, will result in a lessening of the horizontal pressure at the heel. On the other hand, this is probably more than counterbalanced by the dropping of the line of pressure in the arch. The temperature being very much greater on the inside of the crown than on the outside, the inside will expand the greater amount, resulting in the opening up of the bed joints on the outside. The line of pressure will drop from near the middle of the 9 inch arch down to a line near the inside surface where the bricks are in perfect contact. The net result will probably be only a slightly increased horizontal pressure at the skewback.

### Round Kiln Banding.

The endless number of ways in which round kilns are banded and the variety in the dimensions of these bands would seem to indicate that their selection is little more than guesswork.

The idea of casing the entire side walls of a kiln in a steel jacket seems to have some merits.

(a) The kiln walls are more apt to remain plumb and intact.

(b) There is less leakage of cold air into and hot gases out of the kiln.

(c) The action of the elements is kept from the walls to a large extent.

(d) Almost 12 per cent. less heat is radiated from a steel surface than from the same amount of firebrick surface under similar conditions.

If there could be placed between the steel jacket and the kiln wall, a layer of mineral wool or other lasting material of low heat conductivity, the radiation from the side walls of the kiln would undoubtedly be reduced considerably, altho it is understood that by far the greater part of the radiation from a kiln takes place from the crown, which is usually less than half as thick as the side walls.

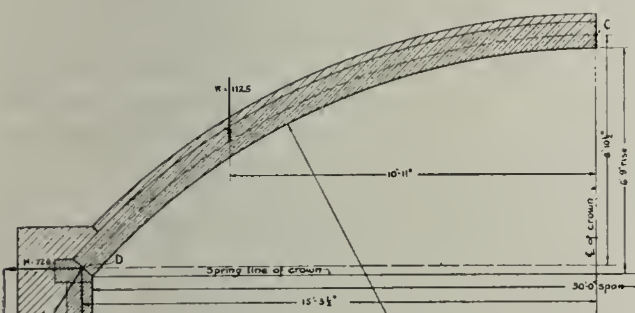


Fig 23

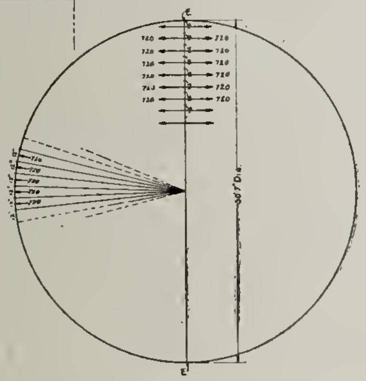


Fig 24

To calculate the strain in the walls of a round kiln, produced by the crown, let us assume a kiln 30 feet inside diameter, having a crown rise of 6 ft. 9 in. as shown in Figure 23.

Assume the crown to be divided vertically into sections, 12 in. wide at the heel and tapering to zero width at the center. The crown is about 12 in. thick and taking the weight of brickwork as 130 lbs. per cubic foot, one of the sections will weigh 1,125 lbs. With this load applied at the center of gravity of the section, and taking moments as before about the point C,

$$H \times 6.875 + 1{,}125 \times 10.916 = 1{,}125 \times 15.291$$

whence

$$H = 720 \text{ lbs.}$$

Thus, a horizontal pressure of 720 lbs. is acting radially at each 12 inches of the circumference of the circle passing thru point D. Figure 24 gives a plan view of the sections and horizontal forces.

In calculating the necessary strength for steam boiler shells, the pressure to be carried is considered as acting in only two directions.

The circular section is divided into halves and the pressure per square inch to be carried is considered as acting in opposite directions in the two halves—against the surface of each half end in a direction perpendicular to the line of division.

The product of the pressure per square inch and the diameter (or projected area of half the circumference) in inches will give the total pressure acting on a circular section of one inch width, and tending to pull the two halves apart at the two points E.

Using this same method in connection with the kiln crown,

$$\frac{30.583 \times 720}{2} = \text{approximately } 11{,}000 \text{ lbs.,}$$

the tension at any one point in a steel band encircling the kiln at the spring line.

Using steel with a tensile strength of 16,000 lbs. per square inch, it is seen that less than ¾ of a square inch section of steel is required; i. e., a band ⅛ inch thick and 6 inches wide would be ample.

This calculation is made under the assumption, that the steel band is the only opposition to the horizontal pressure. This assumption is not correct as the vertical component of the crown thrust produces considerable friction at the joint J, which, with the resistance offered against being pulled apart by the bonded courses of brick encircling the skewbacks, also opposes the horizontal pressure to some extent.

From the foregoing, it would seem that the crown in itself does not produce as much thrust as is generally supposed and that the sizes of steel bands ordinarily used to hold the crown are unnecessarily heavy.

Instances are cited where heavy steel bands have bursted, but in such cases, the real cause is undoubtedly the expanding (with insufficient expansion joints) of the circular wall inside the band, together with the pressure from the crown and not the crown pressure alone.

### Expansion of Round Kiln Crown.

The circular expansion of the lower part of the crown of a round kiln in conjunction with the expansion of the upper part of the kiln wall is capable of exerting considerable pressure against the steel band, if space is not left in the vertical joints for expansion, or if these spaces become partly filled. Otherwise, the round kiln crown (like the crown of the rectangular kiln) being free to rise and fall, due to the diametrical expansion and contraction, should exert when hot but very little more pressure at the heel of the crown than when cold.

### Conclusions.

(1) Expansion force is practically irresistible in kilns.

(2) Expansion joints are a prime necessity.

(3) The greater the number of expansion joints in a given length of wall, the smaller can they be and the less the chance of damage to the wall.

(4) It is possible to make expansion joints too large.

(5) Thorough bonding of lining to the main wall is essential.

(6) The crowding out of kiln walls is inevitable (except in cases of very special construction), but this action can be retarded to a great degree by first-class material and careful workmanship.

(7) Probably the greatest damage is done by the expanding of the kiln floor. The floor should have expansion joints on all sides.

(8) Cracks in kiln walls, especially those near the bottom, are sources of considerable loss.

(9) The single I-beam brace for rectangular kilns is stronger and cheaper than the older form of trussed channel brace.

(10) Steel end bracing on rectangular kilns is not essential.

(11) The wedge brick starter for rectangular kiln crown arches has no advantage over the ordinary skewback starter, although in round kilns there may be some slight advantage.

(12) Theoretically the crown of a rectangular kiln produces but very little more thrust at the heel when hot, than when cold.

(13) The steel bands used for supporting the crowns of round kilns are often made heavier than necessary.

(14) If the upper part of the wall of a round kiln and the lower part of the crown contain sufficient expansion joints to take care of horizontal expansion, there should be but little more thrust at the heel when hot than when cold. (Loud Applause.)

### General Discussion.

Mr. Ittner: I would like to ask Mr. Harrop a question. In speaking of fire brick—there are many qualities of fire brick—I would not venture to say how many grades of fire brick for standing heat. What would not phase one fire brick would incinerate the other. Some years ago in Illinois they were putting up open-hearth furnaces, and their fire brick cost them $300 a thousand, and they were almost all silica, which stands the heat the best. I simply wanted to bring out that point. There was no mention made by Mr. Harrop of the quality of fire brick. I would like to know from your judgment, Mr. Harrop, whether there would not be a great deal of difference in these kilns if put up of fire brick almost entirely of silica.

Mr. Harrop: You mean a difference in the expansion and crushing strength?

Mr. Ittner: A difference in standing the heat.

Mr. Harrop: In an open-hearth furnace, at least two different kinds of fire brick are used, and sometimes three kinds. There are three agencies tending to break down the fire brick in this kind of a furnace: (1) heat, (2) pressure, and (3) slagging action of the basic charge. Silica brick would not stand any time in the hearth of this furnace. The silica brick which you mention were used in the arch over the hearth, where they are required to stand only high heat and great pressure, arising from the very flat arch which is employed. These silica brick easily withstand the temperature. Also, they expand very uniformly and at a greater rate than basic fire clay brick, which counterbalances the shrinking of the mortar between them. This maintains the pressure in the arch and prevents the brick from becoming loose and falling out.

I have not taken up at all in this paper the consideration of heat, except as to its effect in causing expansion. There undoubtedly is a difference in the co-efficient of expansion of different qualities and grades of fire brick, which would affect my figures somewhat. I used the co-efficient of the average quality fire brick. The other point is, how much compression will they stand? I have taken that as very light. You will remember I told you that fire brick will stand up to 9,000 pounds compression per square inch when cold, but I have figured only 500 pounds per square inch.

G. W. McNees, Kittanning, Pa.

Mr. Ittner: In regard to the case kiln. If it is boiler iron or steel from the base to the crown, solid all around, with the exception of these bolts with which it is fastened down sheering off, I would not think there could be any question about that method of bracing a down-draft kiln.

Mr. Harrop: It is largely a business proposition. You will have to figure with pencil and paper and say to yourself, "It will cost me so much; will I save enough in fuel or repair bills to justify?"

Mr. Gregory: I think this one of the most practical papers we have ever had before this association.

Mr. Ittner: I think so, too, and I am sorry I could not have heard it twenty-five years ago.

Mr. Gregory: I note Prof. Harrop's remarks regarding ⅛-inch joint for fire brick. This I regard entirely too thick, and would prefer 1/32-inch joint if possible, as more kilns fail on account of a too thick fire clay joint than most other causes. A few weeks ago I was in a yard where the kilns were in a terrible state, many falling down, etc. I found that all the kilns were built by contract and the fire brick were laid as carelessly as if they were common brick. One cannot be too careful in the construction of kilns. I think Prof. Harrop made the point that the bag wall in a round down-draft kiln should lean from the perpendicular and from the heat side, thus the heat would have a tendency to bring it to the perpendicular line. I think it would be well to add to this paper to make the center of your round kiln from one and one-half to two inches lower than the sides at the bottom, and then when the brick roll they would roll towards the center and not towards the bag walls of the kiln.

President Mayer: The Chair will now appoint the committee which he was instructed to appoint yesterday for the purpose of forming an organization for promoting the use of building brick: Fritz Salmen, New Orleans, La.; John T. Hummert, Quincy, Ill.; Thos. E. Wilson, Pittsburg, Pa.; George H. Clippert, Detroit, Mich.; Eben Rodgers, Alton, Ill.; W. H. H. Rogers, Rochester, N. Y.; Charles H. Bryan, Detroit, Mich.; Christopher Steadman, New York City; William Conway, Philadelphia, Pa.; J. Addison Crowell, Walkill, N. Y.; J. Fred Smith, Omaha, Neb.; Warren Ittner, St. Louis, Mo.; Jotham Post, East Williston, N. Y.; Wm. Hanley, Bradford, Pa.; M. E. Gregory, Corning, N. Y.; R. D. Lindsay, Denver, Colo.; A. F. Kleymeyer, West Point, Ky.; John E. Schuesler, Buffalo, N. Y.; John H. Qualman, Saginaw, Mich.; Wm. S. Dickover, Wilkesbarre, Pa.; A. C. Ochs, Springfield, Minn.; H. C. Kleymeyer, Evansville, Ind.; W. P. Varney, Chicago; Wm. Schlake, Chicago, Ill., and Theo. A. Randall, Indianapolis. I have no instructions to give the committee. Whatever they recommend will be put before the convention.

Mr. Salmen: That committee would ask the privilege of withdrawing now.

Mr. Randall: Would it not be well for half a dozen or so to get together and formulate plans for the consideration of the committee? Some of us cannot get away now, we must stay here until the session is over, and then we could have the whole committee meet after adjournment.

Mr. Salmen: Perhaps that would be better.

Secretary Randall: The next number on the program is No. 3, "The Other Fellow in the Brick Business," by Thomas E. Wilson, of Pittsburg.

Mr. McNees: Before Mr. Wilson starts to read his paper, I would like to say that I desire to meet the committee that was appointed yesterday on nomination of members for the Committee on Technical Investigation that I would be glad to have them meet me in the Secretary's room at 12 o'clock. The committee consists of Prof. Orton, Ellis Lovejoy, M. E. Gregory, Will P. Blair and myself.

President Mayer: I trust the members of these various committees will heed the request of their chairman. I am glad to introduce to the convention Mr. Thomas E. Wilson of Pittsburg.

## THE OTHER FELLOW IN THE BRICK BUSINESS.

BY THOMAS E. WILSON, PITTSBURG, PA.

*Mr. President and Gentlemen of the Convention:*

The other fellow in the brick business should be one of our very best and most confidential friends. This other fellow in our business should also be worthy of our friendship and our confidence. However, before friendships can be formed and before confidence can be established we must necessarily become acquainted. Most of the enmity among men in any kind of business and throughout the world originated through misunderstanding, and that is why a great many brickmakers are not on good terms today. When men meet and discuss their differences they often find that their opinions are very much the same and, therefore, their misunderstandings soon vanish and ill feelings are changed to feelings of respect and sympathy. How necessary it is then, that men in the same line of business, especially in the brick business, should have a local organization where meetings are held at least once a month. At these meetings men gather about the same table night after night become like one great family, where the interest of one is the interest of all. At these meetings, men who heretofore criticised and found fault with each other personally, as well as with each other's methods of doing business, are surprised to find that their competitors are fine gentlemen and that their interests were conflicting because they didn't know any better. These men soon become firm friends, if they are at all congenial, because they soon discover that their interests are one and the same.

You will pardon me, if in this connection, I refer to our Pennsylvania Clay Club of Pittsburg, which was organized a little more than two years ago with seven members. We now have a membership of twenty-nine or thirty, and at each monthly meeting a large percentage of the members are present, although many have quite a distance to come. When our club was first formed I was astonished to see that all or nearly all were strangers waiting to be introduced to men who had been in the same business, in the locality, for a number of years. The reason they had not become acquainted before was because they had considered each other enemies, and apparently each brickmaker had felt it his bounded duty to put his competitor out of business. In fact some had put their competitors out of business but in so doing they had practically put themselves down and out also.

The public generally believe that anyone can run a brick plant, but those who have had some experience in the business believe that the man who can run a brick plant successfully can run almost anything else. It is an old saying, "Competition is the life of trade," but if you are competing with someone who is working simply for the good of his health, or with someone who has no idea what his product is costing him and who listens to the owner or contractor to tell him how cheap brick can be made, your chance of success in business is just about as good as the chance of the sick man of whom it was reported that he was on his death bed. The friends as well as the physician had been summoned, and as they gathered about the bed side, the doctor felt his patient's pulse, put his ear to his heart and said, "The man is dead." The man over hearing the remark replied that is not so, whereupon the wife with her accustomed gesture of authority exclaimed "You shut up, the doctor knows." Such competition no one can endure, but fair and intelligent competition where the manufacturers actually know what enters into the cost of their product and will insist on getting a fair margin of profit will injure no one. It will not even injure the contractor unless he has taken the work below cost, trusting in his ability to get the manufacturer to cut prices to help him out of his predicament and fails, as he should do, when he gets his contract in that manner.

One of the chief reasons why there has been so little profit in the brick business and so many failures, especially in the common brick business, is because of ignorance of the real cost of production. We know from observation and experience where men have made and sold brick at 50c and $1.00 per M. below actual cost, and imagined at the same time that they were making money. One way in which they lose money apparently without realizing it is by making brick almost as large as a paving block, for which they receive no more per M. than the man making standard size brick. To make this large size brick takes more material, more kiln room, more fuel and more freight to carry it to destination. Also the number of brick required on any job in the territory where such a plant is located is greatly reduced. One of the members of our Pennsylvania Clay Club wants to give someone a fine present for inducing him to join our organization for it was there that he was persuaded to reduce his brick to standard size. This reduction in size he says saved him in freight alone $300.00 per month, and also saved more than 10 per cent in material, kiln room and fuel.

One of the conditions of membership in our club is that standard size brick will be made. At first some of the manufacturers were fearful lest the owner or the contractor to whom they had been selling would refuse to buy their brick because it had been reduced in size, but that trouble like most of our troubles was only psychological. In fact, contractors have told us that they were glad a uniform size brick had been adopted for they know now on just what to figure, and do not waste time, after getting a contract, running around hunting for the largest brick made in the community.

We have also discussed so thoroughly the items that enter in the cost of production, including depreciation of plant, that prices have advanced materially, for men as a rule in any business will not sell at less than cost when they know it unless they be like the man who kept buying eggs at 30c per dozen and selling them at 25c per dozen, and when asked how he could afford to do such kind of business replied, "He could not afford to do it except that he did such a large business."

At our meetings we have also had talks given on the best and most efficient kinds of kilns, on the cheapest and most dependable power, on the most economical methods of drying and burning, and, in fact, on everything relating to the brick business. Hence we all feel a great deal wiser concerning our business than we did two years ago, and we hope to learn still more not only from the present membership but from others who will unite with us. The larger the membership in our organization the better, for from a great number we ought to learn more by comparison and by having it told to us.

You should never hesitate to listen to the experiences and opinions of the other fellow, for by so doing you may be able to render him valuable assistance and at the same time gain useful information for yourself. A good listener is usually a wise man. I need not tell you the wisest man that ever lived. His name is familiar to all. I am not asserting why he was so wise, but I have heard it affirmed that he was so wise because he had to listen, and because he had seven hundred tell it to him. So I would recommend that the brickmakers of every district should organize a club and meet at least once a month, get the advantage of the other fellows experience, render each other all the help possible so that every one in the business may prosper, for when your competitor thrives you will make money also. Furthermore, these meetings will prove beneficial because you can know exactly the condition of the market in your district, the number of brick on hand and not sold, who has more orders than he can fill (none such now) and who is in need of orders.

By working together for mutual good no petty differences will arise, but honesty and justice in our dealings with each other will be established, better brick will be made without increasing the cost, better service will be rendered to the public, and our business will assume a much higher standard among the greatest industries of the country. (Applause.)

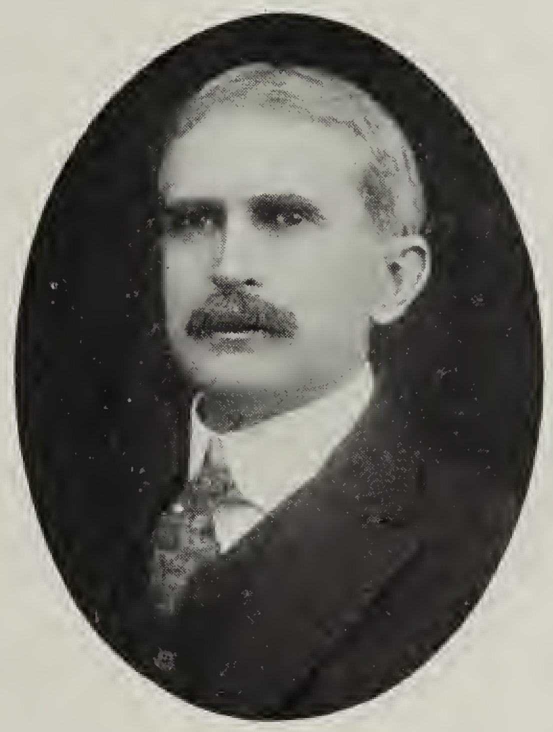
## General Discussion.

President Mayer: Is there any discussion on this paper.

Charles J. Deckman: I have no desire to discuss this paper, but I want to add the thought, that if such clubs as the one referred to will hold their regular meetings at the plant of one of the members and change their meeting place each time, they will be astonished at the results they will obtain.

Mr. Ittner: That was a good paper and Mr. Deckman has made a good suggestion.

President Mayer: If you will pardon me, your President happens to be a member of the club referred to, and they only meet to eat and sometimes they have liquid refreshments. This club was formed and is held together simply on the idea of rubbing up against one another. They have learned that a man's eyes are the windows of his soul, and they look into each other's eyes and drink from the good fellowship they find there. We might go out to a plant, if we met in the daytime, but we meet at night. Our President will surely take account of what Mr. Deckman has suggested and if we can arrange that matter will do so.



Thomas E. Wilson, Pittsburgh, Pa.

Secretary Randall: The next in order is "The Up-to-Date Method of Boosting the Brick Game," by Robert C. Mitchell, sales manager of the Farr Brick Company, Cleveland, Ohio. Mr. Mitchell is not present and has requested me to read his paper for him.

## UP-TO-DATE METHOD OF BOOSTING THE BRICK GAME.

BY ROBT. C. MITCHELL, CLEVELAND, OHIO.

*Mr. President and Gentlemen of the Convention:*

My business is that of marketing Common Sand Mold Building Brick for the highest selling price possible within the bounds of good judgment. Two years ago, when I entered upon my present work, I found the Farr Brick Company very progressive and anxious to do something different in the way of arousing an interest in Common Building Brick. They, however, were too busy to give it the proper attention and turned the entire matter over to me with instructions to go the limit.

I found practically a virgin field in which to work. The common brick dealers of Cleveland were, up until that time, content to accept what business there was at most any old price the first fellow on the job saw fit to ask. Generally speaking, they were satisfied to limit their output to the immediate requirements of the city. If the demand fell off, they would close their plants for a matter of a few weeks to curtail the production; if the demand exceeded the supply, it concerned them not. Their motto seemed to be "Let the contractor worry, we are selling our output," and it was true. They were selling their output, but it was also true that the hollow brick and tile manufacturers were busy finding a way to take care of the shortage and also to open the field for a general use of their wares. What is the result? Today Building Tile has come into general use and the Common Brick manufacturers have to contend with this very live competition simply because building operations had to go on and they were not far-sighted enough to enlarge their output and take care of the natural increase, let alone any additional demand they might have created by opening new fields for the use of their product.

Now, in the face of these conditions, instead of becoming peeved at the tile manufacturers, we have joined hands with them through the medium of the Society Advocating Fire Elimination (S. A. F. E.) and are doing everything in our power to promote the use of non-burnable material, regardless of whether the product be brick, tile, cement, stone or steel. We have succeeded in covincing a great many architects that a selected common brick is cheaper and superior to frame construction and not inferior to pressed brick. The architects, however, did not fancy the term "selected common" so we studied a way to serve the same product through a different channel. In the case of our own company, we decided not to change our product but to call it "Homestead" face brick—a true Colonial product—at $10.00 per M. instead of $8.00 when sold as selected common. We also announced our preparedness to furnish any special shapes at $60.00 per M. To further impress upon the public the merit of our "Homestead" face brick, we erected an outdoor exhibit at a cost of $11,000.00 (including the land value). Surmounting this wall, we have an animated electric display sign, in which 800 mazda bulbs have been used, outlining our trade-mark with the words "Buy Farr—the Best." Each week we use space in the Sunday papers and supplement this with direct advertising sent out once each month.

Robert C. Mitchell, Cleveland, Ohio.

Many of our friends cautioned Mr. Farr against what they considered extravagance and suggested such methods would soon "break" the company. Just how well they predicted is shown by the following results:

Our general advertising campaign has been on for two years. "Homestead" brick were introduced to the public six months ago and are today being specified by architects for schools, apartments, residences and factory buildings. Two years ago we were selling on output of 190,000 brick daily at prices ranging from $6.25 to $7.00 per M. for the hard grade. Today our daily output is 290,000 and these brick are not being sold for less than $7.50 per M. In fact, our salesmen are forbidden to offer our product at the other man's price; he positively must secure a higher figure. On the first of April our output will be 400,000 daily, including Homestead, hard-burned and soft, and our selling price will be higher than that of any competitor. (Applause.) Through our advertising campaign, backed up by a good product, we have made the building public believe that our material is "buy Farr—the best" and we have no intention of allowing this thought to slip out of their minds.

I thank you, gentlemen, and am now ready to answer to the best of my ability any questions you may wish to ask. (Applause.)

President Mayer: Inasmuch as the gentleman himself is not here we cannot ask him any questions, but he has prepared a good paper. Does any member wish to discuss it?

Secretary Randall: Taking up the same line of thought, we will take up the next formal number of the program, skipping Mr. Fitzpatrick's paper which we had yesterday afternoon, "Modern Brick Architecture," by Robert Spencer, Jr., Chicago, Ill., which is to be illustrated. While Mr. Spencer is getting his plates ready, we will read a number of letters from absent members which I am sure those present will be interested in.

### Letters from Absent Members.

Chicago, Ill., Feb. 14, 1915.

My Dear Randall:

Circumstances over which I have no control will prevent my being with you at Detroit. Had tried to so arrange that I could surely make it. Had figured up just how much we had lost during the past year and had almost found where we lost it, so that is not keeping me, in fact, as you know, that never keeps any of us away, for, if it did, we would never get there.

My best wishes are with you and my kindest regards to all.

Sincerely yours,
WM. D. GATES.

St. Louis, Mo., Feb. 19, 1915.

Dear Mr. Secretary:

The writer put off writing until the last moment in hopes that he might possibly be able to be with you at Detroit. I regret exceedingly that it so happened that my presence was required in St. Louis during Convention week.

I am enclosing herewith my check for $3.00 covering dues, and trust the convention will be unusually successful.

Yours very truly,
LEMON PARKER.

Catskill, N. Y., February 16, 1915.

Dear Ted:

I am very sorry that I was not able to attend the convention at Detroit this year, but for some little time have been confined to the house with a severe attack of the grippe; in fact, am not able to be out at the present time to any extent. I should have written you before, but for a considerable time before I was taken sick was away from home, and since my return have not paid much attention to correspondence. I have been thinking of you a great deal, and wish it had been possible for me to have been at Detroit this week.

With kind regards, I remain,

Very sincerely yours,
CHAS. M. CROOK.

Cincinnati, Ohio, Feb. 13, 1915.

Friend Randall:

It was my intention to have attended the 29th Annual Convention of the N. B. M. A. in Detroit next week, more especially as I have a daughter living there whom I would like to visit, but owing to several business matters that demand my personal attention, that of the award of Hamilton County Court House on Wednesday, wherein 8,000,000 brick are required, is emphasized, forbids that pleasure.

Enclosed find check for dues in N. B. M. A. for 1915. Wishing you your accustomed success in the proceedings, and a kind remembrance to enquiring friends in attendance. I am most sincerely

Yours,
J. M. BLAIR.

Milledgeville, Ga., Feb. 16, 1915.

Friend Randall:

Inclosed please find my check for $5.00, $3.00 of the amount to pay annual dues, and $2.00 to pay for continuance of "The Brickmakers Friend."

It's needless to tell how I would enjoy being with you on the happy occasion, lameness prevents. We are making brick right along, business conditions are improving and I predict that one year hence, we will look back and see that we were more "scared" than hurt. With many kind wishes,

I am yours truly,
J. W. McMILLAN.

Statesville, N. C., Feb. 15, 1915.

Dear Mr. Randall:

We have your letter of the 12th, and regret much that owing to illness in family we will be unable to reach Detroit, as we had hoped.

If any of our friends should ask about us, will appreciate your explaining our absence at this time.

Assuring you of appreciation, and wishing you an excellent time, we are,

Yours very truly,
J. C. STEELE & SONS.

Des Moines, Iowa, Feb. 12, 1915.

Dear Mr. Randall:

Much to my regret I will not be able to be in Detroit at the Annual Convention. I am sincerely disappointed that I cannot be with you. With kind personal regards and the sincere wish that you will have a glorious and successful time, I am

Yours very truly,
PAUL BEER.

Union Furnace, Ohio.

My Dear Randall:

I have my fingers x-ed on this clipping "The Columbus Brick & Terra Cotta Company, Columbus, Ohio, manufacturers of high-grade face brick, especially the Astrakhan line, favored us with a calendar bearing the picture of a beautiful Indian girl. Probably Ben Fisher had a finger in the pie when this calendar was selected." Don't start anything while my "squaw" is away. I have been so good I positively refused to go to the CHICKEN and Poultry show in Logan last week, so there.

Yours truly,
BEN S. FISHER.

D. O.—They expect me at the BAR next Wednesday.

Bradford, Pa. Feb. 12, 1915.

My dear Mr. Randall:

I have expected up until the last day or so to be in attendance at the Convention and I may possibly get there yet. I cannot say positively as there are some matters which I must give attention and until they are out of the way I cannot leave.

The convention will no doubt be a good one and largely attended and I shall be very much disappointed if I do not get there. I am sending a check for dues and if I should not show up during the convention will you kindly send me a badge and membership renewal.

Yours truly,
WALTER M. HODGES.

Toronto, Feb. 17, 1915.

Dear Mr. Randall:

I sincerely regret that I have been unable to make connections with the National Brick Manufacturers' Association Convention at Detroit. Mr. McCannell will have to do honors again at your banquet, which I trust will be the usual success.

Today we celebrate the hundredth anniversary of the signing of the treaty of Ghent, February 17, 1815, while we can in imagination hear the roar of the cannon in the vicinity of the city where peace was signed one hundred years ago, we can just as clearly look forward to the time when we may hear the song "Peace on Earth" sung universally, an example of peace having been set by the two nations occupying this great American continent. I should like to have been with you today if for no other reason than to celebrate this Peace Day. With kindest regards, I am

Yours sincerely,
G. C. KEITH,
Secretary Canadian Clayworker's Assn.

Urbana, Ill., February 13, 1915.

Dear Randall:

It is with a good deal of regret that I find that I will be unable to be with you this year, as I have just returned from the state convention and find several matters which demand my immediate attention. I trust, however, that you will pay my respects to my many friends and I am sure that your meeting will be a success. I note that in a pamphlet issued by our friend Hess, of the E. M. Freese & Co., he asks the question: "If Huck insists on fighting?" For your information, wish to advise that I would insist on fighting, not any foreign powers, but the clay men who are slow in co-operating and taking advantage of the co-operation that so many other industries are now enjoying, and I hope that your convention may be the means to show them the light before which so many of their troubles would fade. With kindest regards to you and your good family, in which Mrs. Huckins joins me, I remain,

Very truly yours,
A. E. HUCKINS, Secretary.
ILLINOIS CLAY MANUFACTURERS' ASSOCIATION,

Wesley House, Slaithwaite, February 16, 1915.

Friend Randall:

While I am a long way both from Tipperary, as they keep saying here, and further away from Detroit, my mind is with you at this moment, and has been since yesterday, and will be, no doubt, till the end of the sessions. I have attended so many of these meetings, and enjoyed them so much that I follow, every day, here, just about what you are doing all the time. Shall look forward this time to the full report in The Clay-Worker, as one of the stay-at-homes, but am with you in spirit, as it were. I enclose my check for $8.00, $3.00 of which is for my membership in the N. B. M. A. and the balance is for The Clay-Worker, which has been coming right along, and I want it to keep coming. Trusting this will find you and yours all well, along with all The Clay-Worker's staff, I remain,

Very truly yours,
H. HAIGH.

Vice-President Deckman in the chair: If Mr. Spencer is now ready, we will have the lights out and Mr. Spencer's paper on "Modern Brick Architecture." (Applause.)

## MODERN BRICK ARCHITECTURE.

ROBERT SPENCER, JR., CHICAGO, ILL.

*Mr. President and Gentlemen of the Convention:*

The first illustration we will show is the plot plan of the piece of ground which was secured at the Panama-Pacific Exposition which will probably be of some interest. It is an irregular piece of ground, and probably by this time planting is going on around the house and the approach to the house and the roof is on the house. This shows the relation of the house to the grounds. I want to say that our firm as the architects of this house want to acknowledge their indebtedness to the committee in charge of the work, particularly Mr. Matz and Mr. Varney, for their good horse sense displayed in incorporating the garage with this house which helped us out of a bad hole. A brick house affording the combination that this house affords and which is intended to be a typical house suited to the needs of the average family that can afford an automobile. We needed some sort of an additional building in order to make the thing look important enough on the grounds. A brick house to be built for from $4,000 to $5,500 can not be very pretentious. The cost of building means that such a house has to be very small, the house is simply a little cube, but when you add a garage and connect the house with the garage with a little brick service wall, we make the house dignified, so the people passing cannot see the union suits hanging on the clothes line on Monday, or on Tuesday, if Monday happens to be a rainy day. We think you will concede it is an improvement.

We have prepared two entire, complete, different sets of plans, one set of plans for the house to be built at San Francisco as an object lesson to the American people, and another set of plans which may be used by people all over the United States who want to build a small economical brick house which is to be arranged without any direct reference to the garage, although we have prepared a separate plan for the benefit of people who can afford to buy a larger car. The "Ford" was entirely unintentional. I have heard some talk as to the intentions of the Dodge people to put one of their cars in this garage, but I do not know whether that has been settled or not.

Robert Spencer, Jr., Chicago, Ill.

The second plate is the first floor plan of both the Exposition house, and the model house which I hope you will be able to build in about 999 small towns and cities in the United States in the next twelve months. If it is not, it will be your fault, not ours. We believe this little plan provides all the accommodations necessary for the average American family consisting of father, mother and from one to four children. One of the vital differences between the typical American house and the typical English house lies in the fact that almost throughout the United States our summers are hot, therefore the porch of the average home is more than a porch, it has become another room added to the house, and that is added to the high cost of living. It costs no more to build a room than the old fashioned lean-to type of porch. This porch is to be paved with quarry tile so it can be scrubbed out with the hose if necessary.

Another requirement of the average American house is the sleeping porch, we have got the out door sleeping habit. We enter the house as you will see through a porch of moderate dimensions which fits in the plan of the house for simplicity and economy. This porch is also paved with quarry tile and so planned that it can easily be enclosed with glass and form a roomy vestibule and save the waste space involved in building an interior vestibule. There is no reason when the porch is small why it cannot be enclosed with glass. No one needs a porch in winter. Therefore, why not enclose it?

Entering the reception hall, we have a coat closet, which we got by building out a very slight extension on the service side of the house. Here we have the staircase, which is the most economical type known. The staircase runs from the first to the second floor, and combines with it the entrance to the kitchen, the entrance to the garage and a stairway down to the basement, all contained in that one small unit for economy. The kitchen is practically the domestic laboratory and contains all the modern conveniences for preparing meals quickly and easily and for quick and easy service. There are built in cabinets and the sink is directly under the window where it will get the sunshine and be kept clean and sweet, while the range is opposite of the windows. The kitchen is so small and well lighted that there is no objection to having the range opposite the windows. There is no serving pantry for the reason that a serving pantry is a piece of extravagance in a house of this size.

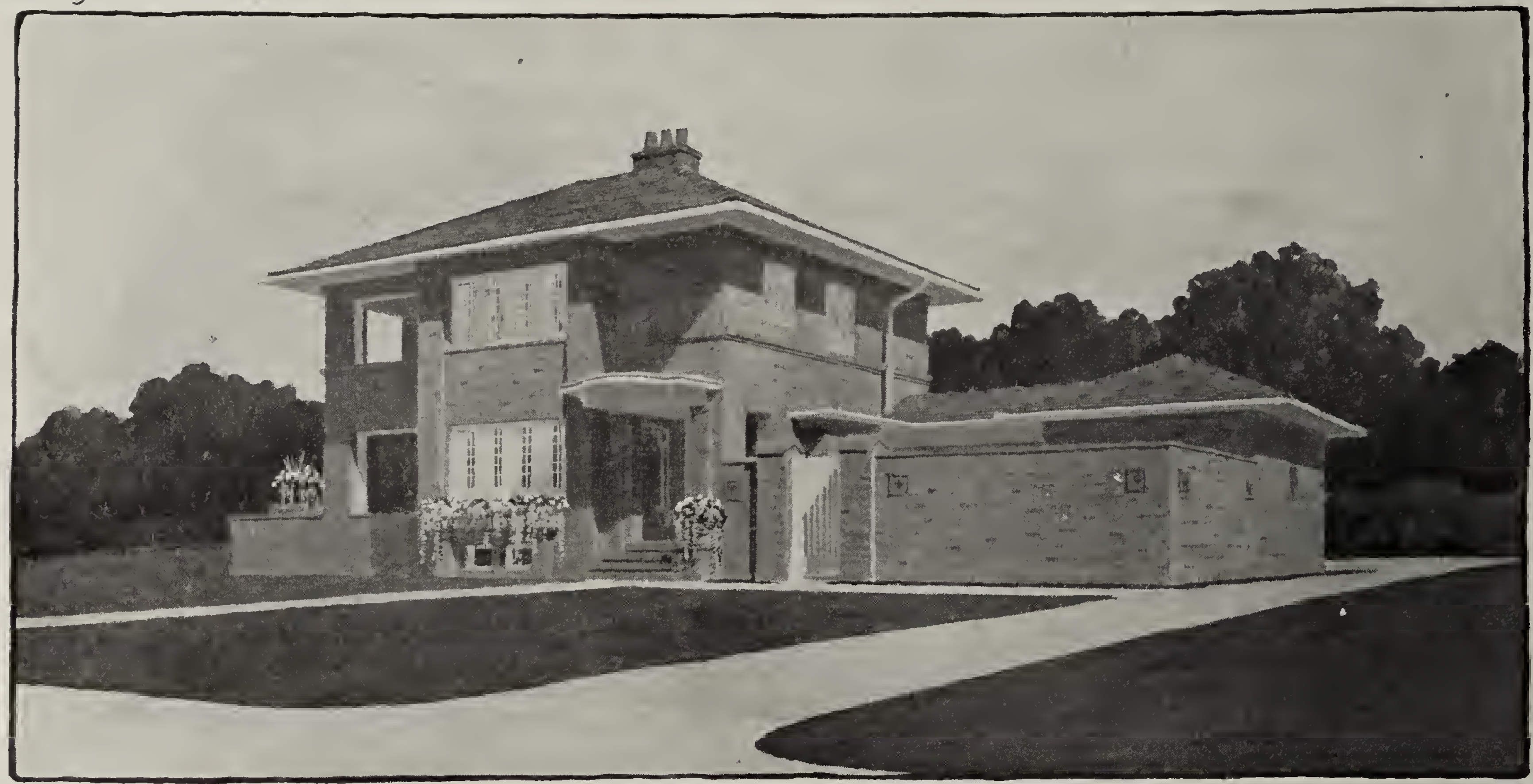
The porch, which is an outdoor living room, occupying the corner between living room and dining room may be used from either room, and those families who like to eat out of doors can have their service there quickly from the dining room.

Going up to the second floor, we have practically four bed rooms, three of them are bed rooms strictly speaking and the fourth is a sleeping porch, but practically speaking, it is a bed room, for like the porch down stairs it is provided with sashes, so it can be closed in bad weather, but it is really a four bed room house There is but one bath room, which, of course, is quite enough for a house of this class. There will be an attic space in this house, and, of course, those who desire to make more space than contemplated can build more dormers and the stairs can be carried up to the attic, but in the building as prepared for San Francisco and for general use the attic is generally ignored. There seems to be a tendency in the American household to go more toward the English idea of building a house to build all you want on the basement, first and second floors. While this could be developed into a three-story house, it costs a good deal of money to cut the roof up in dormers and gables and carry up the staircase and carry up plumbing, etc., into what ought to be a room in this house. But this was only intended for a place for storage which can be reached by a ladder in the upper hall.

Plate No. 3, as you will see, is merely a reproduction of the elevation, showing the front elevation of the house, together with the service wall and garage. You will notice that all the windows are casement windows, and the house is intended to be built that way. The house at San Francisco you will find with sliding windows which does not adapt itself to being screened, but the general plans provide for the windows to be opened out, which provided for 100 per cent. ventilation.

I am sorry that we did not have some sort of a colored drawing of the interior detail so we could show you what we are getting at in the way of brick in an attractive way in the interior. Would like to show you the interior of the living room with the fire place and book cases. We contemplate very nice brick work, white mortar joints flush with the brick work. I judge the superintendent is going to get a job out there so that the fireplace is going to be a very attractive part of the living room. We are not able to show you all the patterns in the exterior walls of the house. There is always danger in using brick patterns to any extent in a small house, of getting things too fancy in attempting to do something that an average workman is not able to carry out, so we have played safe in not providing too much of a plan except in the vestibule and side porch.

I do not know how many of the wives of the members of this Association here present subscribe for a certain ladies journal or magazine—if I say "journal" I may be getting too warm—but a certain journal is going to publish the picture of this little brick house and floor plans, and publish an article on it. I don't know whether it is going to hurt the brick business or not, I will leave that to you. This is rather a poorly colored slide. I thought when I first looked at it, it was all right, but the house at San Francisco is built of much brighter and warmer colored brick than this illustration would indicate. You can see here the panels in the service wall. There will be flower boxes in the front and shrubbery and flowers in the foreground. The reason we omitted these features from this illustration was we wanted to have the building show. We wanted every one to see what the building was like and have everybody leave it to their own imagination how much better it would look with the plants and shrubbery. Space is left along the walk leading to the house for the planting of flowers.



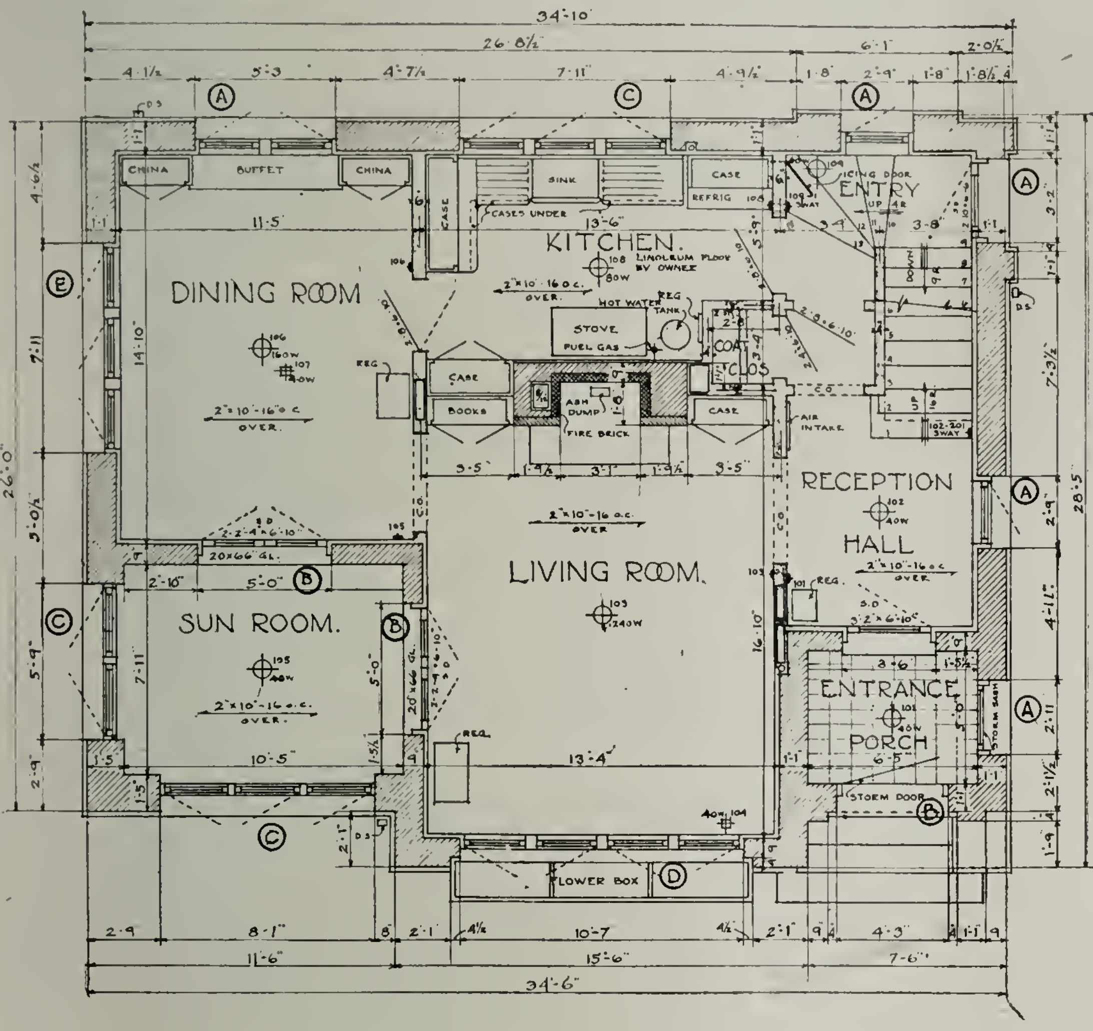
Model Low Cost Brick House Erected at the Panama-Pacific International Exposition, San Francisco, by the Panama-Pacific Clay Products Association, Chicago.

I do not know how much Mr. Matz has to say about this, but I think he wants me to say something before I go on to the other slides, so I will say my say now and let Mr. Matz have his say later.

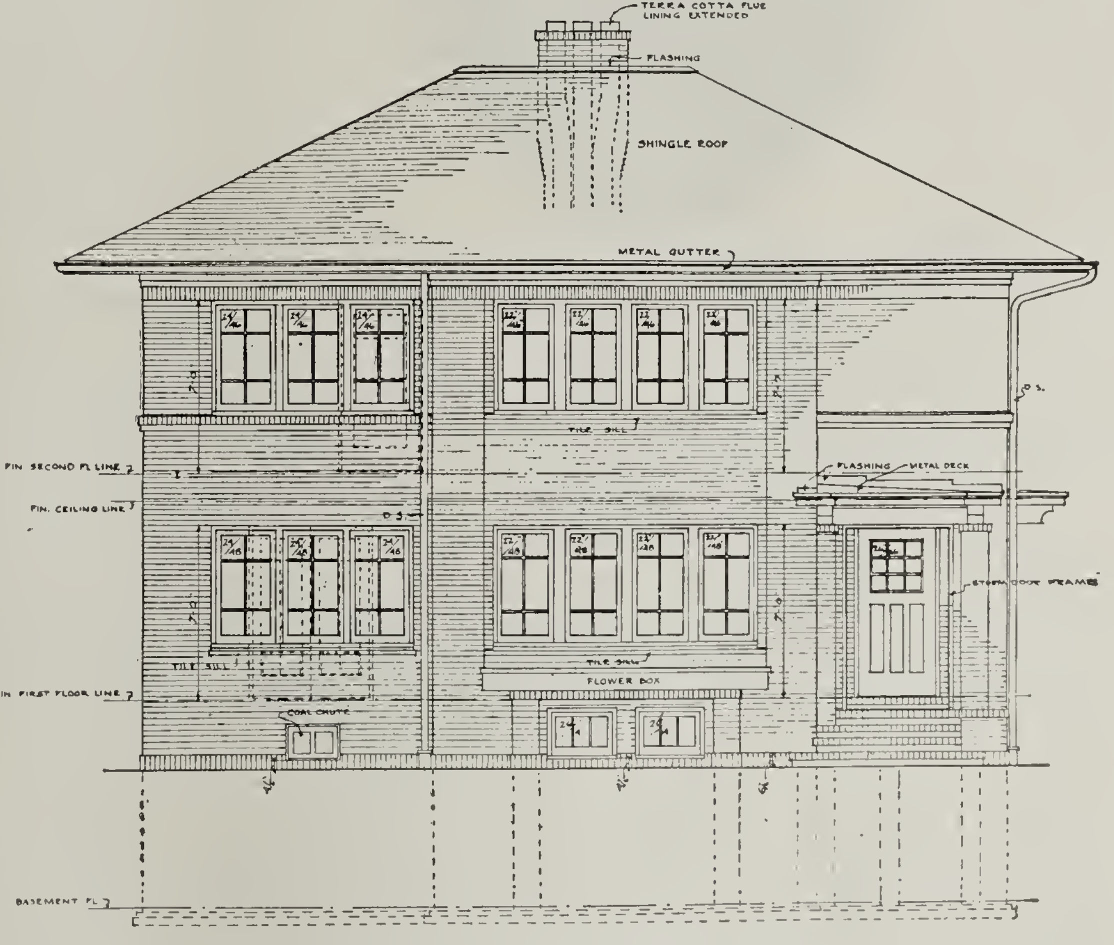
I feel this is practically a minimum cost house for the American family of moderate means. We feel that it affords all the accommodations that the average American family needs at the present time. Whether they are going to want more later on or not, I, of course, do not know, but the estimates that we have received from contractors for building this house in the Chicago district are perhaps a little higher than we had hoped for. I think brick men have been admitting right along that such a house will cost from eight per cent. to fifteen per cent. more to build than to build a similar house of frame construction for the exterior walls. But the whole problem is right here. Architects want to see brick used more than it is now for the building of the average price house. No architect wants to design a small house, but all over the country there are hundreds and hundreds of architects who make their living designing small houses, and they are interested in the small house game. So the question of frame or stucco or brick construction is of vital importance to them. But the great trouble the architect has to face at the present time, and the brick man has to face lies in that fact that the increase in the cost of building has been so rapid within the past fifteen or twenty years that the man who has never built and has now made up his mind to build during this coming building season has no idea at all about the cost of building. All over the country he is going to architects and carpenters and builders with a little bunch of sketches that he and his wife have worked out under the library lamp calling for an expenditure of from $8,000 to $10,000 and he hopes and expects that he is going to get that house for from somewhere to $4,000 to $5,000. This is a cold, hard fact. People know that the cost of bacon, and the cost of flour and the cost of pretty nearly everything they buy to eat and wear has gone up from nearly fifty to one hundred per cent. the last twenty years, but what do they know about the increase of building unless they have been building. They may have heard something about it, but it has never penetrated the gray matter at the back of his head. Everyone has an idea that because his friend built a house for $5,000 ten years ago that for $5,000 and 50 cents he can build the same kind of a house today. Well, the poor fellow is going to have a terrible awakening when he begins to talk to someone about the cost of building, and he is going to see right away that the sketches that have meant so much hard work calling for a house costing from $1,000 to at least $2,000 more than they want to spend, and it is not a question of brick, it is a question of building with anything that will stand up. People don't know what building costs unless they are in the building game. What the brick man has to face is the high cost of building material of any kind, not the high cost of brick. Nobody is educating the public now except the architects. There are a lot of people who are misleading the public. How many have read the advertisements in the Saturday Evening Post, double page spread in colors, by a big lumber company that sells ready-to build houses for a certain price. I am not saying they are not telling the truth, but I have my suspicions. I haven't checked their figures up, and there may be places a thousand miles from Chicago where these houses may be set up at the price they make, but mind you they only give the price of the material, they don't tell what the house will cost when it is up. They furnish complete designs and plans and diagrams free to those who buy their materials.

You people haven't done a thing to push brick; you are forty minutes late, but probably you can catch up. Here is a big lumber company up on the Mississippi river that will furnish plans free to people who will buy their mill work. I tell you the men dealing in lumber are away ahead of the man dealing in burned clay. There are thousands and thousands of people all over the country either through being out of touch with architects, or who are trying to cut the corners in every way who are trying to get their plans for as little as possible, regardless of the fact that a good plan is worth all they cost. They fight shy of architects' charges. They are after cheap plans and cheap building, and the plans for cheap buildings now are in the hands of the lumber interests. The brick men haven't yet got into the game. The question is, are you going to get into it, or are you going to stay out? The question is up to you. Now if a man knows that a $5,000 house of some years ago on the present market is a $7,000 house, and then he knows it will cost him not more than from eight per cent. to ten per cent. more to begin with to build a brick house than it will a frame house, he is going to be a pretty fair prospect for the brick man if you go after him right. Are you going to allow the lumber fellows to play the whole game? I do not think you are.

Some of the brick men have hesitatedt, too, about putting out a plan, and hesitate to cultivate the man who could not afford special plans and a special architect. I think the thing for us to do is to go ahead and put these plans out. If you do you are public benefactors, because the people of the United States ought to begin to put up houses that are something more than mere wooden shells. Of course, a house that is not fireproof thoughout, can be fireproof on the outside. If I had any sentimental associations connected with a house, I would feel better if the inside burned out and left the walls. One evening not long since, I had been home all day and it had been a dreary sort of a day, and my wife said about eight o'clock, "Let's take a little walk." She started out ahead of me, she had got her wraps on first, which is very unusual, and she opened the front door and said, "Oh, look, hurry up, hurry up!" and I hurried out and the whole sky was red in the north. I live about ten miles out from Chicago. I said, "That must be Mr. Smith's house burning." The house was really farther away than I thought it was, and I ran until I was in a good prespiration, and 200 feet away from the house it was too warm for comfort. It was a frame house and in forty minutes the thing was pretty well burned down to the basement and before I left there was not enough left to make a decent piece of kindling. Even the steps and the trees around the house were burned, and the next house would have gone if it had not been for the work of the firemen. The fire occurred about 6:30 to 7:00 o'clock, and the family just had time enough to get out. There was not a thing left, the only thing to do was to rebuild it entirely. If it had been a brick house, the walls would have been standing and in good shape. That thing happens



Floor Plan of Model Brick Bungalow.

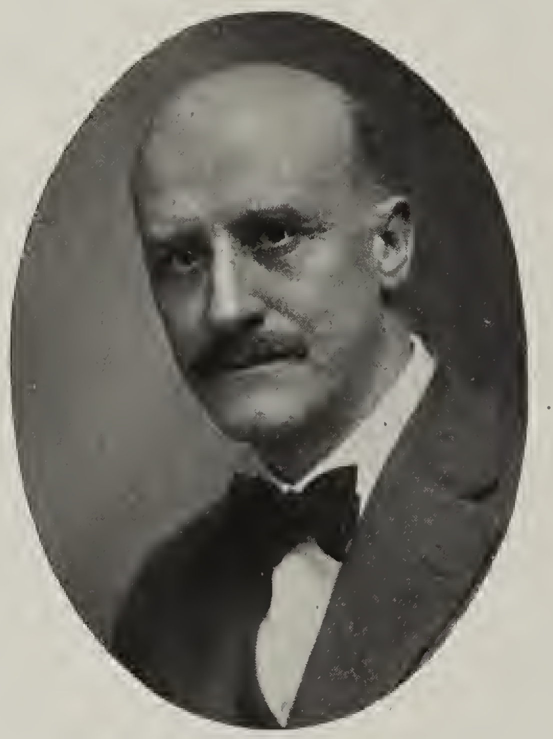


Front Elevation of Model Brick Bungalow.

every day and every night, and it happens everywhere. People don't care, they usually have insurance, and it don't make any difference. Everybody else is building of wood and they will go ahead and build another frame house. If the house catches fire at night, the family is in danger of being burned to death, especially if they are heavy sleepers. The only way I can get my boy out of bed in the morning is by telling him there is a fire, and he has got so hardened now that he don't pay any attention to me, but says, "I know it, down in the furnace."

I am going to leave the rest of this talk to Mr. Matz. I have a lot of good pictures of brick houses I am going to throw on the screen. The rest of this will be a picture show. I want to say this, however, the people who build want brick, they usually know it is the better material. Every man takes a pride in a brick house. No man wants a cheap looking automobile if he can afford a good looking one, and the same is true of his house. Every man feels a pride in being the owner of a brick house, especially in the suburbs of a large city where people are accustomed to brick. The trouble lies in the small towns where the plans are really made by the carpenter who know more about building with frame. People are building of wood because it is cheaper, and the plans are furnished, and will have to be educated up to brick, and there is where your fine work must come in. It is a fact that these people in the small towns are more lukewarm as between brick and frame, but the man who is building in the suburbs of a large city prefers brick. The one thing to show him is how little more it costs to build of brick than frame. (Applause.)

(Mr. Spencer then devoted a half hour to a series of stereopticon views of fine brick homes, including typical English structures, as well as American bungalows, some old and some new, but all of them representing a fine type of brick architecture.)



Herman L. Matz, Chicago, Ill., President Panama-Pacific Clay Products Association.

### General Discussion.

Vice-President Deckman: This subject is now open for discussion, and I want to admonish you that in the discussion of addresses or papers, you must necessarily reduce your language to the fewest possible words, and say what you have to say in less time than has been consumed heretofore, or it will be necessary for us to stay here until some time next week.

Herman L. Matz, vice-president of the S. S. Kimbell Brick Company, of Chicago, and president of the Panama-Pacific Clay Products Association, led the discussion of Mr. Spencer's address. He outlined the origin of the association; the unusual opportunity of building a model brick home as an outdoor exhibit at the San Francisco Fair; the ideal location among the State buildings and the fortunate combination of circumstances that permitted the use of the site that had been reserved for the State of Colorado, and which at the last minute Colorado decided not to use. He explained that the short time remaining before the opening of the fair made it necessary to take quick action or lose the golden opportunity. He told of his hasty trip to California last December and the appointment of a local committee of San Francisco clay men to take charge of the erection of the house, of the contribution of various kinds of brick, tile and terra cotta by the manufacturers on the coast, and of the acceptance of the offer of the International Bricklayers' and Plasterers' Union to furnish free the services of their members to lay the brick. He told how fast the building of the house had progressed in spite of the interruptions due to the unusual rainy weather experienced since the work started. He called attention to the unique value for general publicity, due to the fact that this is the first time in history where those who make a material, those who sell it and the mechanics who put it in place have joined in a united effort to multiply its use. He explained that the exhibit at the fair will be a model brick house of moderate cost—an actual home, furnished completely and occupied as a home, that will be attractive to the American woman—the woman who is attracted by what she sees and likes the looks of—the woman who is interested in the appearance of her house as she is interested in the dress or hat she wears—the woman who is concerned with the safety of the house she lives in with her husband and children—the woman who is taking more and more interest in public questions that concern not only herself and her children, but her sister women and their children—the woman who can be made to see that the making of homes better and safer is a cause worthy of her support—the woman who, with her vote, has a power which makes her influence greater than it has ever been. He showed that the greatest field for the increased use of brick, and the one which can be quickly cultivated and will bear the richest crops for the brick men, is the field of the small house in the small town or in the home sections of the large cities. He exhibited our friend, the carpenter-contractor, who is the architectural adviser of the prospective builder in the small town, as the air brake on the advance of brick construction—our friend, the carpenter-contractor, who insists that a brick house will cost 25 or 50 per cent. more than a frame house—our friend, the carpenter-contractor, who forgets to tell how much more it costs to repair, insure, heat and paint a frame house—our friend, the carpenter-contractor, who furnishes plans for a frame house free—our friend, the carpenter-contractor, who cannot be expected to work against his own interests by telling the home-builder that a brick house is not only better, but cheaper in the end.

He made plain the fact that the exhibit at the fair is not to be of local benefit only, but will help all the brick men of the United States in two ways. First, because it will be seen by visitors from every State, who will learn about the cost of home building what they did not know or fully realize, and will take this knowledge back with them to the cities and towns where they live. Secondly, because actual bids will be taken on the plans and specifications of the San Francisco model brick house in hundreds and perhaps thousands of cities and towns, and these figures will be published in a booklet showing the actual cost in every section of the country; then our friend, the carpenter-contractor, will have to show that a frame house will cost 25 or 50 per cent. less than the brick house, and he cannot do it.

In closing, Mr. Matz reminded the brick men of the large funds that the cement men and lumbermen have already spent and the still larger funds they are planning to spend to promote the use of their products, and asked the brick men to respond generously to the call for support and enable the Panama-Pacific Clay Products Association to accomplish for their benefit what cannot be accomplished without money.

W. P. Varney, manager of the Chicago branch of the Hydraulic Press Brick Company, jumped into the discussion with the enthusiasm of a football player sent into the game in the last minute of the last period of play, anxious to make a touchdown. He seconded everything that had been said in favor of the unique opportunity for publicity in connection with the Panama-Pacific model brick house. He emphasized the thought that the average American woman gets what she wants, and the most direct method of increasing the use of our products is to make her want a brick house. He urged those who have not already contributed to the funds of this publicity movement to do so at once and liberally, so that the house may be properly maintained through the exposition period, and books of practical educational value on the use of brick and other clay products may be generously distributed to the visitors from all parts of the country. He closed with an appeal for the support of those who had voluntarily taken on themselves the initiation of this movement for the benefit of all interested in the increased use of the products from which they gain their livelihood.

Vice President Deckman: We will now stand adjourned until 3 o'clock this afternoon.

## THIRD SESSION.

### Thursday, 3:00 P. M., February 18, 1915.

President Mayer: Gentlemen, it is getting late, and the convention will come to order. The first number on the program this afternoon is a paper by Mr. R. T. Stull on "Unsolved Problems in Clayworking," but Mr. Stull is not present and this brings us to the paper, "Some Tests Upon Large Brick Piers," by Messrs. Griffith and Bragg, of the Bureau of Standards, Pittsburg, Pa. Mr. Griffith will give this paper (Mr. Bragg being absent), using charts and slides in the presentation. Gentlemen of the convention, I am glad to introduce Mr. Griffith.

Mr. Griffith: Mr. President and Gentlemen of the Association—It gives me a great deal of pleasure to be able personally to meet the members of this national body after having known many of you by reputation through the published annals of the society and its accounts of professional work.

## SOME TESTS UPON LARGE BRICK PIERS.*

BY J. H. GRIFFITH AND J. G. BRAGG.

*Mr. President and Gentlemen of the Convention:*

The present paper will give a progress report of an investigation being conducted by the Engineering-Physics Laboratory of the Bureau of Standards at Pittsburgh, Pa., to determine the physical properties of large brick piers when tested to destruction. The investigation was inaugurated by the National Brick Manufacturers' Association through its committee on Technical Investigation, Prof. Edward Orton, chairman, and was taken up in co-operation with the Bureau of Standards through Prof. A. V. Bleininger, Ceramic Chemist, who acted in an advisory capacity in the conduct of the work.

In the investigation the writers followed very closely a general program laid out by the committee and have only deviated from the outline as originally devised when contingencies arose which, from the nature of the case, were unforseen by the committee, and which it was necessary to meet.

### Outline of the Program.

It was the plan of the committee in general to ascertain in the laws which determine the resistence to vertical pressure and the ultimate strength of brick piers of a size commensurate with those used in modern architectural and engineering practice and constructed of material under conditions which should be fairly typical of the output of the manufacture and the workmanship in America.

The committee recognized, in taking up such an investigation, that there would be an almost endless number of minor variables to consider in one phase or another, and that it would be necessary, in order to keep within practical limits, to take up only those main variables which are believed to be associated with the laws of brick columns under stress as found through previous experience in the investigation of smaller piers, or as dictated by theoretical considerations. From the nature of the investigation accordingly an engineering, rather than a physical, view point in the conduct of the research is justifiable on account of reducing the individual number of tests to adequate proportions as the accidental errors in experimental work of this character are usually large and in interpreting results a recourse must be had to an appropriate averaging of results rather than to drawing conclusions too closely from individual cases apart from the general trend.

### Districts.

In selecting the brick for the piers, it was decided to take four districts east of the Mississippi which should be representative geographically of the type and varieties of brick in common use. The districts are as follows:

(1) Eastern District—New York and adjacent territory in New Jersey or Eastern Pennsylvania.

(2) Eastern Central District—Western Pennsylvania and Eastern Ohio, comprising Pittsburgh and points within a 50 mile radius.

(3) Western Central District—Chicago and Galesburg, Ill.

(4) Southern District—Atlanta, Birmingham and New Orleans.

The work as thus taken up has been confined entirely to brick of the second, or Pittsburgh, district, as a major variable of the investigation.

### Qualities of Brick.

In defining the qualities and properties of the individual bricks used in the piers it was decided to take the tentative specifications as given by the committee C-3 of the American Society of Testing Materials, viz:*

Class A (Vitrified)—Average unit strength at least 5,000 lbs. square inch. Average absorption not more than 5 per cent.

Class B (Hard)—Average unit strength at least 3,500 lbs. square inch. (Burned)—Average absorption not more than 12 per cent.

W. P. Varney, Chicago, Ill.

Class C (Common)—Average unit strength at least 2,000 lbs. square inch. (Firsts) Average absorption not more than 18 per cent.

Class D (Common)—Not thus far included in investigation.

The brick were graded by ceramic engineers on the basis of tests to fall within the limits above.

### Mortar.

The quality of the mortar is an important variable. It was decided to study as representative of the grades used in practice, three classes, as follows:

M1—Portland cement and sand in proportions of 1-3 by weight.

M2—Portland cement, lime hydrate, and sand in proportions by weight,

15 per cent. lime, 85 per cent. cement to=1.
Sand=3.

M3—Lime hydrate and sand in proportion of 1-6 by weight.*

*A richer lime mixture was suggested by the Committee, but the test of a few piers (B4, B5, B6) showed such unsatisfactory results that it was decided to take the above mix of lime mortar as given for all the later piers of this group in the Pittsburgh district.

### Construction of Piers—Bond and Workmanship.

In selecting the size of specimens for tests it was proposed that all piers should be as nearly 30 inches square as practicable, taking into consideration the varying size of bricks; with a height of 10 feet for pier when placed in the testing machine. The areas in all cases were close to 30 inches square, the range not exceeding

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*By permission of the Director of the Bureau of Standards.

*See report of Committee C-3, Proc. Amer. Soc. for Test. Materials, Vol. XIII, 1913.

29 to 32 inches; the value of 32 inches, being slightly in excess of the range limit set by the committee, was necessitated on a few piers by the size of the brick presented and to avoid a change in the bond.

The average number of courses in each pier was 44, the range being 41 to 46, depending somewhat on the thickness of brick and the laying. The joints were 5-16 inch thick, with some slight variation, this being a point which could not be controlled absolutely as the measuring apparatus required the maintenance of a fixed height with only little variation. A few subsidiary tests on small piers are being made to determine to what extent the thickness of joints affects the strength, as the thickness, especially of vertical joints, is believed to be an important variable.

It was decided to use three typical styles of bonding, viz., every other course a header, every four course headers, and every seventh course headers, making three types for each set of piers, as will be described later in detail. The stretcher and header courses used throughout the series for the Pittsburgh District are shown in plan on Fig. 2.

Conforming with engineering practice, it was finally decided, also, to use an intermediate header or back-up course (see Fig. 2, Case B), the purpose being for reinforcement and an easier transition and more continuity of stress distribution. In referring to the bonding, as, for example, 1:1:5 or 1:1:2, the first figure gives the header course, the second the back-up, and the third the number of stretcher courses. (See Fig. 2.)

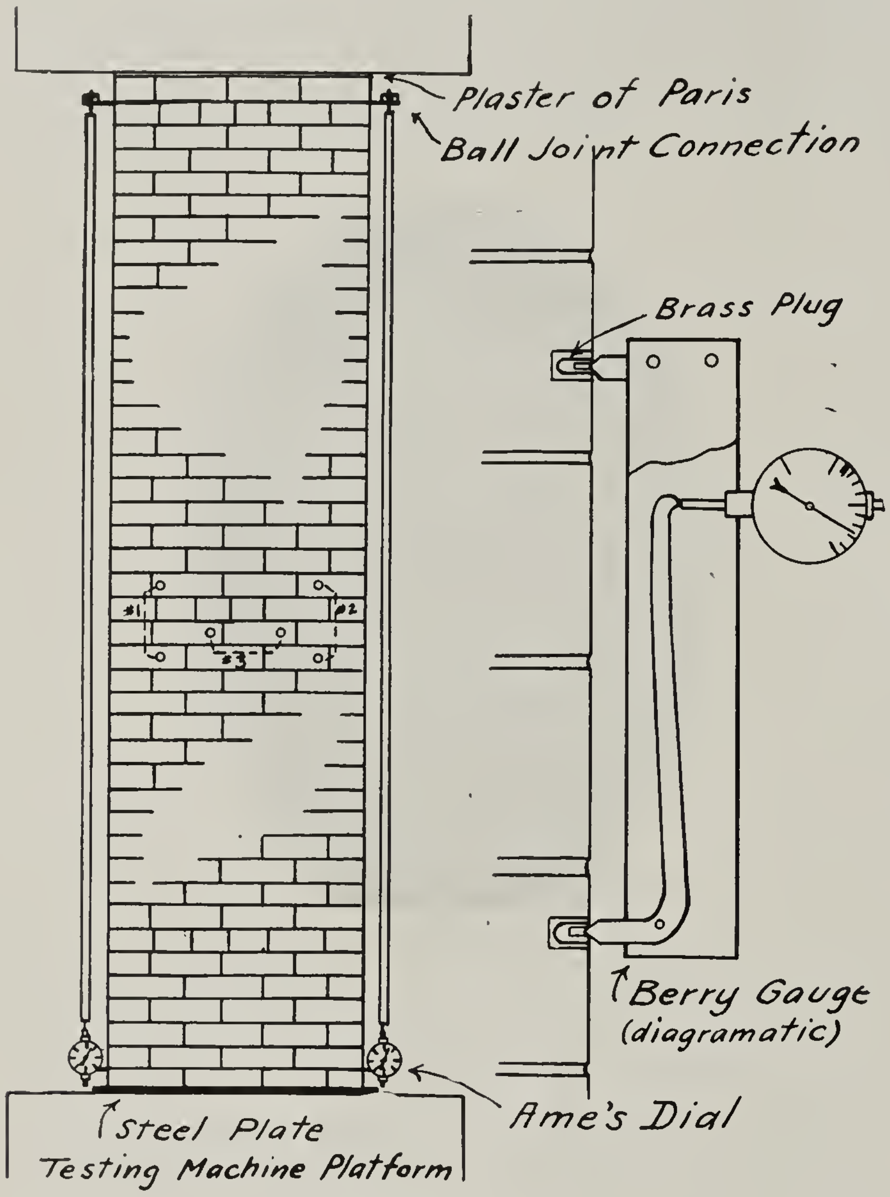


Figure 1
Showing Details of Apparatus for strain measurements

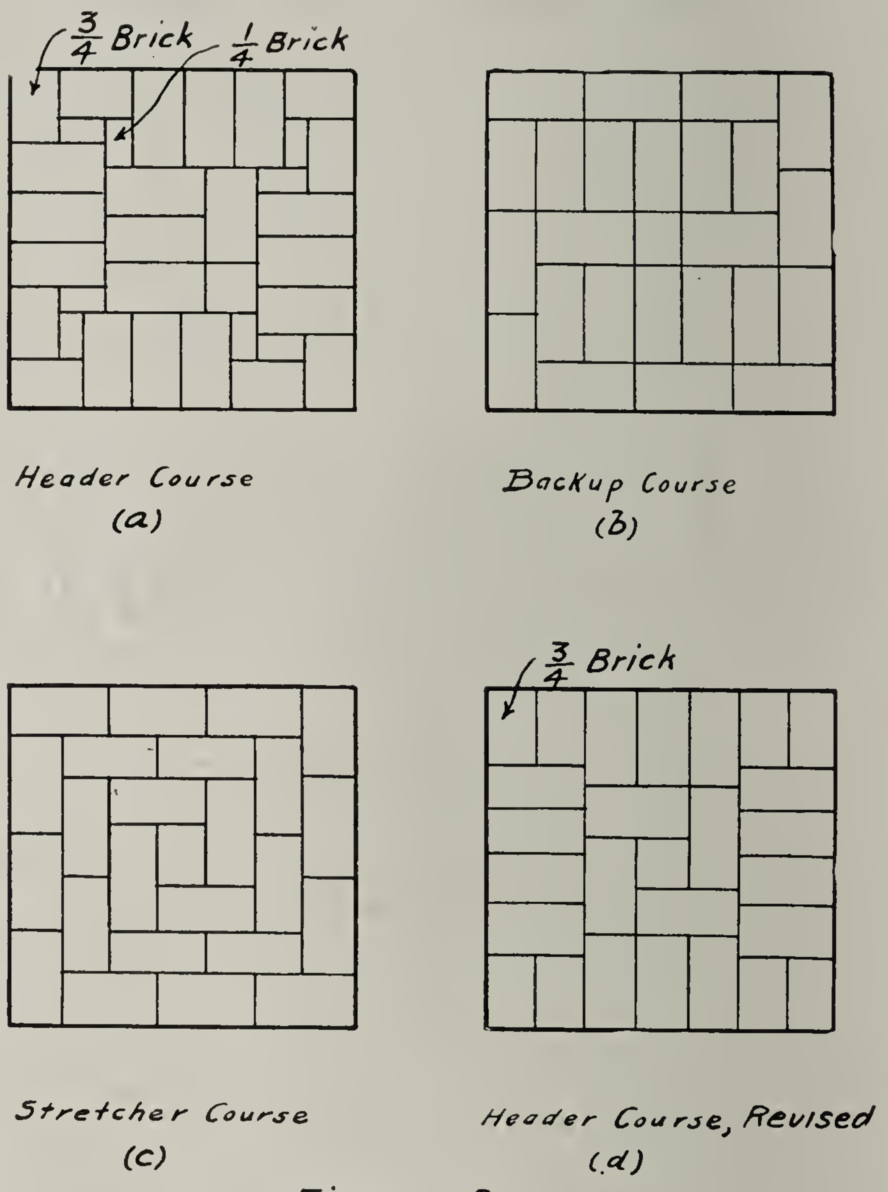
It was found that a pier 30 inches square did not offer much opportunity of varying the geometrical arrangement of the headers with the stretchers, and, after numerous trials, the writers were able to devise one other, perhaps more satisfactory, bond (see Fig. 1), which was tried with good results, to be discussed later; otherwise, the typical arrangement was used in all the piers of this series.

As to workmanship, it was logical to vary this relative to the bond. In the case of alternate headers and stretcher courses, 1:0:1, all joints were made "squeeze joints," except the inclosures which were filled finally after the brick were in place. Where the fourth course (1:1:2) was the header course, the center joints were filled as well as practicable without squeezing, and one course at a time, and finally for the 1:1:6 bonding, the outer rim of the pier was built up of three or four courses at a time, the center being filled in one course at a time with loose bricks, and the brick being slushed with mortar for the bedding of the next course. The specifications for workmanship was perhaps the most difficult to adhere to on account of it being necessary to constantly keep this point before the masons, who are prone to lapse into their own methods of laying.

The age of the piers was generally thirty days, except in the case of the lime mortar pier, which, to give some chance for carbonation, was taken as four months.

### Methods of Test.

Each pier was constructed in the laboratory on a steel plate, one inch thick, carefully leveled on the floor, the side of the plate which was to rest on the base of the testing machine being planed. A 1½-inch steel plate, with suitable eye bolts for crane connections, was laid on the top of the finished piers and connected to the base plates by four vertical rods, so that the piers could be easily lifted and set in the testing machine without straining, the top plate being removed after pier was set in place. The top of the pier, after parallelism was secured between its face and the upper head of the machine by suitable tilting of the lower adjustable platform, was covered with a thin coat of plaster of Paris and the head of the machine brought down, squeezing out any superfluous material. The specimen was then left several hours until the plaster had thoroughly set, when the pier was ready for test.



Header Course (a)
Backup Course (b)
Stretcher Course (c)
Header Course, Revised (d)

Figure 2
Types of Bonding

To ascertain the relation between the loading per square inch and the corresponding compressions, full length (9 ft. 6 in.), rod extensometers were used in connection with Ames' dials, reading by estimation to .0001 inch and which with careful reading will give results with a probable error of some .0002 or .0003 inch from the mean, this being amply accurate for the purpose. The extensometers were securely fastened to steel bars rigidly built into the masonry at the first and last joint of the four corners of the piers. (See Fig. 1.) In addition, numerous readings, both vertically and laterally, and in the joints of masonry, were taken with Berry strain gauges of 8-inch and 20-inch gauge lengths, to determine the local actions as far as possible. In the earlier tests of piers, the readings were taken at the base, quarter point, and middle of the pier, but these were reduced in number on the later piers, as it was found that there was little yield of data to be had over the results from the center readings.

In the setting of station plugs, small holes were made in the faces of the piers with a pneumatic tool and ⅛-inch brass or German silver plugs were firmly set in place with plaster of Paris, each plug having a small cylindrical hole drilled axially as seats for the points of the Berry gauges. (See Fig. 1.) It has been the practice to take an initial load of some 50 pounds per square inch, after which the loads were applied at stress intervals of from 10 to 200 pounds per square inch, depending on the quality of the brick and the mortar.

### Details of Investigation—General Deportment of Tests.

In an investigation of the materials of construction two general types of "matter" have to be dealt with, those whose elastic or other properties may be considered as essentially the same in any direction, such, for example, as the metals, and those in which they vary in different directions, such as masonry, crystalline structures, fibrous woods, etc., brick piers obviously coming in the latter class. While heterogeneous substances present certain properties which are often difficult to analyze in general, they may also show great lack of uniformity, even in the same material from point to point and throughout the piers, so that extensive generalization is inadvisable until more data is obtainable. In the present case, where there is to be little duplication of tests, and this only in cases where the particular test, through apparent error in judgment of the experimenters, warrants a repetition, the writers will only allude to trends in the results, and apparent laws, as more extensive data will doubtless suggest modifications in any theories presented.

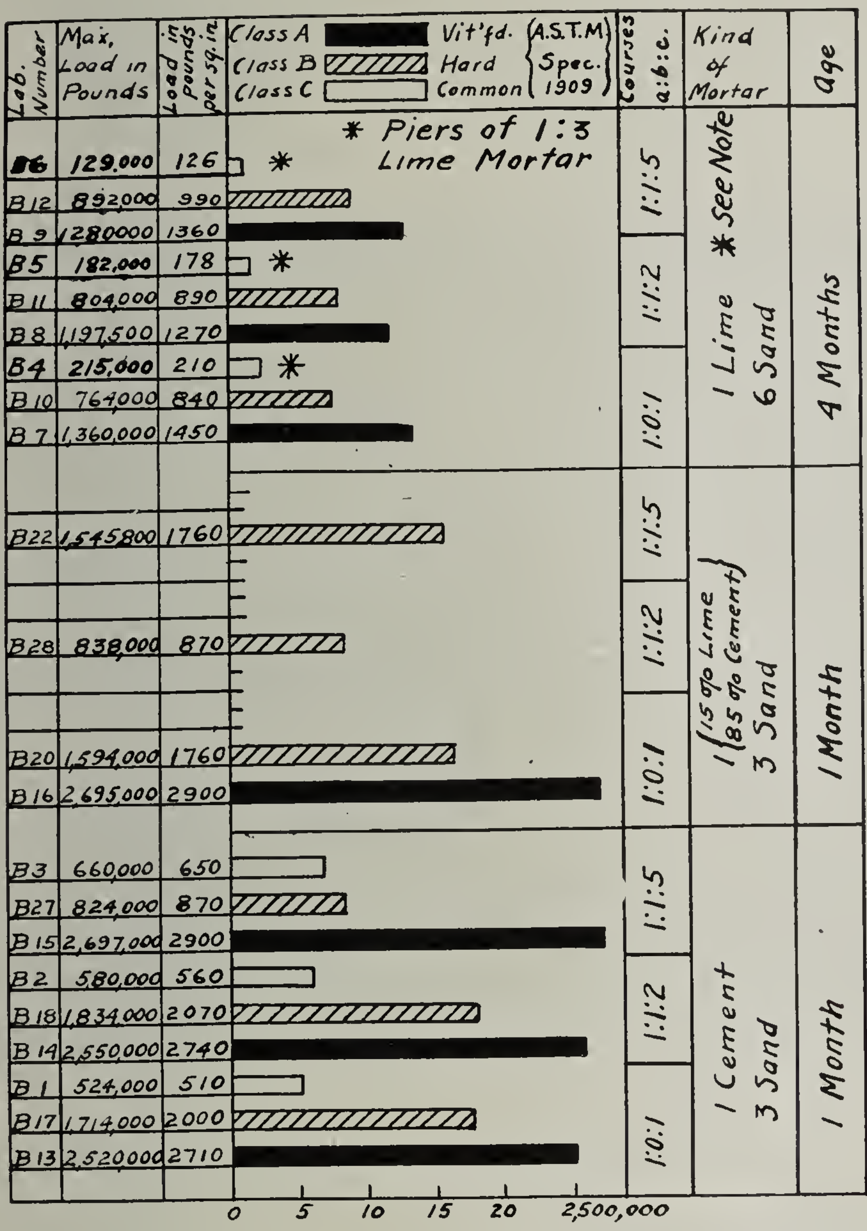
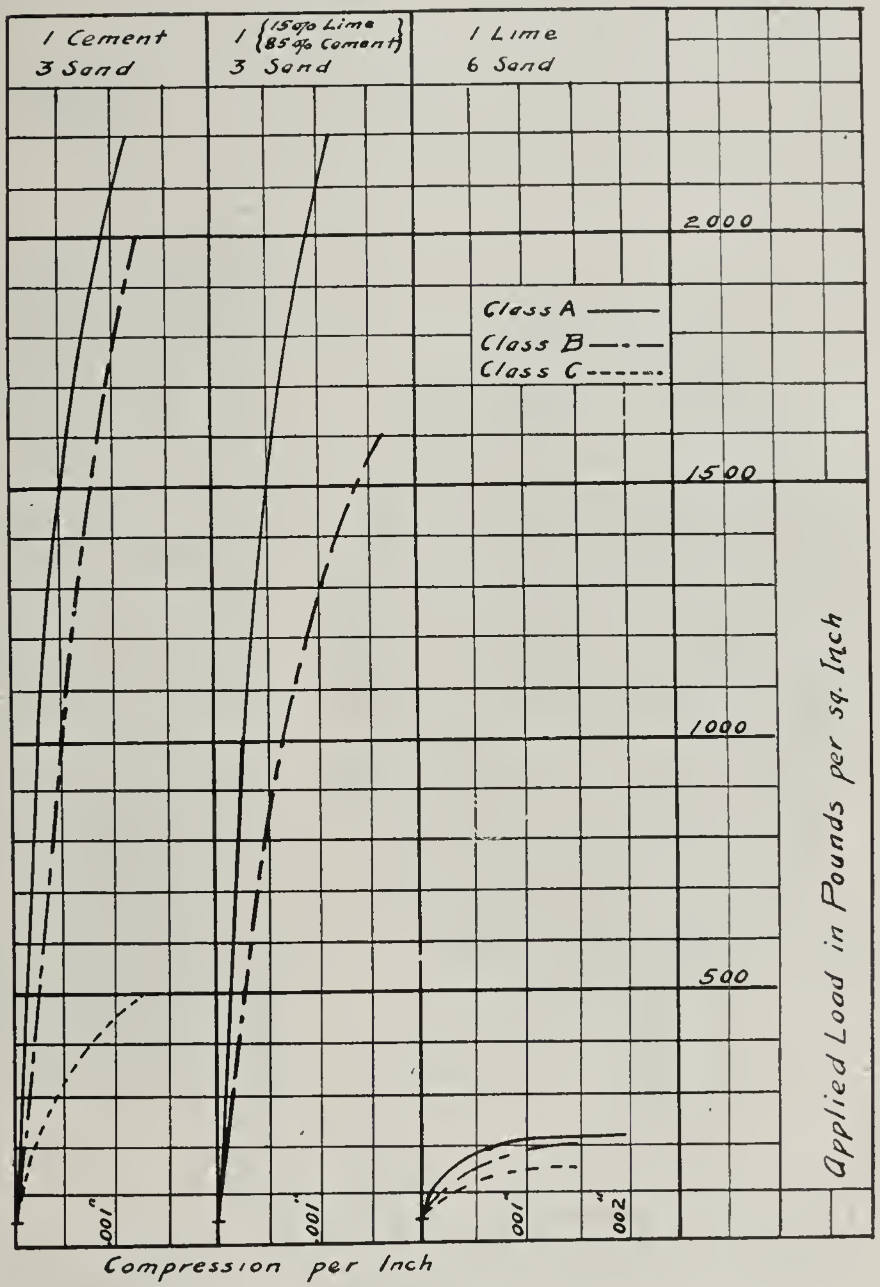


Figure 3
Showing Relative Maximum Loads, etc.

Fig. 3 gives an epitome of the properties of the piers as constructed in relation to the strength, this being incomplete in a few instances, on account of delays in obtaining "C. spec." brick. Three piers laid in 1:3 lime mortar were made and are included in this schedule (marked by asterisk), but otherwise the lime mortar was 1:6 as conforming more nearly to practical conditions.

Further support of the common opinion *that the strength of a pier is largely determined by the mortar used is found in a comparison of the maximum loads given in Fig. 3—the strength of the 1:6 limes being only one-half that for the corresponding piers laid in cement and cement and lime mortar, the 1:3 lime mortar piers falling still lower. The reason for the poor showing of the lime mortar of either grade is mainly because of an almost entire lack of carbonation of the mortar on the interior, rather than in any special inefficiency of lime mortar, when properly aged. The outer "shell" had doubtless hardened to a greater extent than within, this probably impeding the egress of air to the interior. On the interior portions the lime mortar was found to be usually soft and friable and could easily be disintegrated with the nail or knife point. While considerably higher values for the strength of piers of lime mortar would have been obtained with greater aging of the mortar (the original series of Watertown Arsenal tests having aged eighteen to twenty-four months), it is to be remembered that a brick pier may get a large percentage of its full load while the age of mortar is still young. The opinion of the writers is that the use of a lime mortar of low aging is not justified in pier construction, and they will recommend its abandonment in the later investigation, except for determining limits, aspects and qualitative results from particular kinds of rupture.



Typical Stress Strain Curves Pgh. District
Figure 4

In the case of the lime and cement mortar, the practical results compare very favorably with those for cement, and taking into account the greater ease of working the mortar in laying, the tests in this case have a more direct application to engineering conditions.

With the style of the bond used in all the piers, it will be noted (Fig. 2), as will be indicated by curves connecting piers of the same class (not shown in figure) that the strength increases slightly inversely as the frequency of header courses. A marked discontinuity, however, occurs in the case of piers Nos. 27 and 28, and some variation in the opposite direction in the case of lime mortar. It was necessary to build Nos. 27 and 28 out of a different heat of B specification brick, and although they were carefully graded, some difference might be expected, although the tests of single brick compared favorably with the brick of the earlier lots. The writers feel that it will be necessary to study further the reasons for this drop in the strength. It is probable, however, that as these new brick were slightly smaller in dimensions, than the first lot, necessitating somewhat wider vertical points in laying,

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*See Burr's Elasticity and Resistance of Materials, 6th Ed., p. 428; Johnson's Materials of Construction, 4th Ed., p. 651, et seq.; Baker's Masonry Construction, chapter on brick masonry.

that an element of weakness was introduced as a result of this rather than through any inherent difference from variation in the properties.

In initiating the program, the typical header course chosen at the time seemed to be the most efficient to select as far as bonding was concerned. The writers feel, however, that this header course was weakened by the introduction of the quarter bricks at the four corners (see Fig. 2, Case A), and the fact that the maximum strength usually increased inversely as the distance between header courses appears to bear this out. Accordingly, two 5-foot piers, No. 23 and No. 24 (see Table A for results), were tested to note the effect of varying the type of header course. Pier 23 of B specification brick, laid in the lime and cement mortar, had alternate header and stretcher courses, these being the typical courses as given in Fig. 2, Cases A and C, while No. 24 had headers laid as shown in Fig. 2, Case D. There was a gain of about 6 per cent. in the maximum load. (See Table A.) In fixing header course in piers for any particular type of cross-section, there are definite limitations, as is found by actual grouping of bricks in the geometrical arrangements possible, there being a much wider latitude in walls in this respect.

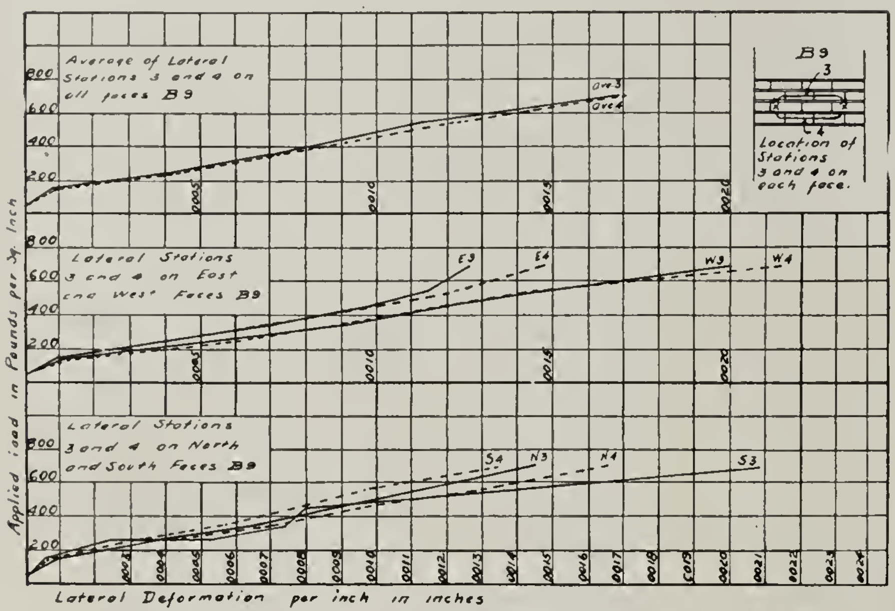

Figure 5 Showing relative strains in joints and courses

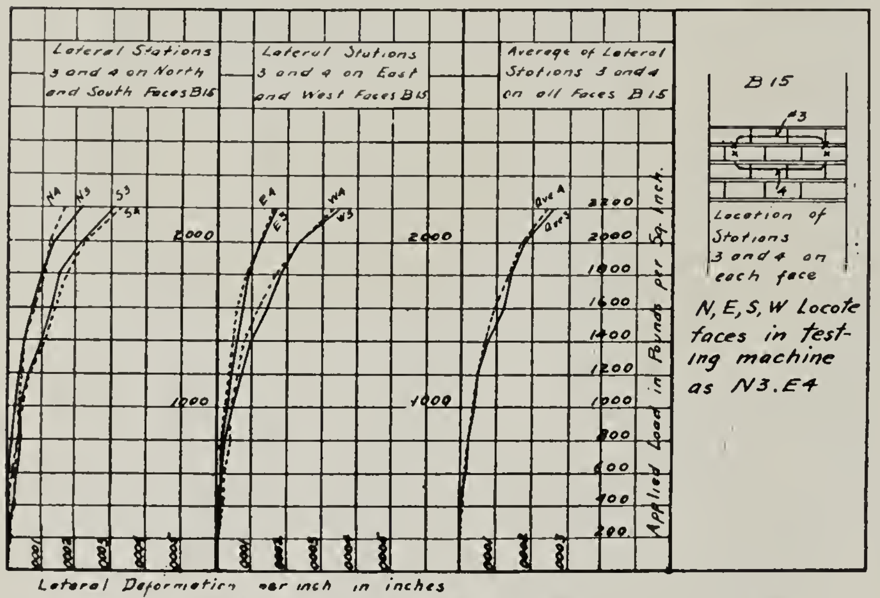

Figure 6 Showing relative strains in joints and courses

In the case of B 23, the short pier, there is also a comparison with the corresponding pier, No. 20, of double the length, to show the variation with the change of length, the result being nearly the same. Here again the comparison is vitiated to some extent, as the brick were of different heats, but graded the same, according to the tentative specifications of the A. S. T. M. Committee C-3. Only a comparison of mean results of a number of tests could be conclusive in such a case, and later data for different districts will throw further light on much of the work.

In Fig. 4 a few typical stress-strain curves have been drawn as plotted from the detailed extensometer observation data, which space does not permit to be included in the present paper.* The moduli of elasticity as given by the slopes of the curves are in the vicinity of 3,000,000 pounds per square inch for the Class A brick laid in cement, and slightly lower, about 2,500,000, for the Class B brick. The corresponding slopes are somewhat flatter when piers are laid in lime and cement. There is a wide range to be expected for this coefficient, but these figures offer favorable comparison with average results on smaller piers. The moduli show the relative stiffness of different class of masonry under load. In the case of lime mortars the slopes of the curves are variable owing to the fact that the deformation is a function of the time, there being considerable tendency for the compressions to increase even when the load was held constant during the time of observations. Vertical hair cracks, which will be later discussed, began to appear at about three-fourths of the maximum load, but there was no apparent law here and sometimes these were found quite early in the test.

While the curves as shown are plotted from the results of the full length extensometer, there is generally a fair agreement with the curves plotted from the 8 inch gauge readings, details of this, however, being omitted in the present abstract.

From the nature of the material it is difficult to fix any definite elastic limits or yield points for the piers, the curves for lime mortar showing uniform curvature from the beginning. There is, however, a sufficiently pronounced deviation from the tangent to the origin of curves (see Fig. 4), in the case of piers laid in cement and cement and lime, mortars at about one-half the maximum load of the piers.

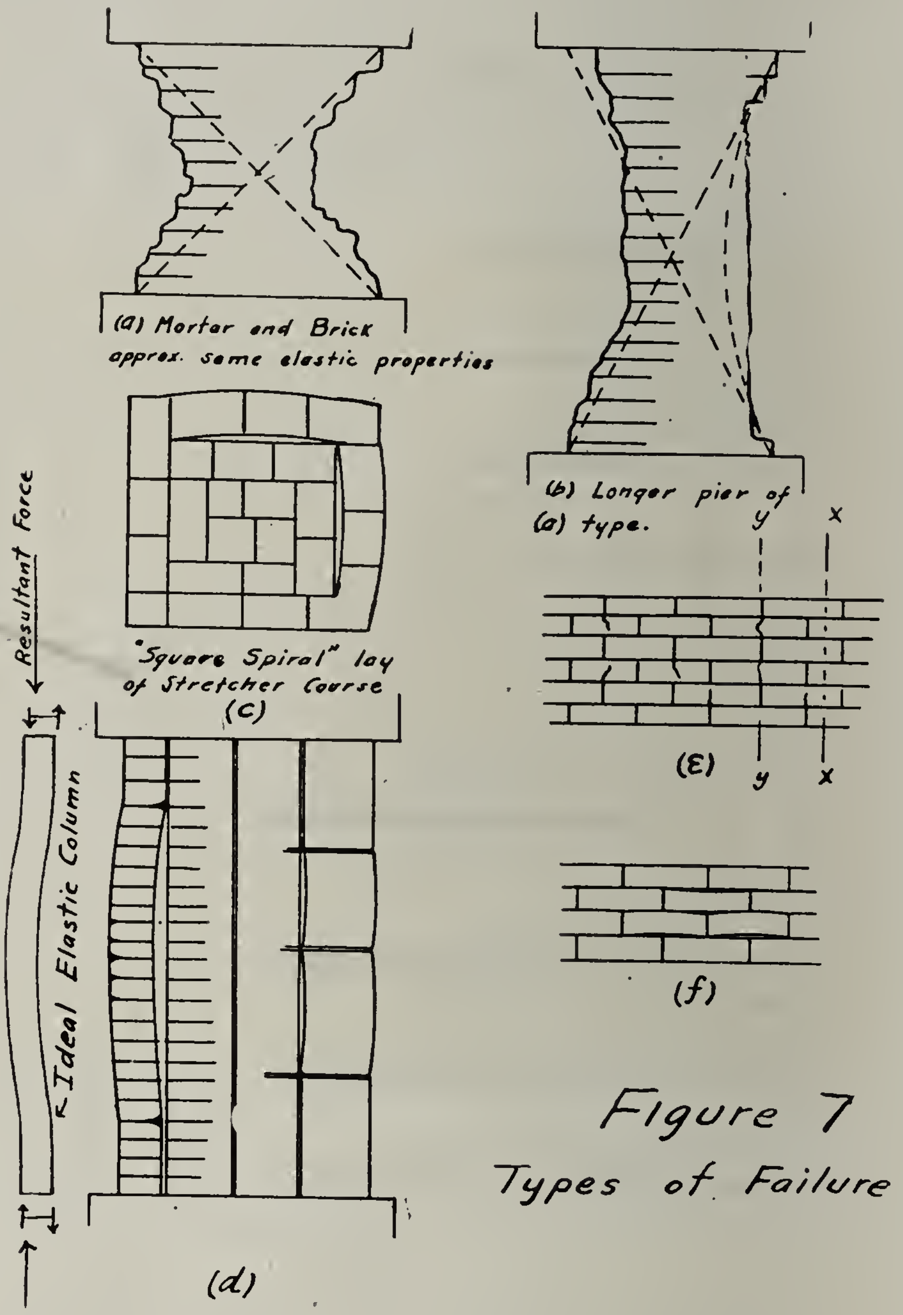
(a) Mortar and Brick approx. same elastic properties
(b) Longer pier of (a) type.
y
x
Resultant Force
"Square Spiral" lay of Stretcher Course
(c)
Ideal Elastic Column
(d)
(E)
y
x
(f)

Figure 7 Types of Failure

### The Mechanics of Pier Failure—Lamination.

Authorities agree that the failure of a brick pier cannot strictly speaking be called a compression failure, but rather occurs from a tendency of the pier to separate into vertical laminae, as is indicated not only by the vertical cracks forming on the outer faces, but by the prominent lines of cleavage shown on the interior core (see cuts) after any pronounced "spawling" of the outer "ring" has occurred. The late J. B. Johnson* has implicitly ascribed this phenomenon to the induction of lateral stresses in the brick. This, of course, is not mechanically possible in the limiting case of a pier laid in strong cement mortar which would fulfill the definition of an elastic "monolith" where vertical compressions and shearing stresses are solely in evidence, the outer wall surfaces being unconstrained (see Fig. 7, case [a]). The writers desired, however, to investigate whether there was any appreciable outward progression of the mortar over the brick courses with a tendency to cause lateral tensions, as sheet lead is said to do when placed between a bridge steel and bolster and its pier, or whether the "scaling" action in the joints was merely superficial in its extent. A great many observations are taken both in the joints and close to them on the adjacent courses, with 8 inch and 20 inch gauges. In figures 5 and 6, a few of the data have been plotted, the full curves showing vertical unit load-lateral strain curves for the joints, while the dotted lines are the corresponding curves for the courses. These when compared show that the "swell" of the adjacent courses is as great, and often greater, than that for the joints. The average for the four faces shows that the total deviation is practically nil. The maximum elongations, however, would largely occur radially from the axis of the pier, so that the results are not altogether conclusive, as were the measurements taken for the lateral expansion of piers, which are not discussed here, on account of the actual elongations measured being merely surface components of certain resultant deformations. On the other hand, there are varying degrees of plasticity in mortars one month old, the outer walls of piers being the most elastic in any case and the inner portions exerting reduced hydrostatic pressures of greater or less extent, for example, in a larger degree as in the case of earth, most of the lime mortars four months old showing considerable degrees of viscosity, as was seen by the variation of the strain (+ elongation per inch) with the time. There is accordingly doubtless some outward lateral pressure of one consecutive "ring" upon another which must be taken up by the flexural strength of the "rings," rather than by any appreciable lateral tension in the brick themselves, as assumed by Prof. Johnson.

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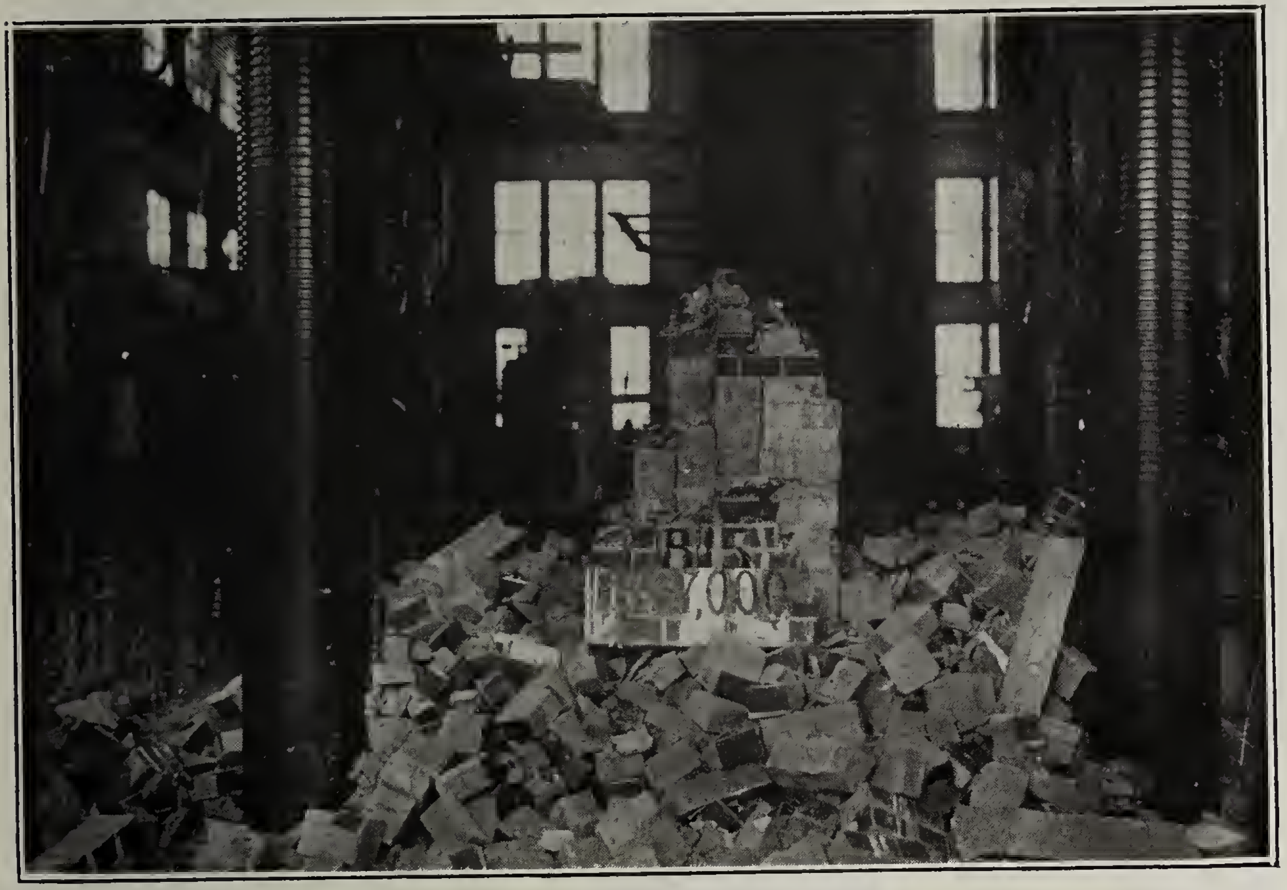
* The curves for piers of the same class are in substantial agreement.

* Johnson's Materials of Construction, 4th Ed., 1907, page 654.



Pier B 15, Built of Class A Brick. This Pier Withstood a Maximum Load of 2,697,000 Pounds per Square Inch.

J. H. Griffith, Pittsburgh, Pa.

A study of the cuts presented together with those showing the failures at the Watertown Arsenal (1883 to 1885) and other tests all indicate the prevalence of the vertical cleavages.

For analytical discussion of the causes of lamination a pier may be defined mechanically by assuming an ideal series of separate 4-inch brick walls placed in juxtaposition and extending the width of the pier, neglecting for the time the influence of bonding courses, these walls being laid in a mortar of some adhesive power and greater or less tending to flow. Some lateral pressure on the walls may be assumed, owing to the plasticity of the inner walls over the outer, but as the outer pier faces are free from normal stress this pressure of whatever amount must be resisted by the elastic strength of the walls themselves just as in a beam or flat arch in carrying tranverse loads. There are shearing stresses of equal intensity at any one point in each vertical and horizontal joint, these varying throughout the pier, and tending to distort the brick shapes. In addition the several walls must carry the vertical load, as in the case of the end thrusts on flat arch rings, this not only compressing the mortar of the horizontal joints but inducing also considerable frictional resistance (if called into play) in addition to the horizontal shear to resist any relative displacement of the brick themselves acting as voussoirs. Now, admittedly, the normal forces on the wall surfaces, involving pressures of adjacent walls, cohesion and adhesion of mortar, etc., is considerably less than the vertical load pressures in absolute value. The resistance against sliding in the vertical joints is correspondingly less than in the horizontal joints reinforced by the friction forces which may be called into play, so that the tendency to separate is apparent, and can occur for the same reason as the longitudinal cracks form in timber beams along the neutral axis at the center. The incipient cause, however, of these vertical cracks will be discussed under a later head. After the cracks start the shearing action between laminae simply augments the failures by cleavage.

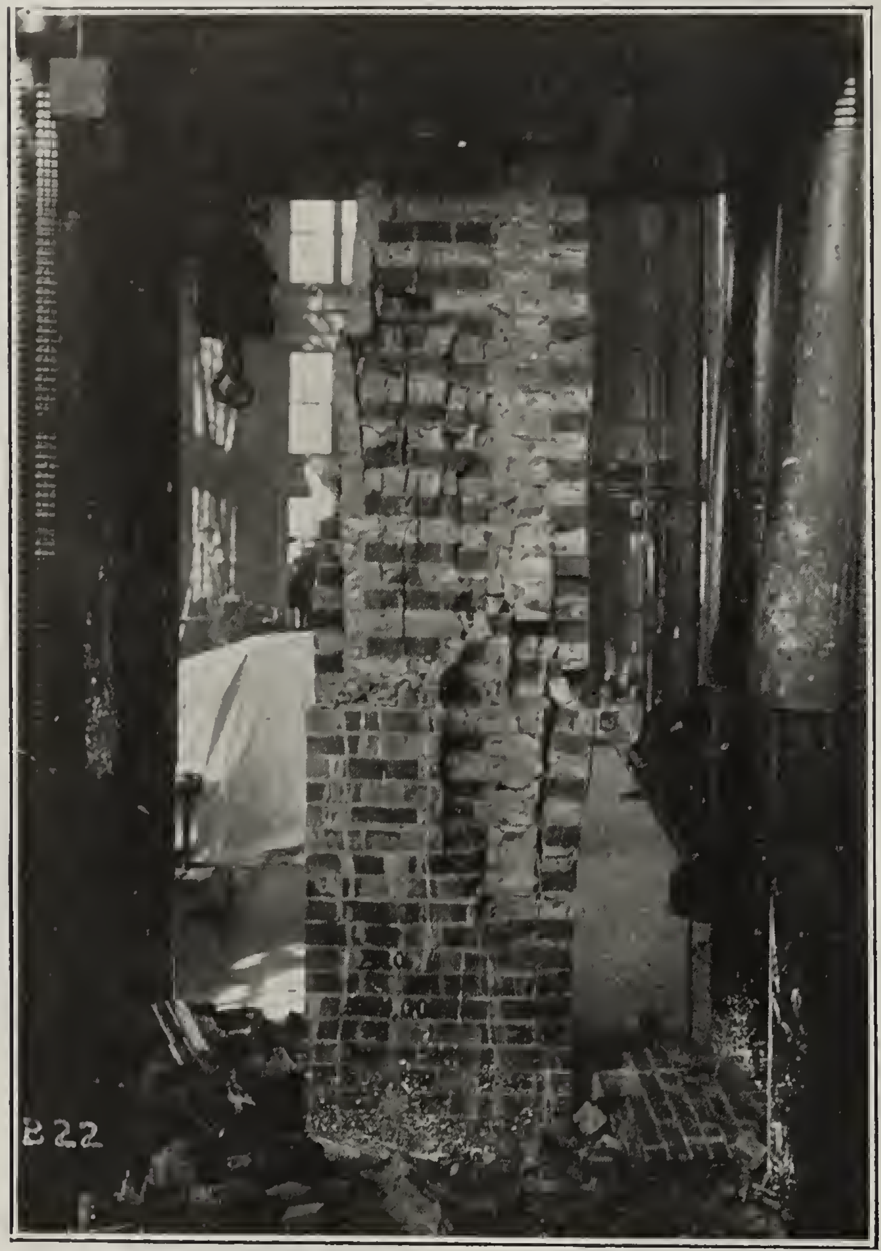
Again considering any one lamina or wall as a flat arch, viz., a vertical group of brick voussoirs acted upon by end compressions (Fig. 7, case d), the lamina is largely constrained by the head of the testing machine at the ends to approximately the original 90° position and is subject to some additional flexure throughout its length by whatever transverse pressures may accrue either from the plasticity of the mortar or the lateral pressure of the adjacent lamina. If the resultant vertical pressure falls outside of the middle third section at any point of the laminae, and taking into account some lateral pressure, it is very probable at a later point of test that it will, it is shown in engineering mechanics, that the vertical stress in the wall will pass suddenly from a compression which the wall can stand, neglecting any local crushing, to a tension, which will tend to open the horizontal joints. A spawling off of the outer shell will then probably occur in the manner illustrated in Fig. 7, case d. In the tests to destruction many of the spawls occurred, especially in the case of the weaker mortars (see cuts), and warrant the inference that it was due to

Table A
Showing Properties of 5'-0" Piers

| Laboratory No. | Cross Section Area | Mortar | Brick Bond | Brick | Wire Mesh Reinforcing | Maximum Load Pounds | Maximum Unit Load Pds. per Sq. in. | % gain over B 23 |
|---|---|---|---|---|---|---|---|---|
| B23 | 30" x 30.5" = 915 sq. in | 15% Lime<br>85% Cement } = 1 part by weight :<br>Sand = 3 : | Regular 1:0:1 | Amer. Soc. Test. Mat. Spec. Class B<br>Brick from Pittsburgh District | None | 1,580,000 | 1730 | 0 |
| B24 | 30.15 x 30.25 = 915 sq. in |  | 1:0:1 with new type header Fig. 2 (d) |  | None | 1,678,000 | 1830 | + 6% (gain) |
| B25 | 30.5 x 30.3 = 924 sq. in |  | Regular 1:0:1 |  | No. 18 gage wire x ½" mesh in every joint | 2,100,000 | 2270 | + 31% (gain) |
| B26 | 30.5 x 30.5 = 930 sq. in. |  | Regular 1:0:1 |  | No. 18 gage wire x ½" mesh in every 4th Joint | 1,364,000 | 1470 | − 15% (loss |

a failure of this kind. In the hypothetical case of a cubic pier, or somewhat longer specimen, having a mortar of equal or greater strength than the brick then the common theory indicates a 45° fracture, neglecting internal molecular friction (see Fig. 7, case [a]), as in a pier of concrete or in the case of the test of a single brick. Between one phase or another of these limiting aspects nearly all cases of fractures in brick piers will fall, neglecting certain particular or local aspects.

There might occur, for example, a transverse local bulging, as indicated in figure 7, case c, but the influence of combinations of these different types of failure is generally quite apparent. The 45° lines, when occurring in the 10-foot piers, are most prominent at the testing machine heads where shearing stresses are most pronounced on account of the lateral constraints from the steel.

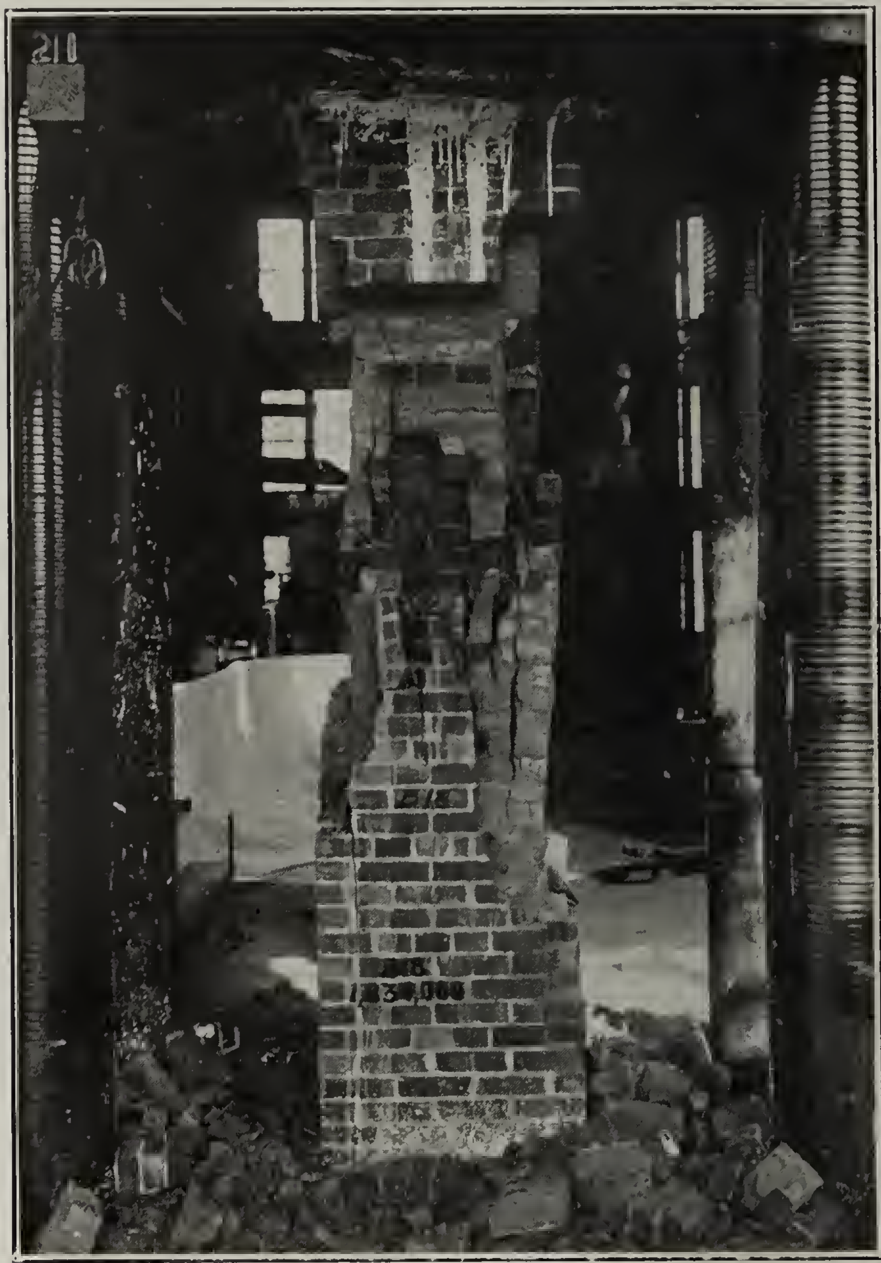


Pier B 20, Built of Class B Brick. Maximum Load, 1,594,000 Pounds.

In the above analysis of the strain behavior preceding failure, the influence of the bonding would seem to be simply to produce constructions or constraints against the action depicted, causing a tendency to "nodes" or points of contraflexure in the elastic curves taken by the laminae. The Cornell experiments* made by McCaustland, who placed wire reinforcement in the joints to prevent the outward bending of laminae, will be referred to as showing the great increase of strength thus obtained on 13-inch piers (some 30 to 50 5) by the use of efficient and appropriate bonding. The writers tried a steel netting of No. 16 gauge wires by ½ inch meshing, placed in each joint (see table A) of Pier No. B 25 of the 5-foot piers and found a gain of 33 per cent. in strength over pier No. B 23 of similar construction throughout, but without this reinforcing. On the other hand, when this meshing was placed in every fourth joint on Pier No. B 26, the maximum load was reduced 13.7 per cent below No. B 23. The Cornell experiments agree in the general results on the smaller diameter piers. Taking into account the modification that may be required by some bonding action at the corners of the square spirals (Fig. 7, case c) and the slight rise in strength gained in placing the typical header courses at greater vertical intervals (see Fig. 3), and which has been attributed to reduction of effective cross section through the use of quarter bricks, it would seem necessary to make a more detailed investigation before attempting to define the real effects of different bonding actions in any general theory of strain. A few studies are being made in this respect with brick left over from the larger piers, and the writers believe the tests should be extended to include the effect of transverse loads upon walls of a length to go in the testing machine when the wall is simultaneously stressed by direct compression loading and different bonds are taken into account. Tests thus far made at the bureau along this line in other experiments show very interesting results.

### Flexural Strain in Courses.

The structural formation of brick masonry has already been shown to be favorable, according to the mechanics of deformable bodies, to the development of vertical lines of cleavage with a breaking up of the piers into laminae even with the stronger mortars. The incipient and immediate cause of this, it is thought, is indicated very conclusively by the experiments, on account of a flexural action which occurs simultaneously in the horizontal courses and bricks as the vertical load progresses, and cause local transverse splitting of the brick.*



Pier B 18, Built of Class B Brick. Maximum Load, 1,834,000 Pounds.

Referring to case c, Fig. 7, showing a section of masonry, as is known, there is no absolute homogeneity of texture either throughout any one brick or in the mortar between joints. Suppose on a certain section x-x, Fig. 7, case e, a homogeneous distribution vertically were fairly conceivable. On another neighboring section there would be a slightly different vertical distribution of quality, elastic coefficients, etc. Be it ever so slight, the homogeneity of structure is "unstable," to use an appropriate phrasing, and in a section y-y through the vertical joints, it becomes in fact quite different from other sections on account of the different compressibility in the material on this line due to the presence of mortar in these joints. The courses are thus seen to be squeezed uniformly, there being an unequal vertical pressure and piling up of the mortar in some regions greater than another, very small though it be, and the slight lack of uniformity in parallel faces of bricks and unequal thicknesses of mortar throughout the joints may accentuate at the start this lack of homogeneity.* The immediate effect of this in the test is that the brick units and courses are subjected to transverse bendings, as well as to the vertical compressive loading, and any bending as has been pronounced at the vertical joints. A critical observer will notice a small hair crack forming at the upper or lower surface of a brick usually just under or near the vertical joint (Fig. 7, case [e]), and this widens at the surface of the brick as the load progresses and is seen to be more attenuated in the initial stage at the center near the "neutral axis." These cracks may often be noticed very early in the test and they become visible and more pronounced as the experiments proceed. Subdued sounds are finally heard and these soon increase in intensity so that for vitrified and hard-burned brick in lime mortar a succession of popping sounds take place, the frequency increasing until the sound becomes a loud "bubbling" in the final stages. With the slight deflection as shown by the crack in one brick, others experience deflections and cracks form above and below the brick in question, the seams becoming confluent and progressive and usually followed, but not necessarily the longitudinal joints, so that finally the structure is reduced to the lamina alone which fail either by spawling out in large masses or as a group of thin isolated columns as previously described. The efficiency of various types of reinforcing in the joints when consistently used, it would appear is to prevent the spreading of the mortar into unequal thicknesses, giving a firmer bed and thus preventing the bending of the brick transversely. While the phenomenon cited is most apparent with the stiff brick and more plastic mortars, it is an attendant feature in the case of failure of any pier, except, being least present in the particular case when the structure approaches an elastic monolith as would be approximately realized in constructions having the stiffest mortars.

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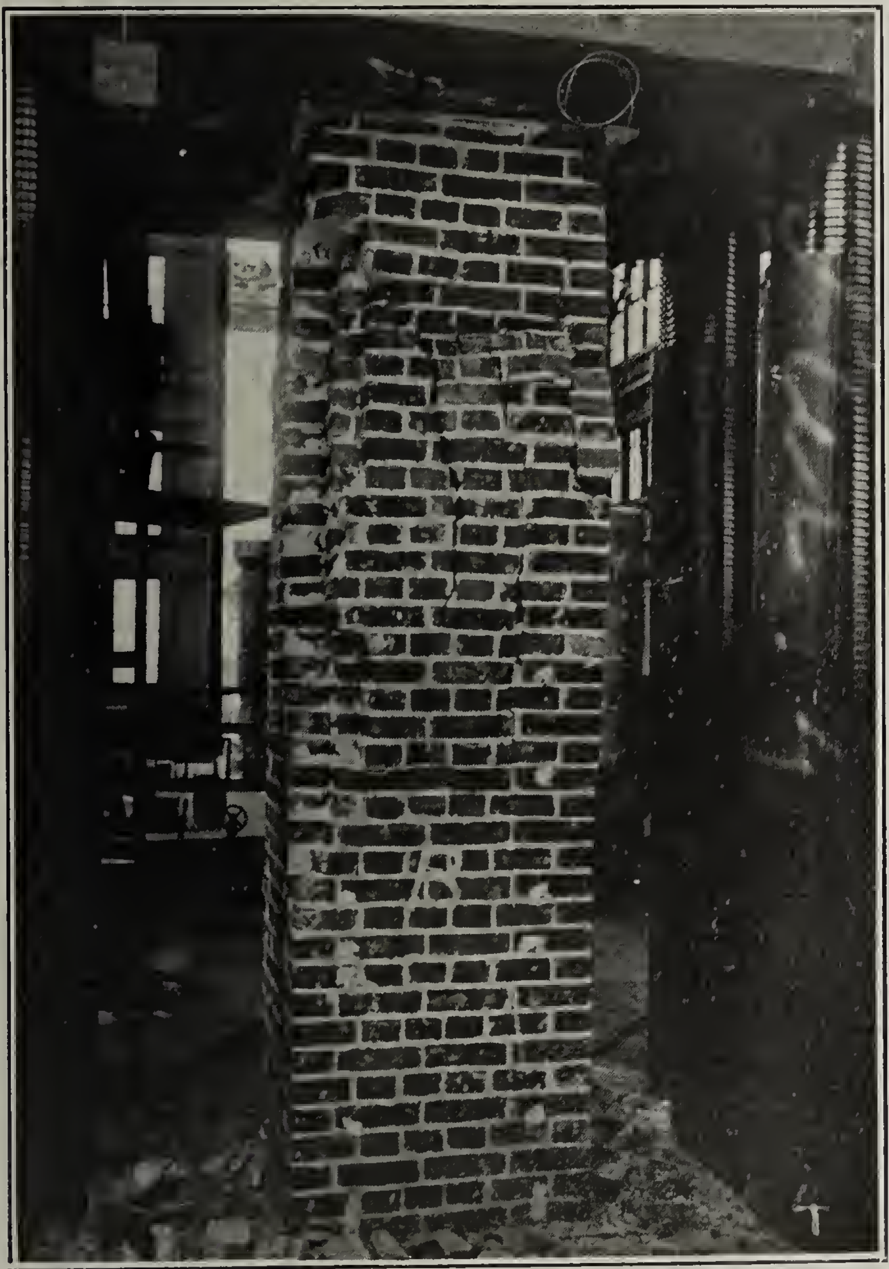
* See Trans. Assoc. of Civil Engineers, Cornell Univ., vol. VIII, 1900. See Johnson's Materials of Construction, 4th ed., note on p. 655. See Burr's Elasticity and Resistance of Materials, 6th ed., p. 425.

* Probably the same causes are operating in various phases on a much smaller scale in the micrography of metals where crystals or groups are surrounded by thin membrances or matrices of more or less plastic material, and in a highly magnified way in the phenomena of disintegration of the stratified rocks, particularly those of the carboniferous system.



Pier B 4, Built of Class C Brick. Maximum Load 215,000 Pounds.

### Summary of Conclusions.

The following is a summary of the main points of the investigation:

1. The strength of large piers under vertical loading in common with smaller piers bears a close relation to the kind of brick used and the quality and age of mortar. The specimens laid in the cement (1:3) and the cement and lime (15%+85%=1):3 mortars have, practically speaking, an equivalent strength for any one grade of brick. The relative strength of piers of A, B and C specification brick laid in these mortars is approximately in the ratio of 5:3:1.

The ratio of the maximum unit loads of the piers laid in the above mortars compared with those laid in the 1:6 lime mortar is about 2:1 for the A, B and C grade respectively, this ratio being still larger (about 4:1) in the case of "C specification" brick laid in 1:3 mortar.

2. The low strength of piers laid in the lime mortars is attributed in the main to insufficient ageing with a consequent lack of proper carbonation of the mortars.

3. The experiments thus far conducted seem to indicate that the strength of a pier is largely independent of the course bonding, the real function of bond being, it is believed, to maintain a certain integrity and monolithic action of the masonry against initial strains induced through setting and "drying out" of the mortar rather than any great increase of vertical strength due to the bonding.

The slight increase of strength with the increase of distance between header courses is thought to be inconclusive on account of a probable reduction in the effective resistance of the bonding courses chosen due to the presence of too many fractional brick.

4. The mean moduli of the piers of A and B specification brick laid in cement mortar was 3,000,000 lbs. and 2,500,000 lbs. respectively, the corresponding figures for piers in the lime and cement mortar being somewhat lower.

The "elastic limits" of the piers in the cement and cement and lime mortar is approximately one-half the maximum load.

6. Piers fail through a tendency to separate into vertical laminae caused by transverse failure in the individual brick occurring from flexural action produced through unequal distribution of the vertical load over the cross section together with ineffective shearing and adhesive strength of the mortar. Uniformity in the brick dimensions is also a factor to a lesser extent in reducing unequal compressions of the joint, as is the thickness of joint itself.

7. A high modulus of rupture is more desirable than superior crushing strength, as far as these can be differentiated in their inter-relations. A higher modulus of rupture would be realized in practice either by increasing the thickness of the bricks or by laying them on edge so as to give their greatest flexual efficiency.*

8. A further study of the action of steel mesh reinforcing is recommended in order to ascertain the load efficiency of piers having an outer shell of hard brick with an inner core of softer brick in the case of districts which are unfavorably located for the production of the higher grades of brick. (Loud applause.)

### General Discussion.

President Mayer: Gentlemen, this has been a most interesting paper, and it is now open for discussion, and while we want to encourage discussion on all these papers, it must be limited.

J. H. Mead, Warners, N. Y.: One question has arisen in my mind. I want to ask Mr. Griffith if they ever tested more than one pier exactly alike. That is, whether they ever tested two or three piers exactly alike and found the results exactly the same.

Mr. Griffith: As we followed closely the suggestions of the committee, only one pier of each type was tested, as authorized in their program. It was thought an appropriate grouping of results as indicated on the charts would furnish data for determining the laws of action of the piers while under stress sufficiently close for all practical purposes, considering the numerous minor variables present in the investigation, and taking into account the great increase of cost that would occur through multiplying the units of the series.

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* See also papers by J. E. Howard, Engineering Record, Mar. 22, 1913, and Clay-Worker, March, 1913, for somewhat similar discussions.

* See Report of Watertown Arsenal "Tests of Metals," p. 80 et seg. 1884 for tests made when brick are laid edgewise. Also some comparisons in paper by J. E. Howard, Engineering Record, p. 333, March 22, 1913.

Mr. Ben H. Richards: What is the relative strength per square inch of reinforced concrete piers, as compared with brick piers?

Mr. Griffith: It is impossible to say with any degree of accuracy. If the efficiencies of brick and concrete were to be placed on any sort of structural parity, then a careful analysis and comparison of the costs per unit of volume of the structure would be required. In any event, however, each material doubtless has its own structural field for use in engineering and commercial practice.

President Mayer: It seems that the gentlemen who have the next two papers are not present just now, so we will take up No. 12, "Modern Methods of Controlling Kiln Temperatures," by J. W. Robb, of Clinton, Ind. I have the pleasure of introducing Mr. Robb.

## MODERN METHOD OF CONTROLLING KILN TEMPERATURES.

BY J. W. ROBB, CLINTON, IND.

*Mr. President and Gentlemen of the Convention:*

The importance of the control of temperature in firing brick kilns is now generally recognized. Probably no greater evidence of this statement could be found than by consulting the last edition of the Encyclopaedia Britannica in which you will find a very good article entitled "Brick" by Dr. William Burton. In this article, these statements appear.

"The burning or firing of bricks is the most important operation of their production, for their strength and durability depend very largely on the character and degree of firing to which they have been subjected. The action of the heat brings about certain chemical decompositions and recombinations which entirely alter the physical characteristics of the dry clay. It is important, therefore, that the firing be carefully conducted, and that it should be under proper control. Pyrometers are coming into use for the control of the firing temperature, with a result that a constant and trustworthy product is turned out."

J. W. Robb, Clinton, Ind.

This statement in a nut-shell expresses the importance of the temperature in firing kilns. The question of securing a constant production and trust worthy product, as it is stated, depends entirely on this one point.

You realize that brick which has been poorly fired has passed through the whole process of manufacture, and when it reaches the kiln it is the last operation which may cause damage and make all the previous labor simply wasted. The kilns are also the most expensive part of the whole operation of brick making, and the one department, which has offered in the past, the greatest chance for serious losses.

As I have mentioned before, the temperature at which the brick is fired governs largely the strength and durability of the product, and this is of particular importance in paving brick where the Rattler test is required. In the manufacture of face brick where not only the strength but also the color is of the greatest importance, temperature during firing of the kilns plays an all-important part. The consumption of fuel, and the time required to burn a kiln, will chiefly depend on the temperature, and the fuel consumption in the firing of brick kilns offers a greater loop hole for unnecessary waste than any other department in the manufacture of brick.

In burning brick made from a clay of reasonably good quality and uniformity, and which reaches the kiln perfectly dried, we have three possible sources of trouble. They are DRAFT, TIME and TEMPERATURE during burning.

Time of firing each kiln can, of course, be easily determined and reproduced.

The draft is of importance, and can be easily measured by several devices, and there remains only temperature to be controlled. We must then consider what method can be adopted to best control the kiln temperature, and perhaps a brief review of methods which have been adopted in the past, might be interesting.

It is rather remarkable that Wedgewood, a potter in England, in 1782 was the first to occupy himself with methods to determine high temperature. I say remarkable, because many have implied, possibly with some reason, that the Clay Industry has been the slowest to adopt modern methods of controlling temperature, although the problem is one of greatest importance to the clayworkers.

The Steel Works in their heat treating furnaces, the Glass Plants in their annealing furnaces, and the Blast Furnaces, have for years controlled their temperatures by Pyrometers, and although the Clay Manufacturer has been slower to adopt these instruments, the fact remains that it was a pottery manufacturer who first struggled with the problem of measuring temperature, away back in 1782. Wedgewood tried to determine temperature by making test pieces of clay, and measured their contraction under heat. This idea is not so radically different from the "trials" as they are called, and used today to a certain extent in potteries.

Cones were also adopted many years ago as a means of measuring temperature. They consist of small forms of clay, shaped like a pyramid, so formed of certain combinations of feldspars, lime and kaolins, that they will fuse at various melting points. Several of these cones are placed at one point in a kiln, numbered for instance, 10, 11 and 12, with melting points respectively of 2426°, 2462° and 2498°. When the temperature is attained at which cone No. 10 fuses, the point falls over and indicates that this temperature has been reached. The kiln can be carried higher until, for instance, the second cone falls, and the third can be left standing to show that a certain temperature has not been exceeded. Cones are not an accurate measurement of temperature, and this has never been claimed for them, as they are effected somewhat by time and temperature. They can often be flashed down at a lower temperature by a sudden blast of heat, or by fusing in a small electric furnace in an hour's heating instead of several days, as occupied in an ordinary kiln burning, and they naturally do not indicate when the temperature is falling, but only a rising temperature. They have, however, proven of much value as a guide in firing kilns, and they are particularly popular for firing pottery kilns. These cones were first brought into prominence abroad by Segen in Berlin, and his efforts have been carried on in this country by Prof. Orton in a very capable manner.

About 20 years ago, Pyrometers operating on the principle of the difference in expansion of metals came into use. These were adopted chiefly for the water smoking period, and after a temperature of about 1000° Fahr., was reached the pyrometer had to be removed from the kiln.

Portable expansion Pyrometers, having an expansion strip of platinum, have also been used to some extent for higher temperatures, but they have had the disadvantage that the instrument had to be cooled off between each test, requiring about twenty minutes before the instrument could be used in the same or another kiln. This type of Pyrometer, in spite of its draw backs, has proven of considerable value at a number of plants in this country.

It has remained for the Electric Pyrometer to give the Clay Industry an instrument which meets its requirements entirely.

The Electric Pyrometer takes its name from the fact that it is operated by what is known as thermo electricity. If you take two wires of any two different kinds of metal, and make a junction of these two wires at one end, and then heat the junction, it will generate a small current of electricity, and this current increases as the temperature is raised. True the current is very small, but it is sufficient to operate an electrical instrument, known as a Millivoltmeter.

For measuring high temperatures, it is only necessary to select wire or metals with a very high melting point, and which when joined together generate as much current as possible. For this purpose one wire of platinum, and the other of platinum alloyed with rhodium, are most commonly used. Such a thermo-couple at a temperature of 2,500 degrees Fahrenheit produces a current of sixteen thousandths of one volt, or sixteen Millivolts, a very small current, but sufficient to operate a properly designed instrument.

When these Electric Pyrometers were first introduced in this country to any extent, some ten years ago, they were too much of the Laboratory type of instrument to meet the requirements of most brick plants. The Galvanometer or instrument had a pointer carried on a fine wire suspension, about the diameter of a hair, and the instrument had to be carefully leveled and mounted on a brick foundation built up from the solid ground.

It is in the construction of a suitable instrument to overcome these delicate features that the greatest improvements have been made in the past few years, and also in properly designing the termo-couple, and installing the instruments to overcome the troubles experienced in the past. The instrument as used nowadays does not have the fine suspension wires, as the bearings are jeweled like a watch, they do not require leveling, and practically any wall which will stand up can be used to mount the instrument on.

The thermo-couple of fine platinum wires is seriously attacked if exposed to gases, and to prevent this, it is customary to protect the wires with a porcelain tube through which gases cannot penetrate. These porcelain tubes are naturally somewhat fragile, and where they are inserted in the kiln, it is desirable that a heavy fire brick tube should be used as an additional protection. This prevents the porcelain tube being struck in loading the kiln. The end of the thermo-couple extending outside the kiln, and to which the wires will be attached, by leads to the instrument, should be protected in such a manner that the rain cannot run inside the tube while hot and crack the porcelain tube. Attachments must be used at the outer end of the thermo-couple, by means of which the wires can be readily connected.

We now have the thermo-couple installed properly in the kiln, and I might mention that for round down draft kilns it has been found best to install the thermo-couple through the crown. This is also true of rectangular and continuous kilns, because more satisfactory results seem to be secured in this manner, and the installation of the thermo-couple through the crown naturally permits of the use of a shorter thermo-couple than if it is installed through the side wall, and, of course, reduces the expense.

The burner who fires the kilns must have an indicating instrument to read the temperature of any kiln, and this instrument must be located at a convenient point so that he will not have to travel too great a distance to read the temperature. It is customary at most plants which use electric Pyrometers, to install an indicating instrument amongst a group of four or eight kilns, or where the kilns are located close together, to have one indicating instrument in the head burner's shanty. By means of a switch alongside the indicating instrument, the temperature of any kiln can be read from this one instrument, by simply throwing the switch on to any particular kiln.

It is generally the case that the burner recognizes that a Pyrometer is of advantage to him, and he studies it most carefully, and there is do doubt about it that no matter what other instruments may be used, it is particularly desirable that the burner have an instrument to guide him. Some plants in this country have felt that Recording instruments, which keep a record of the temperature in the office, were sufficient, and that the burner ought to fire his kilns properly, and the recording instrument would simply act as a check. How much better it is to give the burner an instrument to guide him, so that he may study the firing of his kilns, and endeavor to better each burn.

It is also desirable for a plant to have a Recording Pyrometer in the office, by means of which a record of the temperature of any kiln may be made on a chart. This keeps a check on the burner, and shows up to advantage a careful burner, and equally clearly a careless one. These recording pyrometers, it is understood, are similar to an Indicating Pyrometer, with the exception that a record chart is placed below the pointer, and a continuous record of the temperature day and night is secured.

At the plant with which I am connected, we have three thermo-couples installed in the crown of each kiln, and we have placed an Indicating instrument at a convenient point where the burner can read his temperature.

I have found that we can secure a great deal of information with a Pyrometer installation in regards to our clay, and its action under fire, which I never appreciated before. For instance, I was surprised to find that our carbonaceous shale coming from clay banks in a coal district, required a temperature of 1,500 to 1,600 degrees, before the carbon was expelled.

We have 66 by 16 foot kilns, set thirty brick high. The amount of material in a kiln is equal to 100,000 of 7½ lb. brick. In checking up carefully our coal consumption for the year prior to the installation of the Pyrometer, I find we averaged 127 tons per kiln, while for a period of approximately one year since the Pyrometer was installed, the records show a coal consumption of 117 tons per kiln, a saving of 10 tons at a cost delivered to kilns of $1.60 per ton or $16.00 per kiln per burn.

I am not able to give any figures as to the percentage of firsts secured before and after the Pyrometer installation, but I realize we are getting better brick since the installation was made.

Our head burner takes a great deal of interest in the Pyrometer and seems to appreciate that it is of benefit to him. Before putting in the Pyrometer, I told our Superintendent that it was no use putting the Pyrometer in unless the burner would use it, so he had a talk with our head burner and I did likewise. The result was that we started right, instead of having an antagonistic feeling at the startoff. Even though an installation of this kind at a plant should not reduce the fuel consumption, should not even produce better brick, or shorten the time of burning, the fact that one is securing more information than ever before as to the results of the firing on his particular clay, will give one a much more satisfactory feeling than when working in the dark.

There is no doubt but that the modern method of controlling kiln temperatures with an Electric Pyrometer, the method adopted during the last few years, is the best method which has ever been used to date. There doubtless will be improvements made in methods of measuring temperature in the future, but we have at least reached a point where devices for satisfactorily measuring temperature in burning brick can now be procured, and it is something which could not be said a few years ago. (Applause.)

President Mayer: Gentlemen, you have heard this paper. Is there any further discussion of this subject? If not, we will pass on to the next, and you can talk with Mr. Robb privately, if you like.

### The Publicity Bureau.

Secretary Randall: Mr. President, on the question of privilege, I have the report of the special committee on organization which you sent out this morning. They have deliberated and come to you with this resolution.

Harrison F. Clippert, Detroit, Mich.

The committee to whom was referred the question of publicity for the use of building brick beg to report that we have adopted the following resolution and recommend the approval thereof by this body.

Resolved, That an executive committee of ten, of whom Fritz Salmen shall be chairman, and George H. Clippert, Detroit; H. C. Kleymeyer, Evansville, Ind.; Thos. E. Wilson, Pittsburg, Pa.; Warren W. Ittner, St. Louis, Mo.; R. G. Eisenhart, Horseheads, N. Y.; Wm. Hanley, Bradford, Pa.; W. P. Varney, Chicago; J. Post, East Williston, N. Y., and R. C. Mitchell, Cleveland, Ohio, shall be, and the same are hereby appointed, for the creation of a National Bureau in the interest of the brick industry for the promotion of brick as a building material; and that said bureau shall be sustained upon the payment of two (2) cents per thousand on all brick sold by the subscribers to the obligation to be formulated for said purpose.

President Mayer: Gentlemen, you have heard this resolution. What is your pleasure?

Mr. Salmen: Gentlemen, we deliberated over this question for two hours and a half. We had a full meeting of the committee appointed. We threshed this question over and over again and this report was unanimously adopted by the committee. I move its adoption by this convention.

Anthony Ittner: I second the motion.

Carried.

Mr. Salmen: I would ask that this committee of ten meet me within twenty minutes in Parlor B.

President Mayer: I will ask Secretary Randall to announce the next. We have skipped around the regular order of the program.

Secretary Randall: Going back to No. 10 on the program, we were to have a paper on "The Modern Idea of Encouraging the Larger Use of Building Brick," by Mr. Wm. J. Bowen, El Paso, Texas. I called at Mr. Bowen's office in Indianapolis last week and found that he had been called East, and I presume has been detained there. So, if agreeable, we might consider a few questions that have been sent in.

### Questions for General Discussion.

"We have a clay which does not burn as dark a red as we would like to have our brick. The brick are burned in up-draft kilns. If any one can give us any suggestions as to how to get a better color, we will appreciate it."

If the gentleman is present and cares to tell more in detail as to his trouble, perhaps he would get a better answer to his question.

Alfred Yates, Shawmut, Pa.

Mr. Ittner: I would say offhand in a few words—I do not mean to be understood to cover the ground—if, instead of an up-draft kiln he could go to a down-draft kiln he will get the darker shade. Ordinarily the harder the brick are burned the darker the shade. There may be other things that will cause the darker shade, but it has been proved with us that in our down-draft kilns we can burn a much darker shade than in the up-draft, because we get more heat.

Mr. Thomas E. Wilson: If he has any sandstone or sand rock he could mix with his clay, he will have a darker brick. Grind up the sandstone and mix with his clay and burn hard and he will have as dark brick as he wants, at least that has been my experience.

Alfred Yates: If he will take some copperas and dissolve it in the tempering water, determining how much by experimenting, he will get his brick as dark as he wants them.

Mr. Ittner: Oh, now, if he wants something to mix with his clay, that is different. He can use manganese, but it costs too much.

Secretary Randall: We have another question in regard to electricity, handed in by someone who is attending the convention.

"When electric current cannot be bought, is it practicable and economical to install an electrical equipment and manufacture the current for use in driving the machinery, fans, etc.? Would you drive machinery in group, using jack shafts, or have individual drives?"

I think Mr. Robb may be able to answer that question for us.

Mr. Robb: I fail to see any object in making electricity for an ordinary plant. For a very large plant it might be more economical on account of the saving of belt slippage, etc., but you would have to purchase steam, and if you put in boilers and engines that would give you a high type of efficiency in this respect, you would get the same results from steam drive as you would from electric drive. The reason electricity can be purchased cheaper than it can be manufactured in a limited way is because of the fact that electric plants are anxious to have an outlet to make up for the off-peak load, roughly speaking, and they can sell it really at a loss. Most of the large electric plants sell their day current at a loss because of the fact that their labor is practically the same, and the income, of course, helps to make a profit at the end of the year. I happen to be interested in some electric plants and we sell our power for day work cheaper than we make it, but it takes care of itself nicely in helping to keep up what we call the uniform curve load. Our day load in one plant is lighter than our night load. Power in our section of the country is sold from 1⅜ to 2 cents per kilowatt hour, depending largely upon the minimum monthly fixed charge. Of course, it is wise to be ready to serve at any time whatever your load and condition may be.

Secretary Randall: It has been suggested that some of the members have not kept close tab on our proceedings, so that it would be well to indicate what is still to come on the program. Of course, it is a matter of fact that those who are not familiar with what has been done have been neglecting their duties in attendance at these sessions, but we will not be fussy about that. A question of keenest importance to most of you is brickyard accounting. Mr. Pritchard, whose name is on the program, is not present, but we have a very able substitute in Mr. Buckley, who, it has been said by those who have heard him, presents this matter in a very able manner.

President Mayer: If there is no further business we will adjourn until tomorrow at 3 o'clock.

## FOURTH SESSION.

### Friday, 3:00 P. M., February 19, 1915.

President Mayer: Gentlemen, you will come to order for the final session.

Secretary Randall: I am glad to say, observing the rule "Safety First," the local committee has returned us all safely and we are able to complete our program in good time. While we are waiting for Mr. Buckley to get his charts ready, we have a paper here by Mr. Jenkins, which he has asked me to read for him.

Montgomery, Ala., Feb. 13, 1915.

Dear Mr. Randall:

I find that it will be impossible for me to get to Detroit. This is a great disappointment, but in this case cannot be helped. I enclose a brief paper along the line laid out by you. I think there is a great field for good work in this field, and I am strong for it.

I trust that the convention will be successful in every way, and with kind personal regards I am

Yours very truly,

J. M. JENKINS.

### SOME THINGS SOUTHERN BRICK MANUFACTURERS DESIRE.

BY J. M. JENKINS, MONTGOMERY, ALA.

*Mr. President and Gentlemen of the Convention:*

The Secretary has given me for a subject, "Some Things Southern Brick Manufacturers Desire." In looking over conditions as we have them, we find that this subject could well be changed slightly to "Some Things Southern Brick Manufacturers Need," and in this paper I am going to speak briefly of a few things that we much desire and need.

We desire, all of us, greater returns on our investments, and higher reward for our labor. To obtain these things, however, it is not only desirous, but necessary to change certain conditions that obtain with us. Right here it might be well to say that the desires, or needs, of the clayworker do not vary much in the different sections of the country. From all information derived from the trade journals, at the conventions and from other sources, we seem to be pretty much all of a kind, whether we live north of the Mason and Dixon line, or south of it, whether we live east of the Rockies or west of them. We all desire, and the most of us need, to have more in return for our work, and I believe it is in our power to obtain this. The great obstacle has been lack of co-operation. We stand too much as individuals, know too little of our competitors, and respect his rights, usually not at all. This state of affairs, with its attendant evils, was ably set forth last year at the convention by Mr. Ittner in his paper, and especially would I mention that part in which he showed so clearly the folly of jealousy and price cutting. Suppose there is a big job to be let in the home city or natural territory of a competitor. Business may be slack at home, so you sharpen your pencil, and prepare to get the business. The home man is on to his job, and at once comes to your figure, and a little better. After an exchange or two, usually the home man gets the job. What have you done? You have failed to land any business, have knocked a competitor out of a just profit, and have fired him with a righteous desire for revenge. I might say right here that this sensation of unpleasantness is just as acute if you happen to be the "home man" in the case, and it is your price that has been revised, downward. The only person benefited in such a transaction is the contractor, who, while he works us one against the other, laughs in his sleeve.

There are other ways in which we should look out more for the general good, than for our own individual selves. The direct benefits may not be so apparent, but co-operation along such lines as will help to smooth out the troubles and problems on the plant, or for instance unselfish participation in the nation-wide "Build with Brick" campaign, will accomplish great good. We need to get together, to know each other. In these latter days of business endeavor, the old saying, "Competition is the Life of Trade," has been changed to "Co-operation is the Life of Trade." The best way to obtain this co-operation is by social intercourse, for with that comes the knowledge that your competitor is human, does not wear hoofs nor horns, and is in the business to make a living. This has been very clearly stated by President Wilson in an address a few days ago before the American Electric Railway Association when he said, "I have always maintained that the only way in which men could understand one another was by visiting one another. If I believed all I read in the newspapers I would not understand anybody. I have met many men whose horns dropped away the moment I was permitted to examine their character."

Recently, in Alabama, the railroads petitioned the State Railroad Commission for a 25 per cent. increase in rates, and at the public hearings which lasted over a period of two or three days, there was but one brick man present. The iron and steel men, the wholesale grocers, the cotton oil mill men and others were there to intelligently protest through their organizations, this raise in rates. Now in such a case as this how much good could be accomplished by means of an active organization?

To sum up in a few words our greatest desire and needs are "Organization and Co-operation." So far as the writer knows there is not a single active clayworker's organization in any Southern state, worthy of the name. Instead of this, there should be in every state a live, loyal association, for with this would come an interchange of views and broader ideas, which in turn would give us greater profits. (Applause.)

President Mayer: If there is no discussion of this paper, we will take up the next.

Secretary Randall: We have the report of the Committee on Resolutions. Mr. Warren Griffis, the chairman of the committee, had to leave for home at noon, and he has requested that I read the report for him. It is not very lengthy.

### REPORT OF COMMITTEE ON RESOLUTIONS.

*Mr. President and Gentlemen of the Convention:*

Your Committee on Resolutions begs leave to submit the following report:

Whereas, The city of Detroit has received us with such cordial warmth, and its local committee under the intelligent guidance of its chairman, George H. Clippert, Charles Clippert, and Charles Bryan, not to omit a special tribute to the genius of the incomparable Mr. Wm. B. Wreford, has provided so generously and with such warm hospitality for our entertainment, comfort and profitable enjoyment, therefore, be it

Resolved, That the sincere thanks of this association be extended to them one and all in token of our deep appreciation of their many courtesies.

Whereas, In view that the unprecedented upheaval in international affairs and the consequent general unsettlement of conditions made the selection of our meeting point unusually difficult, and

Whereas, The attendance and large success of our convention has so pronouncedly justified our coming to the beautiful city of Detroit.

Resolved, That the members be heartily congratulated on the wisdom of their choice.

Whereas, The program of this convention has been so excellent and has placed clearly before us so many matters of vital importance, and

Whereas, The consequent benefit derived by us all and singly by our quickened interest and stimulated effort for the betterment and progress of the clay industry is so cleverly manifest, and

Whereas, We feel so largely indebted to all those who so ably and unselfishly contributed thereto; therefore be it

Resolved, That this expression be given of our grateful appreciation to all those whose services were given.

Whereas, The officers of the association have as always so faithfully and untiringly and successfully devoted their energies to the advancement and the betterment of our organization; therefore be it

Resolved, That our sincere thanks be extended them for their unselfish devotion.

Whereas, The able and feelingly expressed tribute to the memory of our beloved member, D. V. Purington, contributed by Mr. W. D. Richardson, voices the sentiment of our entire association, and the same being true of our other deceased members who have been called to their final rest during the past year: J. W. English, D. P. DeLong, Sheldon W. Vance, Wm. Mitchell, Lester Ogden and Wm. S. Simpkins; therefore be it

Resolved, That the sincere sympathy of our entire membership be extended to their respective families and that a copy of these resolutions be forwarded to them.

Marion Blair, Kushequa, Pa.

Whereas, The slogan "BUILD WITH BRICK," which emanated for our official organ of our association, has proven so apt and so expressive, and has been received with such overwhelming enthusiasm by all clayworkers throughout the land; be it

Resolved, That "Build with Brick" be adopted as the distinctive official slogan of this association.

Whereas, A new movement for the promotion of building brick by effective and modern methods of publicity has been inaugurated by our estimable vice-president, Fritz Salmen, of New Orleans, and

Whereas, The need for such concerted action on the part of all those interested in the brick industry of the nation is apparent to all who have given the subject thoughtful consideration; be it

Resolved, That it is the sense of this convention that the committee appointed to formulate plans and procedures for putting into effect in the most effective way possible the plans approved by the special committee appointed for that purpose, that the co-operation and support of every brickmaker in the land is earnestly desired.

Whereas, Though laboring under great disadvantage, owing to the recent completion of the hotel, the excellent facilities afforded the association in the way of convention halls, committee rooms, etc., by the Statler Hotel management have been all that could be desired, and therefore, be it

Resolved, That the thanks of the convention are tendered to the management of the Hotel Statler.

WARREN GRIFFIS, Chairman,
MARION BLAIR, Pennsylvania,
H. JASON KNAPP, New York,
HUBERT SOMERS, New Jersey,
A. F. KLEYMEYER, Indiana,
W. A. HOWELLS, Ohio,
C. A. BONNER, Illinois.

President Mayer: Gentlemen, you have heard the report of the Committee on Resolutions. What is your pleasure?

W. H. H. Rogers: I move the adoption of the resolutions as presented by the committee.

A. C. Ochs: I second the motion.

Carried.

Secretary Randall: If Mr. Buckley is ready now, we will be glad to hear his paper.

President Mayer: Before Mr. Buckley presents his paper, the Chair wants to say in regard to this cost accounting question that it is a very important question. It is so important that the Eastern Paving Manufacturers' Association took this matter up and appointed a committee, and after several meetings, they decided it was of sufficient importance to justify a conference with other associations, and ask them to appoint a committee on cost system and all these committees might get together and work out a system that would do for the different branches of the clay industry. So the committee met with a committee from the National Paving Brick Manufacturers, the Face Brick Association and the Fire Brick Manufacturers, and they have had several meetings, and I am sure they will find some valuable information in Mr. Buckley's paper. I would like to have Vice-President Salmen and George Clippert to come to the platform, so the members can see what their vice-presidents look like. (Applause.)

J. L. Buckley, Aledo, Ill.

Vice-President Salmen: I believe we are now ready for Mr. Buckley's paper.

J. E. Randall: The figures on some of the charts are rather small, and I would suggest that the members come up in front, so they can see better.

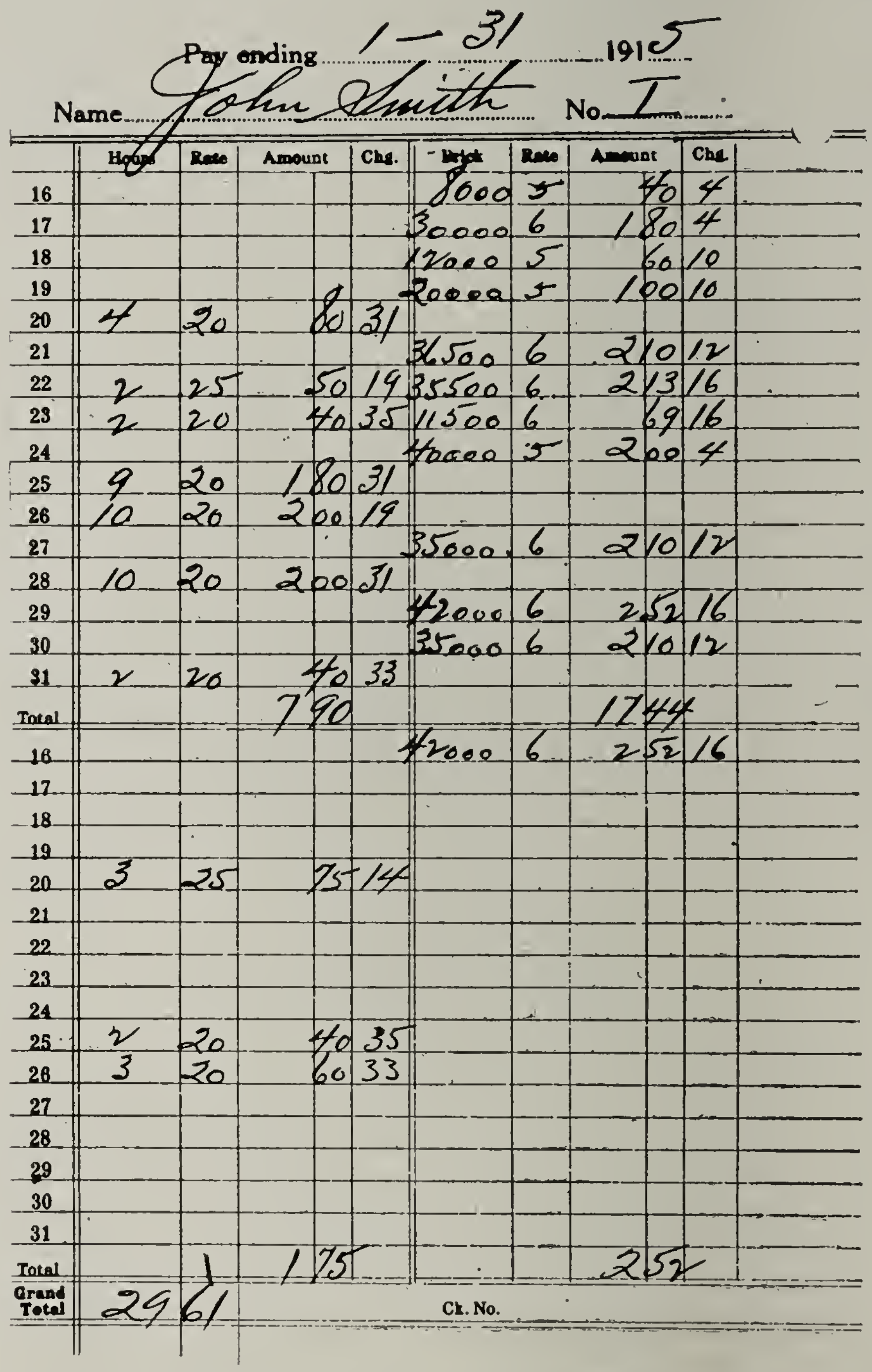
## COST ACCOUNTING FOR BRICK MANUFACTURERS.

BY J. L. BUCKLEY, ALEDO, ILL.

*Mr. President and Gentlemen of the Convention:*

I was very much surprised and also complimented when asked at Springfield, Illinois, a few days ago if I would present a paper to this convention dealing with cost accounting. It was my privilege to read a paper and explain our system at the Illinois Clay Manufacturers' Association, which convened in Springfield last week. When I consented to appear before you, I did not stop to think that my paper would be delivered to a convention composed of the most able men of our industry, many of whom have spent possibly as many years or more in the clay business than the entire years of my life, and as time went by I began to realize that possibly a mistake was made in asking me to discuss such an important matter with you, as it would seem there are men in this convention much more capable of this task than I am.

I have been in the clay business about sixteen years, the first eight years had to do with the manufacturing end, the next five years had to do with the commercial or selling end, and the last three years with both the manufacturing and commercial, so that what little knowledge I may have with reference to the importance of cost accounting has been gained by actual experience, but I do not want to be placed in the embarrassing position of being considered an expert on this subject. During my earlier life in the clay business, while filling the position of superintendent, I formulated a sort of crude system for my own information and convenience. During the several years that I traveled as a brick salesman, I had occasion to meet the majority of brick manufacturers in not only Illinois but adjoining states, and was surprised to learn that about 90 per cent. of the manufacturers with whom I talked about cost accounting knew nothing whatever about such a thing. I found a great many who said they believed it would be impossible to get a reliable cost record, and the way they did was at the end of the year to total the amount of money paid out, divide this by the number of brick manufactured during the year, and this would give them the actual cost of production; and then they would take the amount of money received, etc., and divide this by the number of brick shipped during the year, and in this manner they could determine the amount of profit per thousand (or sometimes a loss) for the year. And, is it surprising when I tell you that over 50 per cent. of the clay manufacturers found at the end of the year's business that they had operated their plant at a loss.



Pay ending 1—31 1915

Name John Smith No. 1

| | Hours | Rate | Amount | Chg. | Brick | Rate | Amount | Chg. |
|---|---|---|---|---|---|---|---|---|
| 16 | | | | | 8000 | 5 | 40 | 4 |
| 17 | | | | | 30000 | 6 | 1 80 | 4 |
| 18 | | | | | 12000 | 5 | 60 | 10 |
| 19 | | | | | 20000 | 5 | 1 00 | 10 |
| 20 | 4 | 20 | 80 | 31 | | | | |
| 21 | | | | | 36500 | 6 | 2 10 | 12 |
| 22 | 2 | 25 | 50 | 19 | 35500 | 6 | 2 13 | 16 |
| 23 | 2 | 20 | 40 | 35 | 11500 | 6 | 69 | 16 |
| 24 | | | | | 40000 | 5 | 2 00 | 4 |
| 25 | 9 | 20 | 1 80 | 31 | | | | |
| 26 | 10 | 20 | 2 00 | 19 | | | | |
| 27 | | | | | 35000 | 6 | 2 10 | 12 |
| 28 | 10 | 20 | 2 00 | 31 | | | | |
| 29 | | | | | 42000 | 6 | 2 52 | 16 |
| 30 | | | | | 35000 | 6 | 2 10 | 12 |
| 31 | 2 | 20 | 40 | 33 | | | | |
| Total | | | 7 90 | | | | 17 44 | |
| 16 | | | | | 42000 | 6 | 2 52 | 16 |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | 3 | 25 | 75 | 14 | | | | |
| 21 | | | | | | | | |
| 22 | | | | | | | | |
| 23 | | | | | | | | |
| 24 | | | | | | | | |
| 25 | 2 | 20 | 40 | 35 | | | | |
| 26 | 3 | 20 | 60 | 33 | | | | |
| 27 | | | | | | | | |
| 28 | | | | | | | | |
| 29 | | | | | | | | |
| 30 | | | | | | | | |
| 31 | | | | | | | | |
| Total | | | 1 75 | | | | 2 52 | |
| Grand Total | 29 61 | | | | Ck. No. | | | |

During the past year or two we have heard considerable discussion on open price selling policy. We all believe that if the open price selling policy could be inaugurated and lived up to, that it would be an excellent thing, but I do not believe that it will ever be accomplished in the clay industry, and it is my honest opinion that if every clay manufacturer could know the exact cost of his production for each pay period, and bring his average cost for the year down to date, it would be the greatest stimulant to prices that we could possibly get. There is not a clay manufacturer that I know of that is in the business for his health only. Without a cost system employed in our office, we are bound to let our competitor set our price. If we go on a job, especially early in the season with out yard full of stock, and bank account low, and find our competitor is quoting a price below that which we have quoted, and if we do not know the exact cost of our production, we are very apt to quote a price below our competitor in order to get the business. I have done this and so have you, and only to find at the end of the year that we have sold the job for less than our actual cost.

In this country during the last few years we have witnessed a degree of progress little short of marvelous, and particularly has this progress been apparent along lines of increased efficiency, so that we may be said to be living in a day when utmost efficiency is the watchword of industry. Competition has become so keen that unless we have the greatest efficiency in our various lines of business and in every particular department, we will find that we are failing to keep apace with the wheels of progress. Prices have not increased during the last ten or fifteen years in comparison with the increased cost of production. Every item of expense that goes into the cost of manufacturing clay products has increased very materially. This is not only true of the manufacturing end of the business, but is also true in the selling end and overhead expense. Fifteen years ago a traveling brick salesman was practically a thing unheard of. Today, it is impossible to get on a job where facing brick are required without meeting anywhere from five to ten brick representatives, representing as many different factories, and therefore it is up to us manufacturers to see that we get the greatest efficiency in every department in our manufacturing, as also in our sales department and it is very important that we should know that no particular department of the manufacturing is costing us in excess of that which it should.

I could stand here and offer you hundreds of reasons why we should have cost records, but try as hard as I can, I cannot think of a single argument against it. If we go on a job and find that our competitor is quoting lower prices than we are, and if we know that his quotations are actually lower than our cost, we are going to let him have the order, and do a whole lot of hustling and find if there is not some possible way where we can reduce our cost, and if we are men of average intelligence we are not going to keep on selling job after job for less money than it costs to produce, and our competitor may find that he, too, sold the job too cheap, and possibly the next job his price will be higher because he will soon realize that there is a limit to our low prices and he will see the folly of his constantly quoting ridiculously low prices, even though he may have an advantage over us in cost of production. No one wants to load up on a whole lot of cheap business if there is any possible chance of securing it at a better price, so don't you see a complete cost system will help to stimulate prices, and at the same time it will cause us to watch the cost more closely than we have been doing.

RECAPITULATION - - - - - - - - - - - - - - - - - - - - - - - - - - - -Pay #73 Ending 1-31-15

INVOICES

| G. O.Exp. | #2 | #7 | #8 | #13 | #15 | #21 | #22 | #28 | #30 | #32 | #36 | #38 | #40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.22<br>7.13<br>15.40<br>19.20<br>4.80<br>3.15<br>2.02<br>12.10<br>12.54<br>87.56 | 3.42<br>6.58<br>10.00 | 40.00 | 4.00<br>13.32<br>3.68<br>21.00 | 22.00<br>1.98<br>23.98 | 4.20 | 3.76<br>6.90<br>10.66 | 581.21 | 272.50 | 5.47<br>3.08<br>8.55 | 6.02<br>7.40<br>13.42 | 52.00<br>12.25<br>64.25 | 45.00<br>7.74<br>52.74 | 57.08 |

RECAPITULATION - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -Pay #73 Ending 1-31-15

LABOR

| #1 | #3 | #4 | #6 | #9 | #10 | #11 | #12 | #14 | #16 | #17 | #18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 37.15 | 47.00 | .40<br>1.80<br>2.00<br>11.23<br>23.16<br>24.20<br>24.16<br>25.01<br>33.10<br>24.11<br>159.16 | 4.00 | 46.07 | .60<br>1.00<br>28.54<br>30.14 | 30.14 | 2.19<br>2.10<br>2.10<br>26.15<br>25.42<br>24.19<br>22.69<br>26.12<br>130.96 | .75<br>25.51<br>26.26 | 2.52<br>2.13<br>.69<br>2.52<br>35.16<br>36.20<br>31.47<br>29.20<br>28.30<br>26.12<br>28.83<br>223.14 | 50.00 | 34.12<br>38.16<br>30.20<br>34.72<br>137.20 |

| #19 | #20 | #23 | #24 | #25 | #26 | #31 | #33 | #34 | #35 | #37 | #39 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .50<br>2.00<br>29.90<br>32.40 | 25.10 | 28.14<br>33.00<br>61.14 | 35.00 | 32.11<br>27.28<br>29.20<br>34.16<br>32.92<br>36.12<br>34.22<br>28.88<br>33.82<br>288.71 | 28.44 | .80<br>1.80<br>2.00<br>28.56<br>33.16 | .60<br>.40<br>9.22<br>10.22 | 75.00 | .40<br>.40<br>77.30<br>78.10 | 13.88 | 19.07 |

I presume the reason that I was asked to prepare a paper on cost accounting for the Illinois convention, was due to the fact that we are using in our office, what we think, a very complete system. I do not claim that we have in use the best cost system that it is possible to get, and I do not know that our system could be used for all the various lines of clay products, but it could, by some minor changes to suit the individual case, be used universally in the brick industry.

I was gratified a few weeks ago when comparing our cost records with another plant in a different section of the country to find that our total cost of manufacturing was very close, but we found upon checking up the cost of the various departments that our cost at our Aledo plant was lower on every item except one, and this item was enough lower on the other plant to nearly off-set the advance on the other items. What was the result? I came home and got busy to see where we could reduce the cost of this particular item, and I am pleased to say that during the month of January we have reduced the cost of this item practically twenty-five cents per thousand, but it will not stop at this—the other plant will work equally as hard this year to cut their cost on their higher items.

I believe that you will be more interested in having our system thoroughly explained to you in detail than you would with a paper dealing exclusively on the necessity of cost accounting, because I do not believe there is a man in this audience who is not thoroughly convinced that we should know the exact cost of our production in each and every department, and for this reason I am going to explain our system to you in detail.

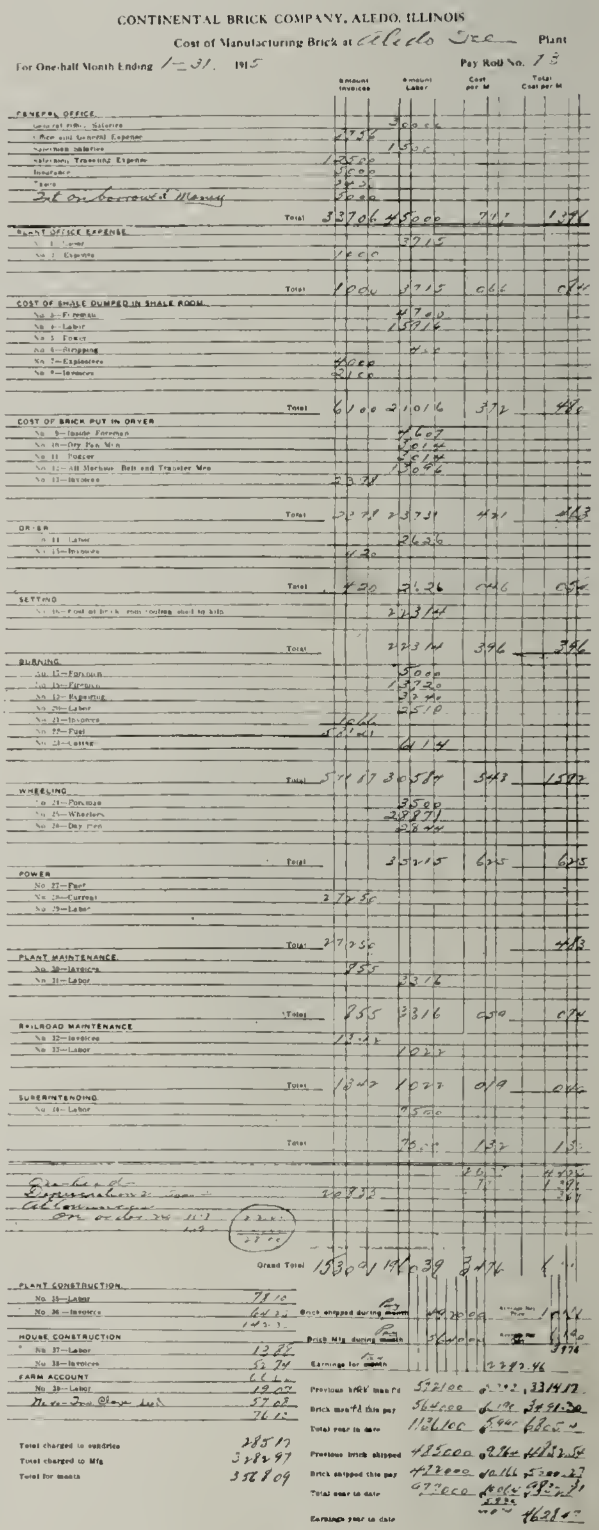
With our system it is possible to know just what your cost has been at the end of each pay, you not only know what your cost has been for that particular pay, but you can bring your cost forward from the first of the year to that particular date, and you will know just what your average cost has been for the year to date. You can also tell what your average selling price has been for that particular period for which you are paying, and it is easy to determine what your plant has earned for that particular pay. You can also bring your average selling price forward for the year to date, and at the end of each pay you can have before you what your plant has earned from the first of the year, or at least a very close estimate. I believe it would be practically impossible to get a cost system that would check out exact at the end of the year, but our cost records for the year 1914 came within a very few cents per thousand at the end of the year, in comparison with our actual cost after closing our accounts, and we had the benefit of knowing within a very few cents just what our cost has been throughout the entire year, and the knowledge of this, throughout the year, governed our prices for 1914, as we were very careful not to make any quotations that would not allow us a margin of profit.

This cost accounting system which we are using is a very simple one, and can be started at any period. It is not necessary to close out the various accounts on your books in order to start the system, as you can start it at any particular pay period, and your date of bringing your cost forward for the year will necessarily have to date from the time you start the system. In the first place, it would be necessary for you to total your general office salaries and fixed expenses, so that you can divide this into months, semi-months, or weeks, or whatever your pay represents. We have our cost system covering the time for which we pay off at our plant, that is, we pay at our Aledo plant semi-monthly. We pay on the fifth and twentieth of each month. On the twentieth we pay for all labor performed from the first to the fifteenth, inclusive, and on the fifth we pay for all labor performed from the sixteenth day to the last day of the month, inclusive. We number each of our pay rolls consecutively, that is, I believe the last pay we paid was our pay roll No. 73; therefore, if pay No. 73 reads from the 16th to the 31st of January, we have a file in our office where we file all bills that come in for goods received at our plant during that period, and which are properly chargeable to that pay. These bills all come to the writer's desk and are marked to be charged to the proper accounts. For instance, should we have a bill for stationery for our general office, it would be charged against our general office expense. If we should have a bill for supplies to be used at our plant office, such as time sheets or other plant office supplies, it would be charged against Item No. 2. If for material for shale pit, it would be charged to Account No. 8; if it should happen to be for repairs in the machine room, it would be charged against No. 13; if it should be repairs for the dry house, in the way of repairs on dryer cars or anything pertaining to the dry house or fan, whatever, it would be charged against Account No. 15. If it should in any way be connected with the burning, it would be charged to Item No. 21, and so on, through all the various accounts, which will again be taken up and explained more fully. We have our system made up and divided into the following items:

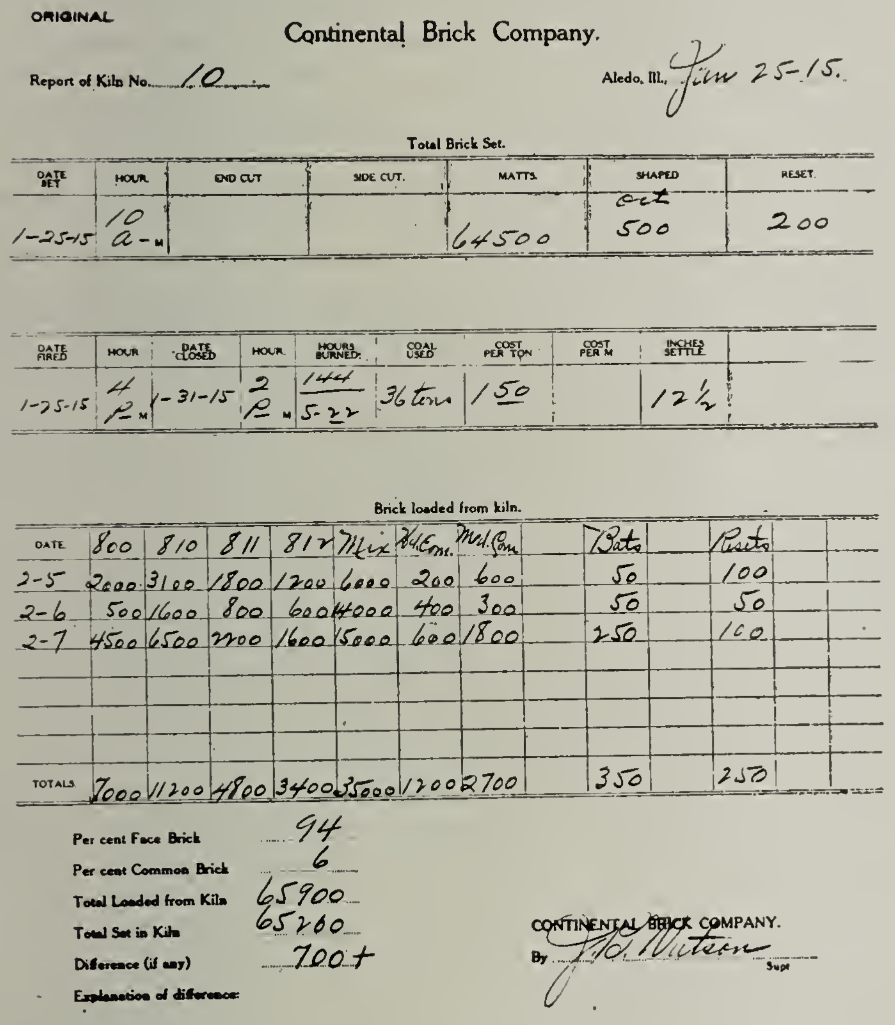
General office and expense.
Plant office expense.
Cost of shale dumped in shale room.
Cost of brick put in dryer.
Dryer itself.
Setting.
Burning.
Wheeling.
Power.
Plant maintenance.
Railroad maintenance.
Superintending.
Depreciation.
Plant construction.
House construction.
Farm account.

Our railroad item of maintenance is possibly different from any other plant, as we own and maintain one and one-half miles of railroad. We also have a plant construction account, which all plants should have, and, for instance, if any labor is performed for new construction that could not rightfully be charged against manufacturing, it is really plant improvement and should be charged against plant construction. We also have at our Aledo plant, what we call our house account, as we have over thirty dwellings to take care of our men. We also have a farm account, as we are operating a farm of two hundred acres in connection with our brickyard, and any labor or invoices that go to the farm could not, of course, be rightfully charged in the cost of manufacturing brick, so that, when we recapitulate or distribute our pay roll sheet or invoices for the period, they are charged to the proper accounts, whether cost of manufacturing, plant construction, house construction or farm account.

In order to keep the various charges of the various accounts for the proper distribution of your pay roll, it is, of course, necessary to have your time-book arranged in conformity with your cost accounting record; therefore, we have loose-leaf time-books, with one man on each page, which is arranged to take care of four different rates of work, so that a man can work on four different kinds of work during one day and we have no trouble in charging his work to the proper accounts. If he works in more than four different departments in one day it would, of course, be necessary to run two items on one line; otherwise, we have one line for each charge. I do not remember of ever having a pay roll come in the office with more than one item on one line as it is very seldom a man works at more than four different jobs in one day. We operate our plant almost exclusively on piece work, so we have our time sheet arranged for two different charges on piece work and two different charges by the hour. That is, if John Smith, as you will note on the time sheet, worked on the drum on the morning of the 16th until the machine had made 8,000 brick, he was given 8,000 at 5 cents per thousand, and this was charged against Account No. 4. He was then taken off the drum, where he worked in the setting gang the balance of the day and you will note here he is given 42,000 brick at 6 cents per thousand therefore, this is charged against Account No. 16. On the next day, the 17th, he was put in the shale pit, and you will see this is charged against No. 4, as he worked there while the machine made 30,000 brick. On the 18th he was put on the dry pan and worked long enough for the machine to make 12,000 brick, and you will see he is credited with the 12,000 brick at 5 cents per thousand and this charged against Account No. 10. On the 19th he was back again on the dry pan during the forenoon and is given credit with 20,000 brick, and this is also charged against Account No. 10. On the 20th, he was back and worked four hours, possibly helping the carpenter on some repair job, as you will note, this is charged against Account No. 31. He also worked three hours on the 20th on the dryer and you will see this is charged against Account No. 14. On the 21st, he was working on the belt in the machine room, and you will see he is given credit with 36,500 brick at 6 cents, and this is charged against Account No. 12. On the 22nd, you will see he worked two hours around the kilns in the morning, and he is given two hours at 25 cents, and this is charged against Account No. 19. He also was in the setting gang in the afternoon and was credited with 35,500 brick at 6 cents, and charged against Account No. 16. He returned on the 23rd and started in the setting gang and you will see he is given 11,500 brick at 6 cents, and this is again charged against account No. 16. He was then put on to assist the carpenter on some new work, which was two hours at 20 cents per hour, and this was charged against Account No. 35, plant construction. On the 24th, it seems that he was working on the drum again and was given 40,000 brick at 5 cents, and this was charged against Account No. 4. On the 25th, he worked nine hours at 20 cents, and this was charged against Account No. 31, plant maintenance. He also worked on this same day, two hours on plant construction and has two hours, or 40 cents, which is charged against Account


CONTINENTAL BRICK COMPANY, ALEDO, ILLINOIS
Cost of Manufacturing Brick at Aledo Ill. Plant
For One-half Month Ending 1-31, 1915
Pay Roll No. 73

No. 35. On the 26th, I notice he worked ten hours repairing around the kilns and you will see he is credited with ten hours, which is charged against Account No. 19. Evidently he had to work extra that evening on the railroad, as I notice he has three hours charged against Account No. 33, this being the railroad maintenance. On the 27th, he is credited with 35,000 at 6 cents, and this is charged to Account No. 12. Therefore, he evidently worked on the belt again that day. On the 28th, it seems that he worked around the plant repairing or otherwise, as he is credited with ten hours at 20 cents, charged against Account No. 31. On the 29th, he again worked in the setting gang and is credited with 42,000 at 6 cents, and this charged against Account No. 16. On the 30th, I find him credited with 35,000 at 6 cents, amounting to $2.10, which is charged against Account No. 12, so it is evident he worked on the belt again that day. On the 31st, we find he has worked two hours at 20 cents per hour, and is credited with 40 cents, which is charged against Account No. 33, so that shows he worked these two hours out on the railroad. The majority of our men work very steady at certain jobs and it is very seldom we ever have a man that works at as many different jobs throughout the pay as John Smith seems to have done. In fact, around our entire plant we only have two or three extra men or what is sometimes termed "rousters," that fill in most any job where a man might happen to be off, and I have taken John Smith's time as an illustration, as it seems he has worked on practically every job some time during the pay, in order to show you how easy it is to get the different charges. The majority of cases we have steady men in the shale pit, steady men in the machine room and steady men in all the various departments, so their entire time for the pay is charged against some certain one account, as they have been on that job every day during the pay.



ORIGINAL

Continental Brick Company.

Report of Kiln No. 10

Aledo, Ill., Jan 25-15.

Total Brick Set.

| DATE SET | HOUR | END CUT | SIDE CUT. | MATTS. | SHAPED | RESET. |
|---|---|---|---|---|---|---|
| 1-25-15 | 10 a-M | | | 64500 | cut 500 | 200 |

| DATE FIRED | HOUR | DATE CLOSED | HOUR. | HOURS BURNED. | COAL USED | COST PER TON | COST PER M | INCHES SETTLE |
|---|---|---|---|---|---|---|---|---|
| 1-25-15 | 4 P M | 1-31-15 | 2 P M | 144<br>5-22 | 36 tons | 1 50 | | 12½ |

Brick loaded from kiln.

| DATE | 800 | 810 | 811 | 812 | Mix | Hd. Com. | Md. Com | | Bats | | Resets | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-5 | 2000 | 3100 | 1800 | 1200 | 6000 | 200 | 600 | | 50 | | 100 | |
| 2-6 | 500 | 1600 | 800 | 600 | 4000 | 400 | 300 | | 50 | | 50 | |
| 2-7 | 4500 | 6500 | 2200 | 1600 | 15000 | 600 | 1800 | | 250 | | 100 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| TOTALS | 7000 | 11200 | 4800 | 3400 | 35000 | 1200 | 2700 | | 350 | | 250 | |

Per cent Face Brick 94

Per cent Common Brick 6

Total Loaded from Kiln 65900

Total Set in Kiln 65200

Difference (if any) 700+

Explanation of difference:

CONTINENTAL BRICK COMPANY.
By J. H. Watson Supt

The question will probably present itself to you, as to how the time-keeper finds out all about these changes of the men who change around so often as John Smith seems to have done on the sheet illustrated. We have in use at our plant the card system, as you will see displayed here, and we have, as we presume all plants have, some man in charge of each of the various departments; our shale pit foreman has charge of the shale pit, and is responsible for the shale until it has been hauled up to the factory and dumped into the chute, and he turns in a card to the plant office every evening with the names of the men who worked in his particular department for that day, and if they worked part of a day, our time-keeper finds the number of brick the machine has made and gives him credit with the number of cars of brick which were made up to the time he quit and went on some other work. He also marks on the card the amount of explosives used during the day, the number of exploders, etc., so that is the way we get our charge for explosives and we credit supplies, as all dynamite is charged to supplies when it is received. The inside machine room foreman makes out a card showing the number of cars of brick made and puts the names of the men on the back of the card that work in the various positions. The setting and wheeling foremen do the same. The burning foreman also turns in a card every night, showing just who worked on the kilns for the twenty-four hours past, and the time-keeper makes up the time from these cards that are turned in from the different foremen, who are responsible for the men's time. In this manner, we have an exact check on the various men's time; with the exception of two or three roust-a-bouts which we might have, and these men are changed around to the various positions by the superintendent and he keeps a record of their time and turns in to our time-keeper every evening. The time sheets are made up out at the plant office and at the end of the pay they are turned in to the general office, where the time and extensions are carefully checked and checks issued for the amount of time due each employe, as we pay our men by check. The number of the check is inserted, as you will note, on the bottom of the pay sheet, so we have a record on the stub, showing check charged against pay No. 73 for John Smith, Employe No. 1, and also a memorandum on the time sheet that employe received our check No. 1140, or whatever check number might happen to be, for his services on a certain pay. This sometimes is very convenient and valuable for future reference. We now have our recapitulation sheet made out, which is very carefully gone over and the time distributed to the various accounts in the following manner: We will again take up John Smith's time sheet, he being No. 1 on the pay roll, and you will see on the

16th—He is credited with $2.52, and charged against Account No. 16, and 40 cents against Account No. 4.
17th—We charge $1.80 against Account No. 4.
18th—We charge 60 cents against Account No. 10.
19th—We charge $1.00 against Account No. 10.
20th—80 cents against Account No. 31, also, 75 cents against No. 14.
21st—$2.19 against Account No. 12.
22nd—$2.13 against Account No. 16, and 50 cents to No. 19.
23rd—69 cents against Account No. 16, and 40 cents against No. 35.
24th—$2.00 against Account No. 4.
25th—We charged $1.80 to Account No. 31, and 40 cents to No. 35.
26th—We charge 60 cents against Account No. 33 and $2.00 to No. 19.
27th—We charge $2.10 against No. 12.
28th—$2.00 against Account No. 31.
29th—We charge $2.52 against Account No. 16.
30th—We charge $2.10 against No. 12.
31st—We charge 40 cents against Account No. 33, and we recapitulate or distribute each pay sheet in this manner throughout the entire pay roll. When we have gone through this entire time-book, we total each pay sheet and we also total the amounts distributed and these two amounts should agree; otherwise, there has been an error in some of the distribution and it should be carefully rechecked and the error found.

Now, we have on the recapitulation sheet the entire pay roll, properly distributed to the various accounts, and we total these various charges against the separate accounts and transfer the total of each charge to the cost sheet. You will note that we have charged:

| | |
|---|---|
| Against Account No. 1 | $ 37.15 |
| Against Account No. 3 | 47.00 |
| Against Account No. 4 | 159.16 |
| Against Account No. 6 | 4.00 |
| Against Account No. 9 | 46.07 |
| Against Account No. 10 | 30.14 |
| Against Account No. 11 | 30.14 |
| Against Account No. 12 | 130.96 |
| Against Account No. 14 | 26.26 |
| Against Account No. 16 | 223.14 |
| Against Account No. 17 | 50.00 |
| Against Account No. 18 | 137.20 |
| Against Account No. 19 | 32.40 |
| Against Account No. 20 | 25.10 |
| Against Account No. 23 | 61.14 |
| Against Account No. 25 | 288.71 |
| Against Account No. 26 | 28.44 |
| Against Account No. 31 | 33.18 |
| Against Account No. 33 | 10.22 |
| Against Account No. 34 | 75.00 |
| Against Account No. 35 | 78.10 |
| Against Account No. 37 | 13.88 |
| Against Account No. 39 | 19.07 |

In fact, we have the entire pay roll distributed and charged against the proper accounts; and on our cost accounting sheet we find, upon checking up our records, we have manufactured during this period a total of 564,000 brick, so, therefore, we total the various amounts charged against labor in the various departments, divide by the total number of brick manufactured, and this gives us the cost per thousand in each department, and we find, by totalling these various costs per thousand, that our brick cost us to manufacture for labor only during that period $2.679 per thousand.

We have a recapitulation sheet properly made out on our bookkeeper's desk, as previously stated, and the bills come to the writer's desk before they are filed, and are O. K.'d by him and marked to be charged to the proper accounts for which they have been used. These bills are put back on the bookkeeper's desk, where they are properly charged on the recapitulation sheet against the department for which they have been marked, and here they are stamped and filed away ready for payment. We have our invoices mailed to us in duplicate and the duplicate is mailed to our plant for O. K. by the superintendent as to whether the goods are received and are satisfactory. They are returned to the general office and, if checked O. K., then the bills are marked O. K. for payment and, as above stated, marked charged to the proper and various accounts for which the goods have been used. They are stamped showing that they have been charged on the recapitulation sheet and against the proper pay, No. 71 or No. 73, whatever the pay might be. We do this throughout the entire pay, and we now find, at the end of the pay, that the following bills have come in, been O. K.'d and properly charged against pay No. 73:

We find that there has been charged against general expense various items amounting to $87.50; $10.00 is charged against Account No. 2, this being plant expense; $40.00 against Account No. 7, this being shale pit, and was for explosives; also, $21.00 against shale pit for various items, which are charged against Account No. 8; $23.98 against Account No. 13, being the machine room; $4.20 against Account No. 15, being repairs on dryer and fan; $10.66 against Account No. 21, probably for new tools or shovels for the firemen; $581.21 against Account No. 22, this being the cost of our fuel for burning during this period; $272.50 against Account No. 28, this being amount of our power, as we operate with electric power and read our meter every pay; $8.55 against Account No. 30; $13.42 against Account No. 32; $64.25 against Account No. 36; $52.74 against Account No. 38, and $57.08 against Account No. 40.

J. S. McCannell, Milton, Ont., Canada.

Here we have all the bills for goods which have come in during this period, from January 16th to 31st, inclusive, and have them properly distributed to the various accounts, and we also have our cost of labor properly charged and extended out so that we now add the total invoices and labor for each particular department and divide this by the brick manufactured and we find out exactly what the total cost has been for that particular department per thousand brick for that pay. We do this throughout the entire departments and find, by totalling the cost of the various departments that the labor and invoices, as well as our overhead expense and depreciation, makes a total cost of $6.19 per thousand.

We now go over our sales book, take the total number of brick shipped during the period, total the amount received for these brick, and, by dividing this amount by the total brick shipped, gives us the average price per thousand received for our brick for that period. We find in this particular case we shipped 492,000 at an average price of $10.166 per thousand. We take the difference between the price of brick shipped, which is $10.166, and the cost per thousand to manufacture our brick for the period, which seems to have been $6.19, multiply the difference, which is $3.976, by the number of brick manufactured, and we find that the plant has earned approximately $2,242.46 during this period.

We find, by referring to our preceding cost sheet that we manufactured 572,100 brick the first half of the month at a cost price of $5.793 per thousand, or at a cost of $3.314.17. We add the two quantities of brick manufactured together, for the first and last half of the month, and find that we have made during the entire month 1,136,100 brick at a total cost of $6,805.47, and we find, by dividing our cost by the total brick manufactured, that we have an average cost of $5.99 for the entire month. We handle our shipments in the same manner as we do our production, and find our average price for the brick shipped from the first of the year to January 31st, was $10.064, as we shipped 977,000 brick, which amounts to a total of $9,832.81. The difference between the cost of brick per thousand, which is $5.99, and average price received of $10.064, seems to be $4.074—this multiplied by the number of brick manufactured from the first of the year to the 31st, inclusive, shows our plant has earned for the entire month, $4,628.47.

This, of course, is only what might be termed a very correct estimate, for the reason that it may have been that the brick that were shipped for this period were practically all facing brick and brick shipped at a higher price, the cheap grade of brick going on the yard, but this will adjust itself as you advance into the year, and at least after the first three or four months, or when you have practically all of your surplus stock shipped out you will find your earnings are virtually correct.

You will note at the extreme top of the cost sheet we have our overhead expense by itself, and which can be added in with the actual cost of labor and invoices for manufacturing, which is also accounted for by itself, and to get the entire cost we add the overhead, interest on borrowed money and depreciation to the manufacturing cost, which gives us our total cost per thousand, including overhead and selling expense. There are only two items so far as the overhead expense is concerned, that is, taxes and insurance, that we estimate. When we start out at the first of the year, we estimate taxes and insurance for the coming year by the preceding year. If we find, after we have been running for a month or so, and have paid our taxes and insurance, that they will run higher than last year and what we have estimated, we easily adjust this in the balance of our cost records for the year, so that we have these amounts exact after we have paid these two items.

There is one other item I might mention, and you will note that we have written in the word "Allowances." As you probably all know that some plants have to make allowances sometimes for shipments of inferior brick or some other cause, and we simply make a memorandum of the amounts in this space; and after taking the total number of brick shipped and the total cash received for the brick shipped, we deduct the amounts of allowances that we have made during that period and this, of course, will adjust itself, as we do this before getting our net average selling price for the brick shipped.

If the pay should happen to be July instead of the one outlined here, the last half of January you get the total cost in precisely the same manner as we have the cost here for the month of January. You have on your previous cost sheet the total number of brick manufactured at an average price, and you simply add this to the number of brick manufactured at any particular pay which you might be working on, and, of course, you get your average selling price and total for the year to date in the same manner, as well as the plant earnings for the year to date.

I believe one of the strongest arguments that I have ever heard in favor of uniform cost accounting was made in a talk by Dr. Copeland, of Harvard University, on uniform cost accounting in merchandising, to a gathering of merchants, but the logic applies just the same to a manufacturing institution. The point made by Dr. Copeland was, that any good cost accounting system will show a man where he stands, BUT IT TAKES A SPECIALIZED SYSTEM, UNIFORM IN EVERY PARTICULAR BUSINESS, TO SHOW A MAN WHERE HE OUGHT TO STAND, and his argument is certainly in favor of the clay manufacturers adopting some uniform method of cost keeping. It is worth the trouble, if for nothing else than to gain specific information as to the division and sub-division of the accounts that enter into the cost of clay production. Once a uniform or standard cost system is adopted by the majority of those in the business, then it becomes a simple matter to gather and tabulate information of the industry on the subject of cost, and from this tabulation to arrive at averages from which every man in the industry can determine where he stands, as compared to the averages of the industries as a whole. He will not only know where he stands, as to total cost, but he can see what items have cost more, and where he should direct his energy, if there is need to reform some part of his cost. (Applause.)

A Member: I would like to ask a question—whether this gives you any idea from day to day how the costs are running?

Mr. Buckley: You can get the cost at the end of each day if you so desire, just the same as you can at the end of each pay period. It ought not take to exceed ten minutes each day to find out your cost on each particular department.

A Member: So you can see daily just what each department is doing?

Mr. Buckley: Yes.

A Member: If you buy, say, two dozen shovels the last of January, do you charge them in that month, or when they are used?

Mr. Buckley: If you are simply buying shovels to carry in stock as supplies, and not for immediate use, you charge them to supplies, and then charge them to the various departments for which they are used, when they are used, and credit supplies at that time.

A Member: How do you handle the invoice, if the invoice does not come in the day you buy them—how would you handle it?

Mr. Buckley: We make up our cost sheet at the end of each pay period, and if an invoice should not come in so as to be figured in that pay period, we simply estimate it or carry it over and charge against the next pay.

W. D. Richardson: In determining your total cost of making your brick, what divider do you use, the number of brick placed in stock and shipped, or do you use the brick manufactured?

Mr. Buckley: We use the net number of brick manufactured at the machine for our cost of production, but we get our selling price by the number of brick shipped.

Mr. Richardson: Do you count the number of brick produced and placed in stock?

Mr. Buckley: We manufacture 50,000 brick each day at our plant, after deducting a certain amount for loss and waste, and we would necessarily have to take the same number of brick out of the kilns each day as we put in them, in order to keep our plant running continuously. If our machine has made 50,000 during the day after we have taken off the waste, we use that for the total number of brick manufactured.

Member: I note that you have taken in your depreciation in one item. Would it be possible with your system to figure your depreciation in each department?

Mr. Buckley: It would be a very easy matter to figure your depreciation in each department and charge it to each department, if you so desire. We know what our depreciation would be for the year, and we estimate this at the beginning of the year, and figure off so much each pay period, and figure it as a whole amount. It would be an easy matter, as above stated, to simply determine your depreciation and charge it to the department for which it belongs, and in this way you would have your depreciation for each of your departments, in addition to your invoices and cost of labor.

Vice-President Salmen: If there is no further discussion, we will take up the next.

Secretary Randall: The next is a paper by Mr. James P. Williams on "Producer Gas—Some of Its Advantages and Disadvantages as Applied to Periodic Kilns." Mr. Williams is not here, but he has sent his paper, which is a very good one.

## PRODUCER GAS—SOME OF ITS ADVANTAGES AS APPLIED IN BRICK YARD PRACTICE.

BY JAS. P. WILLIAMS, ST. LOUIS, MO.

*Mr. President and Gentlemen of the Convention:*

For convenience, this paper will be divided into three parts. In the first part, the application of producer gas to a continuous kiln will be dwelt upon; in the second part, its application to the dryer, and in the third part, its application to the engine room or power house.

Of all the fuels in use at present, natural gas is so far ahead of the others that it stands in a class by itself. Unfortunately, it is found in but few places in the country, and in most of these its life is short, so that it has become necessary to find a cheap substitute, which has been found in producer gas. Producer gas, as its name implies, is a manufactured article, deriving its name from the apparatus that it is manufactured or produced in, called a producer. It can be made from almost any carboniferous material, such as hard or soft coal, lignite, peat, wood, sawdust, corn cobs; in fact, a variety too great to mention.

Amongst the first to successfully introduce it in brickyard practice was the late P. L. Youngren, of Milwaukee, who, after repeated failures, finally perfected a kiln that is the forebear of nearly all of the gas kilns on the market today. Of late, a great many kilns of the Mendheim type have been very successfully operated, the original kilns being built in Germany.

The basic nature of a continuous kiln is such that it makes an ideal combustion chamber for producer gas, which obtains its most perfect combustion when both the gas and the air of combustion can be fired at high temperatures, and as the chamber into which the gas is to be liberated is heated to a state of incandescence by the waste gases of combustion, from the chamber in the rear, when the gas is liberated, conditions are ideal for its perfect combustion.

A word or two about the producer or apparatus in which the gas is generated. They are divided into two general classes, the suction type, in which a partial vacuum is depended upon to help pull the gas out of the producer to its firing point, and the pressure producer, in which pressure is depended upon to force the gas out of the producer to its point of combustion.

Both types are in use, although it is generally conceded that the suction type is superior for such as kiln and dryer work, where large volumes of gas are needed, while for power purposes, the other type is generally used. There are several new types of producers on the market, which are, however, more or less complicated. One in particular, which consists of two revolving shells, which automatically feed themselves, and discharge their ashes at the same time. This particular producer is guaranteed to generate several times the amount of gas per square foot of generating surface that the suction type does, however, the old rectangular brick suction producer is simplicity personified, and it will be some time before a better substitute is found for it. For those who have never had an opportunity to see a producer it might not be amiss to say a word about the construction and the operation of one.

F. R. Kanengeiser, Bessemer, Pa.

In the first place, a producer (we are describing the common type of rectangular brick producer) is nothing more than a large furnace or firebox, walled in on four sides by heavy brickwork, supported by vertical and horizontal buck stays, the top being arched the same as in the kiln furnaces and containing more or less openings, which can be shut up airtight after firing the fuel. Instead of the usual grates on the bottom, it is built in the shape of a V, with the lower end of the V open for the removal of ashes and clinkers. This lower end is closed against the admission of air, in one of two ways, either by fine ashes, in which event it is called a cinder seal, or by a basin of water, in which event it is called a water seal producer. Extending longitudinally along both sides of the producer, on the inside, along the line of the clinker, are two large pipes which are kept filled with water. These pipes are connected with a drum on the outside of the producer, which is kept about three-quarters full of water. These pipes serve a two-fold purpose, in keeping the clinker from corroding and sticking to the fire brick lining, and in furnishing low pressure steam for breaking up the clinker, which sometimes has a tendency to arch in the producer, growing higher and higher, until it finally chokes up the coal space, in which event it is generally necessary to shut down the producer to remove the clinker. However, when an event like this occurs, it is generally caused by gross carelessness on the part of the fireman, as, if taken in time, it is only the work of a very few minutes to clean the producer.

A fire is built in the producer pretty much the same as in the kiln furnace, and after lighting, it is allowed to burn all of the kindling out, so that it may get a solid bearing against the pipes, after which it is charged at regular intervals, and the gas is drawn off.

On the first kilns that were built, each chamber had a separate producer, and as a chamber was filled up, its producer was charged and lit up, and when the chamber was finished being fired, its producer was allowed to go out. Having so many of these producers, called for considerable labor, and entailed the loss of considerable fuel, so that finally a central producer was built to supply all of the chambers, which allows all of the coal and ashes to be handled at one place. At the time that the first kilns were built, there was no reliable and established data on the area of the gas flues, generating area in the producers, area of the draft flues, etc., so that a few of the earlier installations suffered along these lines. Later, however, wherever this information was lacking, some of the older installations generally supplied it, so that the latter-day installations have been perfected along these lines. One of the chief troubles of the early user of producer gas kilns was the fact that he could not advance his fires as fast as his ware would permit, owing to the fact that he did not have generating surface enough to furnish the kiln with a large enough volume of gas in a given unit of time. In some cases, this was remedied by adding another section onto the producer; in others, by building a new producer. The writer has been on most of the larger producer plants in the country, and has yet to find a plant where they can generate more gas than they can use. In many of the earlier installations the gas flues were figured to give just enough gas, and after running the gas through for awhile it was found that the kiln was not getting enough gas, it being found that the flue had become choked up with soot and tar. At first, this was mechanically removed; later, it being found cheaper and quicker to turn a small amount of gas loose in this flue and light it, burning out all of the impediments. This, however, consumed considerable time, and in the latter-day installations the kiln, instead of being built in one unit, is built in two sections, each section having its own gas flue, and while one section is being burned, the gas flue on the other section is burned out, thereby losing no time. So far there has not been any attempt made to reclaim the tar and ammonia and other by-products of the gas, however, considerable experimenting is being done along that line, and it is confidently expected that inside of the next three or four years apparatus for the separation of the by-products will be so perfected that a producer operator cannot afford to be without them.

W. H. H. Rogers, Rochester, N. Y.

Any properly designed producer gas kiln will burn ware much more uniformly, owing to the basic nature of the fuel, than a properly designed direct fired coal kiln (all kilns mentioned in this paper are of the continuous type), as the nature of solid fuel of any kind is such that it will generate heat zones, of different temperatures, and as the evenness of the temperature of any kiln is what produces the uniform burns, it is logical that whatever fuel can be fired in such a way as to produce this evenness of temperature will produce the most uniform burns. Theoretically, at least, the coal-fired kiln has one advantage over the gas kiln, and that is in fuel consumption. It was formerly considered that a producer consumed one-tenth of its coal, in generating gas, but this has been demonstrated to be an excessively high figure, it being found by actual tests, that the consumption is between 2½ and 5 per cent., depending more or less on local conditions. This disadvantage in coal consumption, however, is offset by a dozen or more advantages, so that in the general averaging up of the two systems it has little weight.

Another mistake that was made by the earlier builders of gas kilns was in building a standard kiln, and putting that kiln up on every plant, regardless of local conditions, and this same mistake is made today by some of the builders of the different makes of gas kilns, although to a lesser extent than formerly. A kiln that is a success on one plant may not be so on another, and local conditions should govern the type of kiln that is to be erected.

There are about five different individuals and companies putting gas kilns on the market at this time, and naturally each fellow thinks he has the best, however, they have all got very good points, and as each have succeeded in eliminating the bad points, a person will be safe in doing business with any of them.

The question of pulling waste heat from a continuous kiln to be used in a tunnel dryer, is one that has long been argued by engineers, some maintaining that it is more economical to use the waste heat in the kiln for preheating the ware, others claiming that it is more economical to use it in the dryer. The writer has always taken the stand that wherever a kiln is found that has more waste heat than can be used to water-smoke and preheat the green ware, it is manifest that the kiln is not properly balanced. The advocates of pulling the heat were possibly influenced by the fact that all of the dryers that were heated by other means than waste heat consumed too much fuel to be economically operated, so that heat was pulled from the continuous kiln for that reason. With the advent of the dryer heated from a furnace fired by producer gas, this argument loses its potency, and it is on this subject we will dwell for a while. This furnace should not be confused with the direct firing of producer gas in cold isolated furnaces, as the principle under which it operates is different.

A producer is built to supply gas to the dryer, the same as the one supplying gas to the kiln. Producer should be located alongside of the one supplying gas to the kiln, so the same attendant can attend to it. A furnace is built preferably down in the ground and as near the producer as is possible and practicable. The idea in putting it down in the ground is two-fold; first, it is out of the road, not taking up any yard room; second, it is insulated by the earth, conserving the heat generated. The gas, carrying with it its initial producer temperature, is liberated in the furnace and lighted. The air of combustion is brought in, being exposed to the walls of this furnace, which, in a few minutes' time, becomes hot, thereby heating the air of combustion to practically the same temperature, and mixing with the hot gas at this temperature, its combustion takes place under conditions that are ideal.

The products of combustion are then passed on to a tunnel, called the mixing chamber. As they leave the furnace and enter the mixing chamber, they are mixed with a supply of cold air coming in from the outside. By admitting more or less cold air into this mixing chamber it is possible to get practically any temperature desired at the hot end of the dryer, and as the gas and the air of combustion and the air for reducing the temperature are all under damper control, it is possible to get a degree of uniformity in the dryer that is hardly possible under any other method of heating. Only one fan is used in this system, and it is located at the rear end of the dryer, where it is not exposed to the direct heat of the furnace. One of the finest points about this system is that after the dampers and tunnel valves are once set to get the proper distribution in each tunnel, there is no more bother or worry about having enough dry brick to run the next day, for the dryer, like the kiln, is equipped with recording pyrometers, which show the heat carried each and every hour during the day and the night, which is the best check on the producer fireman to see that he is getting out the amount of gas necessary.

We will now talk for a little while on a subject that very few brickyard men have had an opportunity to investigate, namely, that of the use of producer gas for engine or power purposes. Hardly more than five years ago, the producer gas engine was an experiment, and power users all over the country looked at it askance, but today all that is changed. Today, it occupies the same position to the power user as the gasoline engine does to the automobile manufacturer. Some of the largest power units ever designed are now being gotten out for use in the Illinois and Pennsylvania coal fields, to generate power from producer gas made from the immense slack mountains that abound in those fields, and for the generation of cheap power they have only one rival, that of the hydraulic turbine. The producer gas engine has been so perfected in the last five years that today they are far more dependable than the gasoline engine, and run for weeks and months with very little attention. They are made in units from twenty-five horsepower on up, and are offered for sale by a number of old line builders of steam engines.

The producer for the engine should be put alongside of the others, so that all of the coal and ashes can be handled from a central point. A spur track should be run alongside of three or more producers, allowing the coal to be dumped out of the cars into a pit, from where it can be elevated up to a series of bins, one being over each producer, so that the producers can be charged by gravity, the cinders being mechanically taken care of. After leaving the producer, the gas for use in the engine must be run through a scrubber to eliminate all of the solids held in suspension, after which it is run through a purifier, which takes the moisture out of it, and from this point it can be piped to any place on the plant, and not being like steam, it does not lose any of power producing ability by long transmission, so that if the plant is to be driven by electricity, the engine and dynamo can be located at any convenient place, while if, on the other hand, it is proposed to drive direct, one engine can be placed so as to drive all of the grinding and storage machinery, which should be independent of the balance of the plant, while the engine that drives the balance of the plant can be put in the most convenient place. Isolated pieces of machinery, such as dryer fans, pumps in the pit, hoisting machinery, in fact, any piece of machinery that is now being driven by steam, can be driven with producer gas a good deal more economically. To cite a specific example, the writer recently had the privilege of visiting and examining the power plant of the Glencoe Cotton Mills Company, of Columbia, S. C., of which Mr. Wanamaker is president and general manager.

This company has been operating a producer gas power plant for the last three years which consists of a gas producer, a producer gas engine, direct connected to a large dynamo, which in turn furnishes current to a series of motors that furnish power for all of the machines in the mills. By a series of exhaustive tests, it was shown that the motors developed in excess of two hundred horsepower, and Mr. Wannamaker informed the writer that during the preceding year they had kept a daily record of the coal consumed and the stoppages, and that they had consumed on an average of nineteen hundred pounds of coal per day, and that they did not have one stop which was caused by engine or producer trouble. Figuring out this coal consumption on an hourly basis, we have a consumption of less than one pound of coal per hour per horsepower. When it is taken into consideration that in the best engine room practice, where compound Corliss engines are run condensing, it is only possible to get eight pounds per horsepower, the enormous saving accomplished by the producer gas engine can begin to be realized.

While on the subject of coal consumption, it might be well to give some data collected of late on producer gas continuous kilns. In order to show the difference, the old as well as new figures are given, and plants have been selected burning different kinds of ware, to get a greater diversity.

Plant No. 1—Making common building brick and using up-draft kilns. Old figures, eight hundred pounds per thousand; new figures, three hundred and ten pounds.

Plant No. 2—Making pavers and using down-draft kilns. Old figures, fifteen hundred pounds per thousand; new figures six hundred fifty pounds.

Plant No. 3—Making fire clay face brick. Old figures, thirteen hundred fifty pounds, using down-draft; new figures, five hundred pounds.

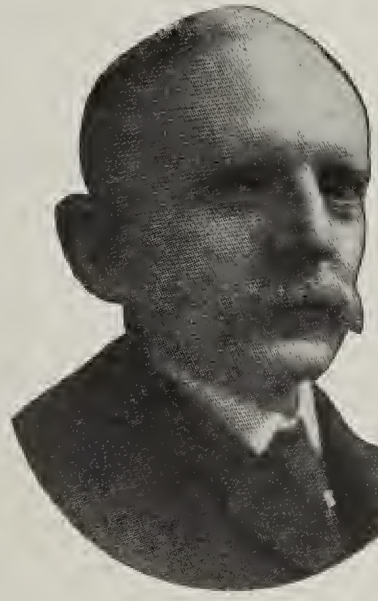
Plant No. 4—Making hollow ware. Old figures, three hundred twenty pounds per ton, down-drafts; new figures, one hundred ten pounds per ton.

Owing to the fact that the dryer referred to previously is comparatively a new proposition, the writer has not had an opportunity to get data on its coal consumption, but, owing to the fact that its gases are totally combusted, it will be fair to say that it will take about one-half of the fuel that any direct-fired dryer takes, that is, using solid fuel.

The question is often asked, "If producer gas kilns are such fine things, why don't the old-line fellows build them?" If one will only stop to think a moment this question is comparatively easy to answer. In the first place, the old-line fellow has, generally speaking, from fifty to one hundred thousand dollars tied up in his down-draft kiln equipment, the amount, of course, depending on the size and number of his kilns. Now, presuming that he is fully posted as to the merits of the kiln, and is also as fully posted on what the kiln will actually cost him (not what the fellow is trying to sell it to him says it will cost) the question that immediately enters his mind is this: "Supposing that I tear down all of my kilns and build this kiln, how many years will it take me to get back what my old kilns cost before I will begin to profit on the continuous kiln?" He generally figures that it will take him at least five years, and in some cases nearly seven, before he is in a position to begin to realize on his investment, and to any business man this is a mighty poor prospect. So that in the end, he decides to retain his old kilns. However, in the case where the old-line manufacturer is going to increase his capacity to the extent that it will justify him to consider a continuous kiln, the result is always the same, the continuous kiln is built.

Summarizing, let us consider something that up until this time has not existed, namely, that of a producer gas-fired brick plant. Starting in on the coal end of the plant, we have a car of coal being brought into the plant and being dumped into the coal pit. From here the coal is elevated up and discharged into a series of bins, one over each producer. Small hand chutes run from the bins down to each of the charging holes, or bells, where the attendant, by pulling a lever, can charge the producer in a few seconds. He goes from one producer to the other, and in ten minutes or less he has charged enough coal to furnish gas for the plant for over an hour. He now goes down in the ash pit and takes his clinker bar and breaks down his clinker, allows it to fall into the ash chute, where it receives a charge of water to extinguish any fire that might remain, and from there is carried up to the ash hopper and stored until some convenient time, when it is dropped into a wagon and hauled away. This whole operation has taken him considerable less than an hour to perform, so he has some time left before it is time to charge again. During this hour he has furnished enough gas to burn, say five thousand brick, or the half of it; he has also furnished enough gas to dry five thousand brick, and has also furnished enough gas to make five thousand brick. These five thousand brick have cost in fuel, to use a conservative figure, less than one-quarter of what these same brick would cost if the fuel had been coal instead of gas (speaking of fuel cost only) while the labor cost will be decreased considerable. In other words, by using the gas as mentioned, the fuel cost on the whole plant will be cut three-quarters, while the labor cost will be increased fully five per cent., at a low estimate. It is not the intent of this paper to go into plant cost, excepting as it is affected by the use of producer gas; otherwise, it might be well to take the whole plant right through.

Take, for instance, the labor cost on such a plant, as far as the kilns, dryers and boiler room goes. Say, on a plant using down-draft kilns, direct-fired (coal) dryer and a boiler room, plant making, say fifty thousand per day; we have on the kilns, four or possibly five firemen, on the dryer, one or possibly two firemen, and in the boiler room, one fireman, while we have possibly one man on the outside hauling ashes and coal, making a total of, say eight men, which is offset on the producer plant by having only one man, saving seven men.



Wm. Conway, Philadelphia, Pa.

A word in conclusion. During the next year or possibly two, we expect to see such a producer plant built and successfully operated, and when it is built its competitors will have to get busy, for in this modern grind there is no such thing as standing still, it is either a question of going forward or going backward, and dropping out of the game. (Applause.)

Vice-President Salmen: What is the next on the program, Mr. Randall?

Secretary Randall: I would like to call the attention of the convention to a matter that has been overlooked, the nomination and election of two members of the Committee on Technical Investigation. Mr. McNees, who was chairman of the committee appointed, asked for further time, that Prof. Orton might be appointed. It was supposed that Prof. Orton would go with us on the trip to the brickyard, but Prof. Orton did not materialize. Mr. Gregory is the only one of the committee present, I believe.

Mr. Gregory: I met with Mr. McNees and Mr. Blair, and we tried to see Prof. Orton and Mr. Lovejoy, but were unable to do so. We realize this is a very important work, and therefore I move that this matter be deferred and that the Secretary and President be empowered to consult with Prof. Orton and other members of the committee and appoint such members on this technical committee as they may think are duly qualified to perform the work and work in harmony with the committee.

Mr. Eisenhart: I second the motion.

Motion carried.

Secretary Randall: The following resolution has just been handed to me.

*To the Convention:*

At a meeting of all the Detroit brick manufacturers and dealers held this afternoon, the following resolution, presented by Charles H. Bryan, was unanimously adopted:

Resolved, Words fail to express how happy the men of the brick industry of Detroit have been made through the visit to our city by the members, wives and friends of the National Brick Manufacturers' Association of America. If Detroit and her citizens have been of any benefit to the convention, the pleasure alone belongs to this humble committee. In the future we desire the delegates of this convention to feel perfectly free to call upon the men of Detroit's brick industry for any information that we may be able to supply.

Trusting that we may again have the pleasure and honor of entertaining you at some future date, we humbly sign our names as instructed.

GEORGE H. CLIPPERT, Chairman,
WILLIAM B. WREFORD, Secretary.

George H. Clippert: I move the adoption of the resolution. (Laughter.)

Secretary Randall: This is in keeping with the spirit that has prevailed all through this convention, and, knowing that such a spirit would prevail, I was delighted with the invitation to come to Detroit. I second the motion. (Laughter.)

Carried.

President Mayer: Gentlemen of the Convention—I want the privilege of a word before closing. It is with great pleasure that I extend to you my cordial thanks for the kind and unanimous support you gave the chair in this convention.

We have completed our work on schedule time, and I believe that a great many of the delegates, if not all, will go home much benefited by reason of their participation in this convention, both from the standpoint of learning and of pleasure.

Again I wish to express the hope that a year hence we will have the pleasure of meeting all our old members and friends and many new ones.

W. B. Wreford: Mr. President, if there is no other business before the convention, I desire to have the honor of moving to adjourn and ask that all stand up and sing—

"They say that the brickmen
They ain't got no style;
They're style all the while,
All the while."

Mr. Wreford's suggestion met with hearty approval, and the President's gavel fell, adjourning the convention sine die, while all joined in the rollicking song, led by Mr. Wreford.

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# NUMERICAL ROSTER N. B. M. A., DETROIT, MICH., 1915.

NAME. FIRM. TOWN.

1. C. P. MAYER, C. P. Mayer Brick Co., Bridgeville, Pa.
2. EBEN RODGERS, Alton Brick Co., Alton, Ill.
3. W. H. H. Rogers, Rochester Brick & Tile Ci., Rochester, N. Y.
4. C. H. BRYAN, Mercier, Bryan Larkins Co., Detroit, Mich.
5. WILL P. BLAIR, Natl. Pav. Br. Mfrs. Assn., Cleveland, O.
6. GEO. H. CLIPPERT, Geo. H. Clippert & Bros. Br. Co., Detroit.
7. JAMES E. RANDALL, The Clay-Worker, Indianapolis, Ind.
8. CHAS. F. CLIPPERT, G. H. Clippert & Bros. Br. Co., Detroit.
9. H. F. CLIPPERT, Geo. H. Clippert & Bros. Br. Co., Detroit.
10. WM. B. WREFORD, Detroit Br. Mfrs. & Dealers As., Detroit.
11. THEO. A. RANDALL, Scretary N. B. M. A., Indianapolis, Ind.
12. WM. SIMPSON, Frost Mfg. Co., Chicago, Ill.
13. C. A. BLOOMFIELD, Bloomfield Clay Co., Metuchen, N. J.
14. O. W. WILLIS, Roessler-Hasslacher Chem. Co., Perth Amboy.
15. H. W. BLOOMFIELD, N. Jersey Clay Prod. Co., Metuchen.
16. W. MALSCH, The Roessler-Hasslacher Chem. Co., N. Y.
17. J. LAWSON MOORE, Cincinnati, Ohio.
18. CHRIS. STEADMAN, Steadman & Robinson Co., N. Y.
19. HUBERT SOMERS, Somers Brick Co., Atlantic City, N. J.
20. B. C. PIERCE, Presbrey Stove Lining Co., Taunton, Mass.
21. L. B. KOBLITZ, Amer. Building Brick Co., Cleveland, O.
22. A. W. AYLESWORTH, The Bonnot Co., Canton, O.
23. GEORGE B. MENTZ, Walkill, N. Y.
24. C. M. AVERY, Stephens-Adamson Mfg. Co., Aurora, Ill.
25. CHAS. T. HARRIS, Hollow Bldg., Tile Mfrs.' Assn., N. Y.
26. H. H. ROSENBERG, Brick & Clay Record, Chicago, Ill.
27. W. A. MEDDICK, The Lakewood Engineering Co., Cleveland.
28. A. J. DUNN, Chase Foundry & Mfg. Co., Columbus, Ohio.
29. JOHN M. PIERCE, Marsh-Capron Co., Chicago, Ill.
30. R. C. PENFIELD, Amer. Clay Mach. Co., New York, N. Y.
31. J. P. PENFIELD, Amer. Clay Mach. Co., Bucyrus, O.
32. H. C. PENFIELD, Amer. Clay Mach. Co., Bucyrus, O.
33. L. W. PENFIELD, Amer. Clay Mach. Co., Willoughsby, O.
34. J. A. PENFIELD, Amer. Clay Mach. Co., Willoughby, O.
35. R. O. PERROTT, Amer. Clay Mach. Co., Bucyrus, O.
36. C. B. SHARER, Amer. Clay Mach. Co., Bucyrus, O.
37. F. L. HOPLEY, Amer. Clay Mach. Co., Bucyrus, O.
38. DAVIS BROWN, Amer. Clay Mach. Co., Bucyrus, O.
39. L. HAIGH, Amer. Clay Mach. Co., Bucyrus, O.
40. W. R. CUNNINGHAM, Amer. Clay Mach. Co., Bucyrus, O.
41. E. W. DOW, Amer. Clay Mach. Co., Pittsburgh, Pa.
42. F. N. SHANKLAND, Amer. Clay Mach. Co., Willoughby, O.
43. H. S. SIMPSON, Amer. Clay Mach. Co., Chicago, Ill.
44. JAS. P. MARTIN, Amer. Clay Mach. Co., Lancaster, Pa.
45. F. TALBOT, Laclede Christy Clay Prod. Co., St. Louis, Mo.
46. ABEL HANSEN, Fords Porcelain Wks., Perth Amboy, N. J.
47. J. H. CHAMBERS, Chambers Bros. Co., Philadelphia, Pa.
48. A. R. ROOT, Chambers Bros. Co., Philadelphia, Pa.
49. WM. G. TAYLOR, Jr., Chambers Bros. Co., Philadelphia, Pa.
50. R. W. NEWCOMB, Charles Engelhard, New York City.
51. P. W. A. FITZSIMMONS, H. Brewer & Co., Tecumseh, Mich.
52. CHAS. BURRIDGE, H. Brewer & Co., Tecumseh, Mich.

NAME. FIRM. TOWN.

53. H. R. BREWER, H. Brewer & Co., Tecumseh, Mich.
54. G. S. BRUBAKER, H. Brewer & Co., Tecumseh, Mich.
55. W. R. BARNHART, Jr., The Wooster Shale Br. Co., Wooster.
56. S. C. PEEBLES, The Peebles Pav. Br. Co., Portsmouth, O.
57. F. L. MANNING, Peebles Paving Br. Co., Portsmouth, O.
58. C. C. BARR, The Barr Clay Co., Streator, Ill.
59. C. J. DECKMAN, The Deckman-Duty Br. Co., Cleveland, O.
60. F. M. BRADY, Cleveland Br. & Clay Co., Cleveland, O.
61. W. T. BLACKBURN, Dunn-Wire-Cut Lug Co., Paris, Ill.
62. L. K. BROWN, The Burton Townsend Co., Zanesville, O.
63. DAVID B. GIBSON, Brick & Clay Record, Chicago, Ill.
64. D. R. POTTER, Thornton Fire Br. Co., Clarksburg, W. Va.
65. CHAS. H. FRANK, Nelsonville Brick Co., Columbus, O.
66. C. M. CUNLIFFE, American Blower Co., Detroit, Mich.
67. H. L. COX, The Marion Steam Shovel Co.; Marion, O.
68. J. B. WILCOX, The Alliance Clay Prod. Co., Alliance, O.
69. J. W. ROBB, Clinton Paving Brick Co., Clinton, Ind.
70. MARION W. BLAIR, Kushequa Brick Co., Kushequa, Pa.
71. H. H. FATE, The J. D. Fate Co., Plymouth, O.
72. G. A. ANDERSON, The J. D. Fate Co., Plymouth, O.
73. E. M. HALL, Davenport Locomotive Wks., Chicago, Ill.
74. A. S. REID, A. S. Reid & Co., Newark, N. J.
75. R. P. BROWN, Brown Instrument Co., Philadelphia, Pa.
76. J. W. LAZEAR, Brown Iustrument Co., Philadelphia, Pa.
77. G. L. CLAPPER, Brown Instrument Co., Philadelphia, Pa.
78. E. LOVEJOY, Richardson-Lovejoy Eng. Co., Columbus, O.
79. B. J. GRAHAM, The Dennison Tile Eng. Co., Cleveland, O.
80. H. H. MACDONALD, Natl. Pav. Br. Mfrs. Assn., Cleveland, O.
81. A. JENKINS, Det. Brick Mfrs. & Dealers Assn., Detroit, Mich.
82. H. WIRSCHING, The Standard Dry Kiln Co., Dayton, O.
83. E. DeGROOT, Standard Dry Kiln Co., Indianapolis, Ind.
84. ROBT. ELLIOTT, Standard Dry Kiln Co., Indianapolis, Ind.
85. WILLIAM CONWAY, Philadelphia, Pa.
86. B. F. COTTER, The Coshocton Brick Co., Coshocton, O.
87. P. J. PETERSON, Caro, Mich.
88. JOHN K. SIMPSON, The Trimble Pav. Br. Co., Dayton, O.
89. J. A. CROWELL, James B. Crowell & Son, Wallkill, N. Y.
90. F. B. DUNN, Dunn Wire-Cut-Lug Brick Co., Conneaut, O.
91. C. A. GARDNER, Amer. Enamel Br. & Tile Co., N. Y., N. Y.
92. ROBERT L. FRINK, The Frink Pyrometer Co., Lancaster, O.
93. A. C. BENNETT, White Star Refining Co., Detroit, Mich.
94. FORREST FORDHAM, Sr., Bucyrus Co., Chicago, Ill.
95. WARREN GRIFFISS, Baltimore Br. Co., Baltimore, Md.
96. J. FRED SMITH, Omaha, Neb.
97. C. C. BLAIR, Bessemer Limestone Co., Youngstown, O.
98. A. F. HOTTINGER, No. West. Terra Cotta Co., Chicago, Ill.
99. A. A. OLDHAM, The Bonnot Co., Caton, O.
100. R. H. McELROY, The C. W. Raymond Co., Dayton, O.
101. E. A. MORSE, The C. W. Raymond Co., Dayton, O.
102. G. M. RAYMOND, The C. W. Raymond Co., Dayton, O.
103. E. G. EISENHART, Horseheads, N. Y.
104. ANTHONY ITTNER, Ittner Brick Co., St. Louis, Mo.

NAME. FIRM. TOWN.

105. EARL C. SMITH, The Marion-Osgood Co., Marion, O.
106. R. C. BENNETT, Wellington Mach. Co., Wellington. O.
107. H. S. HERSEY, C. D. Bartlett & Snow Co., Cleveland, O.
108. A. DUPUY, The C. D. Bartlett & Snow Co., Cleveland, O.
109. RALPH SPENCER, Dresden Brick Co., Detroit, Mich.
110. A. G. STARR, Wynn & Starr Co., Trafford, Pa.
111. G. E. LUCE, Lambert Process Co., Chicago, Ill.
112. C. B. THWING, Thwing Instrument Co., Philadelphia, Pa.
113. H. W. HOLMES, Puritan Brick Co., Detroit, Mich.
114. B. E. PLACE, E. M. Freese & Co., Galion, O.
115. A. J. FREESE, E. M. Freese & Co., Galion, O.
116. D. E. HUMPHREY, Deckman, Duty Brick Co., Cleveland, O.
117. J. C. SCHAFER, Schaffer Eng. & Equipment Co., Tiffin, O.
118. C. G. STEVENSON, The Stevenson Co., Wellsville, O.
119. JOTHAM POST, W. & J. Post, East Williston, N. Y.
120. WM. HANLEY, Bradford Pressed Brick Co., Bradford, Pa.
121. WM. HANLEY, Jr., Bradford Fireproofing Co., Bradford, Pa.
122. H. J. FLOOD, Chisholm, Boyd & White, Chicago, Ill.
123. M. E. GREGORY, Br., Terra Cotta & Tile Co., Corning, N. Y.
124. L. W. FLOOD, Chisholm, Boyd & White, Chicago, Ill.
125. J. O. TRAUTWEIN, Trautwein Dryer & Eng. Co., Chicago, Ill.
126. CLAUDE SMITH, Claude Smith Co., Chicago, Ill.
127. R. D. LINDSAY, Denver Pressed Brick Co., Denver, Colo.
128. A. J. ROGERS, Fiske & Co., Boston, Mass.
129. D. D. DEEDS, Thew Automatic Shovel Co., Lorain, O.
130. P. A. SMITH, The A. F. Smith Co., New Brighton, Pa.
131. ELISHA K. KANE, Kushequa Brick Co., Kushequa, Pa.
132. W. J. SNYDER, Brazil Clay Co., Brazil, Ind.
133. A. F. KLEYMEYER, W. Point Br. & Lbr. Co., W. Point, Ky.
134. J. H. MEAD, Onondaga Vitrified Brick Co., Warners, N. Y.
135. G. J. POTTS, C. & A. Potts Co., Indianapolis, Ind.
136. JOHN E. SCHUESLER, Buffalo, N. Y.
137. JOHN DIETSCHLER, Bender Brick Co., Buffalo, N. Y.
138. Missing.
139. J. H. QUALMAN, Saginaw Paving Br. Co., Saginaw, Mich.
140. S. B. DOBBS, Philadelphia, Pa.
141. FRITZ SALMEN, Salmn Brick & Lumber Co., Sidell, La.
142. WM. H. BUNCE, Kane Brick Co., Kane, Pa.
143. S. KELLEY, Arbuckle & Co., Rushville, Ind.
144. F. McCLELLAN, The Arnold-Creager Co., New London, O.
145. T. R. KANE, Michael Kane, Hartford, Conn.
146. ALFRED YATES, Shawmut Paving Br. Co., Shawmut, Pa.
147. ERNEST YATES, Eastern Terra Cotta Co., Boston, Mass.
148. E. C. WHITMYRE, Diamond Power Spec. Co., Detroit, Mich.
149. W. D. RICHARDSON, Claycraft Min. & Br. Co., Shawnee, O.
150. H. C. ADAMS, Danville Brick Co., Danville, Ill.
151. L. E. RODGERS, L. E. Rodgers Engineering Co., Chicago, Ill.
152. A. B. MEYER, A. B. Meyer & Co., Indianapolis, Ind.
153. J. A. POLLOCK, Mathews Gravity Carrier Co., Detroit, Mich.
154. W. S. DICKOVER, Geo. T. Dickover & Son, Wilkesbarre, Pa.
155. G. T. DICKOVER, Geo. T. Dickover & Son, Wilkesbarre, Pa.
156. GEO. B. WAITE, Geo. T. Dickover & Son, Parsons, Pa.
157. Missing.
158. C. O. EVANS, Warren Brick & Tile Co., Warren, O.
159. ED FLANDERS, The Marietta Shale Brick Co., Marietta, O.
160. F. O. PRESTON, Dover Fire Brick Co., Cleveland, O.
161. WM. T. BUSSELL, Clay Product Co., Brazil, Ind.
162. A. V. BLEININGER, Bureau of Standards, Pittsburgh, Pa.
163. R. T. STULL, University of Illinois, Urbana, Ill.
164. A. C. VICARY, Ball Engine Co., Erie, Pa.
165. W. J. STEPHANI, O. W. Ketcham T. Cotta Wks., Philadelphia.
166. G. VENEKLASEN, Zeeland Brick Co., Zeeland, Mich.
167. H. C. ARNOLD, Ceramic Supply & Const. Co., Columbus, O.
168. H. J. KNAPP, Cent. Clay Prod. Co., No. Tonawanda, N. Y.
169. R. A. YOUNG, Marion Mach., Fdy. & Supply Co., Marion, Ind.
170. PAGE A. ROBINSON, The American Architect, Chicago, Ill.
171. WM. CLIPPERT, Wm. Clippert Brick Mfg. Co., Detroit, Mich.
172. GEO. M. KRICK, Krick-Tyndall & Co., Decatur, Ill.
173. P. L. MONROE, Providence, R. I.
174. WM. L. BELTZ, Mowrystown Br. & Tile Co., Mowrystown, O.
175. A. C. OCHS, A. C. Ochs Brick & Tile Co., Springfield, Minn.
176. H. C. KLEYMEYER, Standard Br. Mfg. Co., Evansville, Ind.
177. B. BIGSBY, Jr., The Cleveland Alloys, Co., Cleveland, O.
178. E. J. SCHARIO, Keim Brick Co., Louisville, O.
179. R. D. McMANIGAL, McManigal Grateless Fur. Co., Logan, O.
180. A. R. D. JOHNSON, Johnson & Johnson Co., Raleigh, N. C.
181. F. R. KANENGEISER, Bessemer Limest. Co., Bessemer, Pa.
182. F. W. DONAHOE, Brick & Clay Record, Chicago, Ill.
183. A. R. CAMPBELL, Terra Cotta Ceramist, Metuchen, N. J.
184. CHAS. BONNER, Bonner-Marshall Co., Chicago, Ill.
185. I. E. BROWN, Adams Publishing Co., Alliance, O.
186. R. J. DAWSON, The Cayugahoga Br. & Shale Co., Cleveland.
187. J. T. HUMMERT, Gem City Press Brick Co., Quincy, Ill.
188. J. H. MILLER, Wash. Br. & T. Cotta Co., Washington, D. C.
189. H. S. BENNETT, The Wellington Machine Co., Wellington, O.
190. EDWARD ORTON, Jr., Columbus, O.
191. CARL B. HARROP, Ohio State University, Columbus, O.
192. R. F. GRADY, St. Louis Terra Cotta Co., St. Louis, Mo.
193. W. C. BLACK, Carter, Black & Ayers, New York City, N. Y.
194. A. A. AYERS, Carter, Black & Ayers, New York City, N. Y.
195. W. DRAYTON, Hocking Valley Products Co., Shawnee, O.
196. I. M. JUSTICE, The Manufacturers Equipment Co., Dayton, O.
197. W. H. SACHS, The Manufacturers Equipment Co., Dayton, O.
198. W. O. FREDENBURG, Fredenburg & Lounsbury, N. Y. City.
199. R. C. GANGWERE, Howard Park Br. Co., Chattanooga, Tenn.
200. W. P. VARNEY, Hydraulic Press Brick Co., Chicago, Ill.
201. H. R. BEEGLE, Beever Clay Mfg. Co., New Galilee, Pa.

NAME. FIRM. TOWN.

202. GEO. J. WALTERS, Chatsworth, Ill.
203. W. HAMMERSCHMIDT, Lombard Br. & T. Wks., Lombard, Ill.
204. W. W. WALLACE, Amer. Clay Mach. Co., Chicago, Ill.
205. WM. F. BACH, Bach Brick Co., Chicago, Ill.
206. W. G. POATE, Newport, Ky.
207. THOS. M. WILSON, Milton Brick Co., Milton, Pa.
208. E. BRADDOCK, Somers Brick Co., Atlantic City, N. J.
209. H. W. CARTER, The Cook & Brown Lime Co., Oshkosh, Wis.
210. L. K. BROWER, Brower & Best, Thompsonville, Conn.
211. J. W. BALL, Russell Shale Brick, Ltd., Russell, Ont., Can.
212. T. E. WILSON, Pittsburgh Clay Prod. Co., Pittsburgh, Pa.
213. CHAS. W. PARKER, Miss. Glass Co., St. Louis, Mo.
214. FRANK J. NIXON, Paine & Nixon Co., Duluth, Minn.
215. C. C. STRATTON, Alumina Shale Brick Co., Bradford, Pa.
216. O. BAIRD, H. Baird & Son Co., Park Hill, Ont., Can.
217. W. N. DURBIN, Anderson Fdy. & Mach. Wks., Anderson, Ind.
218. E. R. DILLEHAY, Dillehay Brick Co., Danville, Ky.
219. D. T. RIFFLE, Allegheny Brick Co., Ltd., Pittsburgh, Pa.
220. B. H. RICHARDS, Jr., Richards Brick Co., Edwardsville, Ill.
221. A. F. GLUCK, Frontier Brick Works, Niagara Falls, N. Y.
222. G. W. McNEES, Kittanning Clay Mfg. Co., Kittanning, Pa.
223. R. A. BAILEY, Springfield Brick Co., Springfield, Mass.
224. HAROLD COPPING, H. & B. Copping, Kankakee, Ill.
225. J. E. FRID, Geo. Frid Brick Co., Hamilton, Ont., Can.
226. NED P. ELZEY, The U. S. Roof. Tile Co., Parkersburg, W. Va.
227. W. BURGESS, Don Valley Brick Works, Todmorden, Ont.
228. T. C. MOULDING, Thos. Moulding Brick Co., Chicago, Ill.
229. A. A. McCLAMROCK, The Wallace Mfg. Co., Frankfot, Ind.
230. S. S. MARTIN, Kittanning Br. & Fire Clay Co., Pittsburgh, Pa.
231. ROBT. S. MITCHELL, The Farr Brick Co., Cleveland, O.
232. D. E. REAGAN, Hocking Valley Prod. Co., Columbus, O.
233. M. McEVERHARD, The Everhard Co., Massillon, O.
234. W. H. GIFFORD, Cleveland Bldr. Supply Co., Cleveland, O.
235. A. R. KUHLMAN, Ohio Brick Co., Toledo, O.
236. W. A. HOWELL, Collingwood Brick Co., Toledo, O.
237. C. E. FOSTER, Foster Paving Block Co., Bradford, Pa.
238. H. S. HAMILTON, The McArthur Brick Co., McArthur, O.
239. C. H. SILL, McDonald Coal & Brick Co., Detroit, Mich.
240. H. P. JENKS, Hook Patent Kiln Co., Vigo, O.
241. C. F. FRANK, Walker & Frank Brick Co., Detroit, Mich.
242. R. B. HENDERSON, Thomas Bros. Co., Ltd., Detroit, Mich.
243. JAMES DAY, Saginaw, Mich.
244. B. S. FISHER, Columbus Br. & T. C. Co., Union Furnace, O.
245. J. M. POWELL, Natl. Drain Tile Co., Brooklyn, Ind.
246. R. D. LANDRUM, Harshaw, Fuller & Goodwin Co., Cleveland.
247. G. C. VIDETTO, Amer. Pulverizer Co., East St. Louis, Ill.
248. A. P. MAURER, Metropolitan Brick Co., Canton, O.
249. J. G. MAMER, Mamer Brick Co., Benton Harbor, Mich.
250. F. H. WOLF, The F. H. Wolf Brick Co., Detroit, Mich.
251. J. C. McCANNELL, Milton, Ont., Can.
252. PROF. C. F. BINNIS, N. Y. State School, Alfred, N. Y.
253. R. G. NESCH, Pittsburg Paving Brick Co., Pittsburg, Kans.
254. R. NESCH, Pittsburg Paving Brick Co., Kansas City, Mo.
255. W. J. CARMICHAEL, Amer. Clay Mach. Co., Willoughby, O.
256. JNO. NEWMAN, Indianapolis, Ind.
257. H. L. MATZ, S. S. Kimball Brick Co., Chicago, Ill.
258. CHAS. F. HERRMANN, U. S. Brick Co., Tell City, Ind.
259. H. J. VOTAW, The J. D. Fate Co., Chicago, Ill.
260. J. T. HARRINGTON, Twin City Brick Co., St. Paul, Minn.
261. E. E. KLOOZ, The Trumbull Brick Co., Youngstown, O.
262. J. M. ZANDER, Jackson & Church Co., Saginaw, Mich.
263. W. F. SOISSON, Jos. Soisson Fire Br. Co., Connellsville, Pa.
264. F. K. BORDEN, Jr., Borden Brick & Tile Co., Goldsboro, N. C.
265. G. F. MONFORT, Good Roads Mach. Co., Pittsburgh, Pa.
266. R. H. NEW, Ham. & Toronto S. P. Co., Ltd., Hamilton, Ont.
267. J. L. BUCKLEY, Hydraulic Press Brick Co., Aledo, Ill.
268. FRANK D. BEISANZ, Winona, Minn.
269. J. S. HAGGERTY, John S. Haggerty Co., Detroit, Mich.
270. J. B. STANWOOD, Houston, Stan'd & Gamble Co., Cincinnati.
271. J. D. MARTIN, Straitsville Imperv's Br. Co., N. Straitsville. O.
272. J. M. HIGHHOUSE, Hydraulic Press Brick Co., Toledo, O.
273. E. D. MATTES, Decatur Brick Mfg. Co., Decatur, Ill.
274. H. C. MILLOTT, The Hinde Brick & Tile Co., Sandusky, O.
275. F. A. HOILES, The Alliance Brick Co., Alliance, O.
276. R. B. CHILD, Hancock Brick & Tile Co., Findlay, O.
277. THOS. OLIFF, Clio, Mich.
278. L. L. DENNISON, The Delaware Clay Mfg. Co., Delaware, O.
279. L. N. DELAMATER, Jackson, Mich.
280. H. A. JOHANN, Kennedy Stroh Co., Chicago, Ill.
281. E. R. GARLICK, Kirchner Brick Co., Cincinnati, O.
282. S. D. WRIGHT, Atlas Car & Mfg. Co., Cleveland, O.
283. J. W. FORSYTH, Riverside Fuel & Supply Co., Fremont, O.
284. B. BROADWELL, B. Broadwell & Son, Kingsville, Ont.
285. J. E. HOWARD, Interstate Com. Commission, Wash., D. C.
286. C. W. PARMELEE, Rutgers College, New Brunswick, N. J.
287. J. W. SIBLEY, Birmingham, Ala.
288. J. W. McMILLAN, Milledgeville, Ga.
289. J. F. REYNOLDS, North Haven, Conn.
290. F. W. BUTTERWORTH, Western Brick Co., Danville, Ill.
291. LEMON PARKER, Parker-Russell Mfg. Co., St. Louis, Mo.
292. ELMER E. MILLER, Canton Grate Co., Canton, O.
293. B. JASPERSON, Jasperson Br. & Tile Yds., Kingsville, Ont.
294. THOMAS DAY, Saginaw, W. S., Mich.
295. J. C. PENNINGTON, Architect, Windsor, Ont., Can.
296. H. H. ROBERTS, L. V. R. R., Detroit, Mich.

NAME. FIRM. TOWN.

## GUESTS OF THE N. B. M. A. CONVENTION.

500. F. E. SCHULTZ, The Wooster Shale Brick Co., Wooster, O.
501. SPENCER M. DUTY, The D'kman-Duty Br. Co., Cleveland, O.
502. HERBERT C. MOATZ, The D'k'm-Duty Br. Co., Cleveland, O.
503. CHAS G. DECKMAN, The D'k'm-Duty Br. Co., Cleveland, O.
504. CHAS. A. MATTISON, Dodge Mfg. Co., Mishawaka, Ind.
505. W. R. THOMPSON.
506. R. G. SMITH, American Blower Co., Detroit, Mich.
507. F. H. KING, The Marion Steam Shovel Co., Marion, O.
508. THOS. A. HIBBINS, The Stevenson Co., Wellsville, O.
509. J. S. McCANN, Thornton Fire Brick Co., Thornton, W. Va.
510. EVERETT M. ADAMS, Detroit Vit. Br. Co., Detroit, Mich.
511. FRANK G. WILLSON, S. B. Dobbs, Philadelphia, Pa.
512. FRANK R. MAHURN, Arnold Creager Co., Columbus, O.
513. E. F. DECKERT, Main Belting Co., Louisville, Ky.
514. FRANK M. WOOD, Danville Brick Co., Danville, Ill.
515. H. LAYER, L. E. Rodgers Engineering Co., Chicago, Ill.
516. T. CHESTER, American Blower Co., Detroit, Mich.
517. R. J. MONTGOMERY, Pittsburg Pl. Glass Co., Creighton, Pa.
518. E. G. MONTGOMERY, N. Y. State School of Ceramics, Alfred.
519. G. S. TOTTEN, American Brick & Tile Co., Detroit, Mich.
520. F. K. PENCE, American Encaustic Tiling Co., Zanesville, O.
521. W. R. RANDALL, Thew Automatic Shovel Co., Lorain, O.
522. C. W. BERRY, Laclede Christy Clay Pro. Co., St. Louis, Mo.
523. J. W. DeBEAUBEE, Detroit Vit. Brick Co., Detroit, Mich.
524. SAMUEL RUSOFF, Columbus, Ohio.
525. R. G. SMITH, Detroit, Mich.
526. W. G. AUSTIN, The R. D. Baker Co., Kalamazoo, Mich.
527. H. S. FATE, J. D. Fate Co., Plymouth, Ohio.
528. W. G. STEVENSON, National Silica Co., Oregon, Ill.
529. H. R. SYKES, The J. D. Fate Co., Plymouth, O.
530. ROBT. W. H. PIERCE, Harbison-Walker Co., Pittsburgh, Pa.
531. G. H. BROWN, Bureau of Statistics, Pittsburgh, Pa.
532. HOMER F. STALEY, Iowa State College, Ames, Iowa.
533. S. C. HAINES, Main Belting Co., Detroit, Mich.
534. F. R. GARST, Amer. Enam. Br. & Tile Co., New York, N. Y.
535. KENNETH I. FULTON, Port. Drain Tile Co., Portland, Ind.
536. FORREST FORDHAM, JR., Bucyrus Co., Detroit, Mich.
537. W. H. GIBB, Stupakoff Laboratories, Pittsburgh, Pa.
538. HORACE G. SMITH, Detroit, Mich.
539. A. R. PARDINGTON, Lincoln Highway, Detroit, Mich.
540. J. J. FRANK, Chase Foundry & Mach. Co., Detroit, Mich.
542. J. J. RYAN, Natl. Fire Proofing Co., Pittsburgh, Pa.
543. ERNEST W. KNAPP, Sun Brick Co., Ltd., Toronto, Ont., Can.
544. PHILIP H. GRAY, Dresden Brick Co., Detroit, Mich.
545. H. H. SPENCER, Dresden Br. Co., Detroit, Mich.
546. GLENN V. CATHEY, Dresden Br. Co., Detroit, Mich.
547. WM. KOELLIKER, C. O. Bartlett & Snow Co., Cleveland, O.
548. C. E. MARTIN, Palmer Brick Co., Detroit, Mich.
549. J. W. MORRISON, Puritan Brick Co., Detroit, Mich.
550. E. E. MORAN, Dresden Brick Co., Detroit, Mich.
551. S. F. SPENCER, Dresden Brick Co., Detroit, Mich.
552. E. L. HESS, E. M. Freese & Co., Galion, O.
553. G. R. TRUMAN, St. Louis Terra Cotta Co., St. Louis, Mo.
554. R. L. CLARE, Federal Terra Cotta Co., Perth Amboy, N. J.
555. G. W. SHOEMAKER, Sask. Clay Pro. Co., Moose Jaw, Sask.
556. H. F. KRIEG, Midland Terra Cotta Co., Chicago, Ill.
557. A. LIEVERMAN, University of Pa., Pittsburg, Pa.
558. STANLEY H. ROOD, W. A. Lorenz, Hartford, Conn.
559. C. H. KEPLER, Saginaw Paving Brick Co., Saginaw, Mich.
560. A. F. GREAVES-WALKER, Sun Brick Co., Toronto, Ont.
561. GEORGE O. HOOVER, Keim Brick Co., Osnaburg, O.
562. F. L. CULBERTSON, Ball Engine Co., Erie, Pa.
563. GEO. O. HOOVER, Keim Brick & Tile Co., Osnaburg, Ohio.
564. RAY HOOVER, Dresden Brick Co., Detroit, Mich.
565. JESSE TAYLOR, Better Roads & Streets, Jamestown, O.
566. H. B. HENDERSON, with Edward Orton, Jr., Columbus, O.
567. A. B. LUTEN, Metropolitan Paving Brick Co., Toldo, O.
568. J. LEE BARRETT, Detroit Convention Bureau, Detroit, Mich.
569. GEORGE FENKELL, Commr. Public Works, Detroit, Mich.
570. W. B. CORDES, Mercier-Bryan-Larkins Br. Co., Detroit, Mich.
571. A. A. FORDON, Corrunna Brick Co., Detroit, Mich
572. W. ENGLEHORN, Cleveland Chamber of Com., Cleveland, O.
573. L. F. McKENZIE, Westinghouse Elec. & Mfg. Co., Detroit.
574. F. B. HOLMES, F. B. Holmes & Co., Detroit, Mich.
575. HENRY M. LANE, The H. M. Lane Co., Detroit, Mich.
576. E. L. SCHNEIDER, F. B. Holmes Co., Detroit, Mich.
577. H. L. LONGENECKER, Green Engr. Co., Chicago, Ill.
578. WM. A. OCHS, A. C. Ochs Br. & Tile Co., Springfield, Minn.
579. E. J. MELLEN, Cleveland Alloys Co., Cleveland, O.
580. A. K. KINLEY, Cleveland, O.
581. FRANK GRIFFES, Jackson, Mich.
582. LUCIUS S. KENDRICK, Williamstown, Mich.
583. W. V. BRAGDON, Bellevue, Pa.
584. F. N. MENEFEE, Univrsity of Michigan, Ann Arbor, Mich.
585. D. A. MOULTON, Citadel Brick Co., Ironton, O.
586. R. M. ADAMS, Detroit Vitrified Brick Co., Detroit, Mich.
587. FRANK SCHMIDT, Detroit Vitrified Brick Co., Detroit, Mich.
588. WALTER PAGE, Ontario Pav. Brick Co., Toronto, Ont., Can.
589. A. J. AUBREY, Bessemer Limestone Co., Bessemer, Pa.
590. RICHARD R. HICE, Beaver, Pa.
591. EDWARD C. STOVER, Trenton Potteries Co., Trenton, N. J.
592. W. J. J. BOWMAN, J. L. Mott Co., Trenton, N. J.
593. H. C. PODOLDSKY, Bonner-Marshall Brick Co., Chicago, Ill.
594. W. J. BAIRD, Baird Mach. Mfg. Co., Park Hill, Ont., Can.
595. T. W. NEVIN, Adams Publishing Co., Pittsburgh, Pa.
596. J. L. SIEVERT, Adams Publishing Co., Pittsburgh, Pa.
597. GEO. P. WILSON, Devonshire Brick Co., Dillonvale, O.
598. JOSEPH RUBY, Cuyahoga Brick & Shale Co., Cleveland, O.
599. LAWRENCE HICKEY, Detroit, Mich.
601. S. H. AUKENEY, The Greater Dayton Ass'n, Dayton, O.
602. HENRY T. WYNN, Wynn & Starr Co., Trafford, Pa.
603. A. POTTS, Indianapolis, Ind.
604. JUSTIN A. RUNYAN, St. Louis, Mo.
605. W. C. LADENDORF, F. B. Holmes & Co., Detroit, Mich.
606. CARL DEHONEY, Cin. Chamber of Commerce, Cincinnati, O.

NAME. FIRM. TOWN.

607. E. P. TEAGUE, Union Cement & Lime Co., Louisville, Ky.
608. J. H. DONAHUE, JR., Belt Line Brick Co., St. Paul, Minn.
609. J. H. ROBINSON, The Standard Stone & Br. Co., Bellaire, O.
610. H. W. SMITH, Roessler-Hasslacher Chem. Co., E. Liverpool, O.
611. W. SCHAPPER, Roessler-Hasslacher Chem. Co., Chicago, Ill.
612. D. C. WILCOX, Alliance Clay Products Co., Alliance, O.
613. JACOB RAHN, Alliance Clay Products Co., Alliance, O.
614. F. A. FLEMING, The Chase Foundry & Mfg. Co., Columbia, O.
615. GEORGE CUTBUSH, Don Valley, Toronto, Ont.; Can.
616. JOHN E. CLAPP, Highland Park, Mich.
617. H. L. KILLAM, Chase Foundry & Mfg. Co., Columbia, O.
619. W. S. BISSELL, Michigan Contractor & Builder, Detroit, Mich.
620. KIRKE P. LINCOLN, H. K. Porter Co., Pittsburgh, Pa.
621. R. K. HURSH, University of Illinois, Urbana, Ill.
622. JNO. G. THATCHER, F. R. Upton Co., Newark, N. J.
623. J. IRA DAVY, Federal Clay Products Co., Mineral City, O.
624. E. C. HOWARD, Claycraft Brick Co., Columbia, O.
625. JNO. A. TOPPING, Barber Asphalt Paving Co., Chicago, Ill.
627. H. H. FREESE, E. M. Freese & Co., Galion, O.
628. M. C. GREGORY, Brick, Terra Cotta & Tile Co., Corning, N. Y.
629. W. PORTER JONES, Engineer, Detroit, Mich.
630. W. T. WALKER, Walker & Frank Brick Co., Detroit, Mich.
631. W. W. WALKER, Walker & Frank Brick Co., Detroit, Mich.
632. FRED L. TWINING, Mich. Vit. Brick Co., Bay City, Mich.
633. PETER MISSETT, Mich. Vit. Brick Co., Bay City, Mich.
634. F. C. MORGAN, The Puritan Brick Co., Hamden, O.
635. M. S. CHARLTON, Thos. Bros. & Co., Ltd., Detroit, Mich.
636. JNO. S. STEGE, Detroit Roofing Tile Co., Detroit, Mich.
637. GEO. RUSH, Detroit Roofing Tile Co., Detroit, Mich.
639. H. A. BENJAMIN, The Puritan Brick Co., Detroit, Mich.
638. H. P. HARDING, The Puritan Brick Co., Detroit, Mich.
640. H. W. GRIFFITH, Detroit, Mich.
641. CHAS. V. ZIMMERMAN, Puritan Brick Co., Detroit, Mich.
642. WM. F. J. SCHNEIDER, F. B. Holmes' Co., Detroit, Mich.
643. F. E. HARVEY, Cadwell Sand & Grav. Co., Ltd., Windsor, Ont.
644. ANDREW BAIRD, Baird Mach. & Mfg. Co., Park Hill, Ont.
645. R. P. STODDARD, S. A. F. E., Cleveland, O.
646. FLOYD WAITE, S. A. F. E., Cleveland, O.
647. GAGE W. COOPER, A. & W. Cooper, Detroit, Mich.
650. W. R. WEMSBY, Hershaw, Fuller & Goodwin Co., Cleveland.
652. H. E. WARDEN, Ont. Asphalt Br. Co., Walkerville, Ont., Can.
653. E. A. STEWART, The Stark Brick Co., Canton, O.
654. JOS. LARKINS, Mercier, Bryan, Larkins Brick Co., Detroit.
656. R. C. KIMBALL, Galion Dynamic Motor Truck Co., Galion, O.
657. H. WHITE, Geo. E. White & Son, Windsor, Ont., Can.
658. M. F. McGRATH, American Gypsum Co.; Detroit, Mich.
659. W. H. KNAPP, Mershon, Eddy, Parker Co., Saginaw, Mich.
660. C. R. VALLIN, Ford Motor Co., Detroit, Mich.
661. A. B. JEWETT, Ford Motor Co., Detroit, Mich.
662. CARL G. SNYDER, J. C. McDonald & Son, Detroit, Mich.
663. S. M. BOWMAN, Layton Fire Clay Co., McKeesport, Pa.
664. JNO. W. SANDERS, U. S. Stamping Co., Moundsville, W. Va.
665. GEO. R. SMITH, C. Peterson Paving Co, Kenosha, Wis.
666. CARL E. BREISINGER, Chas. Breisinger & Son, Bucyrus, O.
667. A. B. OSLER, Eclipse Paint & Mfg. Co., Zanesville, O.
668. B. H. MARTIN, Eclipse Paint & Mfg. Co., Zanesville, O.
669. REV. J. R. KLINE, Foster Paving Block Co., Detroit, Mich.
670. C. O. ARBOGAST, Brick & Clay Record, Chicago, Ill.
671. FRANK SHENKLE, Federal Clay Prod. Co., Mineral City, O.
672. J. H. WILSON, Perrysburg Tile & Brick Co., Perrysburg, O.
673. P. J. MAMER, Mamer Brick Co., Benton Harbor, Mich.
674. W. A. TITSWORTH, N. Y. State School of Ceramics, Alfred.
675. R. C. HOWE, N. Y. State School of Ceramics, Alfred, N. Y.
676 G. A. BOLE, N. Y. State School of Ceramics, Alfred, N. Y.
677. F. H. WOLF, F. H. Wolf Brick Co., Detroit, Mich.
678. CLARENCE A. CLARKE, Detroit Brick Sales Co., Detroit.
679. P. C. McGOWEN, F. Long & Son, Detroit, Mich.
680. A. H. LONG, F. Long & Son, Detroit, Mich.
681. E. P. FOSTER, Bessemer Limestone Co., Youngstown, O.
682. H. H. HALLATT, H. H. Hallatt Co., Tilbury, Ont.
683. C. H. LAND, Detroit, Mich.
684. A. D. MASBY, Marsh-Capron Mfg. Co., Chicago, Ill.
685. C. GREENE, Marsh-Capron Mfg. Co., Chicago, Ill.
686. FRED BRAND, W. Salem Hollow Br. & Tile Co., W. Salem, Ill.
687. T. A. DRURY, Drury Bros., Inc., Goldsboro, N. C.
688. J. A. LANSBERRY, Trumbull Brick Co., Warren, O.
689. M. BATES, Zeeland Brick Co., Zeeland, Mich.
690. F. COLEMAN, Hamilton & Ont. Sew. Pipe Co., Hamilton, Ont.
691. T. H. GRAHAM, Hamilton, Ont. Sew. Pipe Co., Inglewood, Ont.
693. E. L. POWERS, "Good Roads," New York City, N. Y.
694. F. C. SOLMS, Puritan Brick Co., Detroit, Mich.
695. R. C. SPENCER, JR., Spencer & Powers, Arch., Chicago, Ill.
696. E. W. SANDERS, U. S. Stamping Co., Detroit, Mich.
697. F. A. RUMBARGER, Bucyrus Co., Pittsburgh, Pa.
699. JOHN P. TURPIN, Hocking Valley Products Co., Columbus, O.

From 700 to 869 reserved for ladies.

870. WALTER L. GREGORY, Chicago, Ill.
871. C. B. WHITMAN, Diamond Power Spec. Co., Detroit, Mich.
872. R. S. FULTON, Diamond Power Specialty Co., Detroit, Mich.
873. J. A. S. WARDROF, U. S. Sewer Pipe Co., Pittsburgh, Pa.
874. GEO. H. GANSON, Dover Fire Brick Co., Cleveland, O.
875. H. S. MATTHEWS, Graves Shale P. B. Co. Birmingham, Ala.
876. E. H. BAKER, Baker Clay Co., Grand Ledge, Mich.
877. JOS. J. HINDE, Hinde Brick & Tile Co., Sandusky, O.
878. GEO. A. MILLOTT, Hinde Brick & Tile Co., Sandusky, O.
879. CARL C. WALTERS, Hocking Valley Prod. Co., Columbus, O.
880. J. F. EGGERS, U. S. Sewer Pipe Co., Pittsburgh, Pa.
881. W. M. EDISON, Federal Clay Products Co., Mineral City, O.
882. C. W. IRWIN, Hydraulic Press Brick Co., Toledo, O.
883. F. J. LOHMANN, Parker-Lohmann Br. Co., Saginaw, Mich.
884. D. EARL CHILD, The Hancock Brick & Tile Co., Findlay, O.
885. A. N. WEHMEYER, Ottawa Tile Co., Ottawa, O.
886. GEORGE HUDSON, Detroit, Mich.
887. H. D. DRAKE, H. D. Drake & Co., Walkerville, Ont.
888. WM. BUCHANAN, London, Ont.
889. J. L. MESSACAR, Jasperson Br. & Tile Co., Coatsworth, Ont.
891. F. R. BUCHANAN, Detroit, Mich.
892. JOS. H. DESHEROW, Detroit, Mich.
893. FRANK L. SHAFER, F. B. Stevens Co., Detroit, Mich.
894. ROBT. WALKER, American Sewer Pipe Co., Jackson, Mich.

# A NIGHT OF GOOD ROADS.

## "Every man who rides or drives or even walks the highways and byways has an interest in our efforts. * * * The building of good roads is for the benefit of all."

SO READ in part the official announcement for the Night of Good Roads, which closed the formal sessions of the National Paving Brick Manufacturers' Association Tuesday evening in Detroit. The business sessions of the Association, held Monday and Tuesday, were well attended and much business of importance to that body of boosters of brick pavements was transacted, and the entertainment Tuesday evening was a fitting climax.

The meeting was called to order by the president, Charles Deckman, who introduced the speaker of the evening, Mr. Jesse Taylor, editor of Better Roads, Jamestown, Ohio, who delivered an eloquent appeal on the importance of improved highways, incident to which he said, among other things:

"What you manufacturers want is promotion. You are more interested in promotion than anything else. You want something to create a demand for your product. You want brick roads constructed and a sentiment created for a higher type of construction. You want to stir up newspapers to boost for more permanent roads. You cannot make money unless you can dispose of your output. What will do this for you? the contractor? No. The engineer? No.

"You need co-operation. I think some of the members of the National Paving Brick Manufacturers' Association would get along better if they would quit knocking each other. I know some of the National Paving Brick Manufacturers would get along better if they would cool down a little and co-operate with one another for the good of the Association. I know what you people want. You are looking for something better in business."

Stanley L. McMichael, Cleveland, Ohio.

Will P. Blair, Secretary N. P. B. M. A., Cleveland, Ohio.

Frank B. Dunn, Conneaut, Ohio.

An interesting illustrated lecture by Professor Frederick N. Menefee, of the Michigan University, was listened to attentively, and the lantern slides of brick roadways in course of construction proved both interesting and instructive. A number of views of splendid brick-paved highways were shown which demonstrated the superiority of brick as a permanent road building material, after which those assembled listed to the following able address:

### "A REAL ROAD FOR REAL ESTATE."

STANLEY L. MCMICHAEL.

Secretary The Cleveland Real Estate Board.

I come to you as one bearing a message which to us in Cleveland is fraught with mighty interest. The message I bring concerns a wonderful network of rural highways built with brick, radiating in all directions from Cleveland. Cleveland, as you know, is like a huge fan, with the lake on the north and arterial roadways radiating in other directions.

Some ten or twelve years ago a comprehensive plan was evolved for the paving of these arteries. The work has been conducted under the auspices of the county of Cuyahoga, towards the maintenance of which the city of Cleveland contributes about 85 per cent. of the revenue.

Perhaps no city in the country has made so careful a study of the rural highway problem as has Cleveland. After experimenting with a number of different materials, the county has settled down to a steady and constant use of brick as the only material that will last.

Data furnished me by the county engineer a few days ago indicates that at the present time there are 270 miles of roadways built at a cost of $5,937,000. Over 95 per cent. are of vitrified brick, set on concrete foundations and with either stone or concrete curbings.

There are under construction some forty-seven miles of new pavements, representing an outlay of $990,000. There are proposed some ninety-five miles of pavement, estimated to cost $1,903,000. By the end of this year there will be completed 317 miles of pavement, costing nearly $7,000,000.

Let me impress upon you that these pavements are outside of the city of Cleveland. The city has been paving at the rate of about thirty miles per year for the past few years, the city now having a total of 531 miles of paved roadways. The pavements I refer to specifically as rural highways spread like huge ribbons from the borders of the city out into the farming communities and are flanked by small farms, truck gardens and the estates of well-to-do Clevelanders.

Just what this system of road improvement has meant to Cleveland is difficult to impart in a few words. One important thing accomplished with which I am familiar has been to substantially advance realty values within a distance of twenty-five miles of the public square of Cleveland. Conservatively, I would estimate that the value of farm land adjacent to Cleveland has shown an advance in the past five years of from 25 to 50 per cent., due very largely to the construction of permanent rural highways.

Accessibility, you know, is the basis on which rests real estate values. Because this vacant land has become accessible during all seasons of the year it has resulted in the upbuilding of many territories not hitherto accessible or desirable for homes of persons employed in the city. Because this land has been accessible it has attracted buyers willing to pay the prices asked.

In this regard, I am speaking entirely from experience. Five years ago I purchased a fifteen-acre tract of land, a distance of five miles from the city limits and fifteen miles from the public square. Land in that locality was selling at $150 per acre. Today, I value it at $450 an acre and no land in the vicinity can be purchased for less than $500 or $600 an acre. This advance has been due very largely, indeed, to the construction three years ago of a sixteen-foot vitrified brick pavement, which permits me, in an automobile, to reach the public square in forty minutes or less. This experience has been duplicated in hundreds of instances in and around Cleveland. Of course, some of the advance in value in territories not served with interurban car service has been due to the rapid development of the automobiles, which have aided in making the land accessible.

What has made this increased value in my own case? Well, one thing is the volume of automobile traffic passing my home. On Sundays the machines frequently proceed at the rate of every fifty or seventy-five feet. Hundreds of them scurry by during the course of the day. During the week the traffic is also very heavy, automobile trucks and touring cars constantly whirring by. The mere accessibility created by these brick roads has done wonders to increase real estate values.

Detroit and other cities might do well to follow the example set by Cleveland, and surround its borders with a network of such highways, mediums of communication which mean much to the life of any growing community.

The automobile traffic attracted by these roads is wonderful. Hundreds of automobiles are owned in Cleveland by people who seldom attempt touring, but who, after dinner each evening during the summer, start out with their machines and go for a twenty or thirty-mile spin over smooth, easy-riding pavements, arriving home by bed time, rested and cooled by the pleasant trips. To a city like Detroit, with its wonderful automobile industry, such an idea should appeal.

Another thing the brick highways around Cleveland have assisted very materially in doing has been to help solve the high cost of living problem, which has been one of the most insistent in recent years. These brick roads have made the land accessible, and truck gardens and small farms have developed in many places.

We have one paved road near Cleveland, where, in less than half a mile, there are half a dozen huge truck gardens, many acres in extent. In one of these one man is producing $1,000 worth of vegetables per acre each year, on some twelve acres of land. Over half of this $1,000 per acre is profit. He carries his produce to market in wagons and has four teams hauling manure all the year around to replenish the soil. How long do you suppose he could haul manure on the average unpaved country road from October 1 until May 1? Tons and tons of produce are being raised in territories adjacent to Cleveland and marketed every day in the year. This man I mention in regard to producing a thousand dollars an acre has some five acres of ground under glass and furnishes the city markets and stores fresh vegetables the year around. Paved highways are thus cutting the cost of living in a very practical manner by this service.

The isolated farmer, who, in the old days never attempted to market his potatoes, eggs and butter until the roads froze up in the winter so he could get through, now brings his produce to market every week.

I am satisfied that the value added to land by reason of the building of brick roads in Cuyahoga county has produced sufficient taxes to more than pay the cost on the pavements. Take my own case as an instance. With a frontage of nearly 500 feet the total cost for the sixteen feet of roadway was about $320, scattered over a period of ten years. The value of my land in the past five years has been increased from $2,250 to $6,750, due, very largely, to willingness on my part to expend $320 on a pavement passing my home.

In the beginning the farmers were opposed to the expense, but immediately that the pavements were laid and their value demonstrated, no further protest arose. At the present time more petitions for pavements have been filed than the county can take care of. It is estimated that in another five years every public roadway in Cuyahoga county will have been paved with brick. The reason why brick has been particularly favored by the commissioners has been its low cost of maintenance and the readiness with which repairs can be made almost any time of the year.

Cost is always an important item in public improvements, particularly when they are paid for by the abutting property owners. The law in Ohio permits the state, the township and the owner to divide the cost, thus splitting the cost several ways. I am satisfied that additional value added to land on which taxes may be collected will in the long run more than pay for every cost entailed.

A Splendid Country Road Between Cleveland and Akron, Ohio, Paved With Dunn Wire-Cut-Lug Brick.

These rural roadways benefit the poor man as well as the rich, for, while the rich man travels to town in his automobile, the poor man has a highway on which to carry the product of his toil to the market place of the big city. At that, it is not always the rich man who makes the most money out of his farm.

Gentlemen, I want to compliment you upon this national organization. I, myself, am an organization man and believe thoroughly in allied interests getting together. You are benefiting yourselves as well as the communities for which you labor. Selfish, perhaps, at the outset, you have become altruistic to a large degree, seeking, literally, to pave the way to better and brighter conditions. The product of your plants can truly be said to be the basis for creating what was assigned to me as my subject this evening—"A Real Road for Real Estate." (Applause.)

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When Writing to Advertisers
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## THE REAL BOOSTING SPIRIT.

We anticipated that the stirring preachment of Architect Fitzpatrick, entitled "A Call to Arms," in the February Clay-Worker, would arouse the militant spirit of the progressive brickmakers. The accompanying telegram from one of Chicago's leading brick men would indicate that there is hope for effective action:

Chicago, Ill., February 15, 1915.

The Clay-Worker,
Indianapolis, Ind.

Congratulating you, your issue February; best I have seen in years. Fitzpatrick's "Call to Arms" worth subscription price of one hundred years. If this does not wake up the brickmakers to necessity for co-operation in general publicity, we are dead ones.

W. P. VARNEY,
Hydraulic-Press Brick Company.

If the reader will turn to page 366 of this issue and note Mr. Varney's emphatic statements, in the course of which he pledged his active support to the movement for a "Build with Brick" campaign, he must be impressed with the importance of the undertaking. Undoubtedly every brickmaker will concur in the sentiment expressed, but will every brickmaker do his part and contribute his time and money to the cause as Mr. Varney agrees to do? Will you, Mr. Everybrickmaker? You must if the brick business is to maintain the position in the building world that it is so justly entitled to. WILL YOU? It is reported that at their recent meeting in Chicago the lumbermen pledged themselves to the extent of $200,000 to $300,000 per year for five years for the purpose of boosting lumber as a building material. It is common report that the cement manufacturers are spending twice that sum every year in their publicity campaign. What are the brickmakers doing?

Because brick is a superior building material, it is not necessary perhaps to spend such vast sums of money, but it is essential to get before American builders the fact that brick is a superior building material, in a manner that will impress the fact of its superiority upon their minds. Do you concede this, Mr. Everybrickmaker? If so, get in line and be a Booster. Write Fritz Salmen, Slidell, La., chairman of the N. B. M. A. Committee on Publicity, expressing a willingness to co-operate with him, and "DO IT NOW."

## THE SIDE TRIP TO THE BRICK PLANTS AND THE FORD FACTORY.

Practically every delegate and a majority of the women in attendance went on the sight-seeing trip Friday. The special train was composed of four comfortable coaches and a baggage commissary, from which at noon time be-aproned duskies brought forth steaming coffee, fresh sandwiches and cigars without limit.

That the visitors were expected was made manifest by the lineup of the employes of the Mercier, Bryan, Larkins Co., at the R. R. siding where they waved flags and cheered lustily when the Brickmakers' Special passed the plant. Again, Charlie Bryan and Will Wreford made a hit with the ladies by presenting each one with a dainty box of candy bearing the compliments of the local committee.

The train was sidetracked at the plant of the George H. Clippert & Bro. Brick Company, where the party spent a very pleasant hour, inspecting the equipment, from the clay pit to the stock sheds. This and other Detroit plants were fully described in the February Clay-Worker.

The trip through the Ford plant was a revelation to all who had not been there before. Special guides were in waiting at the entrance of the factory and made the tour a "personally conducted excursion." The accompanying picture of the party as it left the Ford factory gives an impression of the number of visitors, each and all of whom were loud in their praise of Detroit and everything in and of that great city.

The N. B. M. A. Delegates and Guests Leaving the Factory of the Ford Motor Company. Detroit, Feb. 19, 1915.

### GOOD SEED SOWN AT DETROIT.

Dear Randall:

I have gotten down to work again after the most enjoyable week in Detroit. We are certainly indebted to the Detroit brickmakers for the magnificent manner in which they entertained their visitors. They have certainly given us a fine example of the results of co-operation and I hope the seeds sown there will be productive of similar good results throughout the United States. It was pleasing to see the large number in attendance, and I feel quite sure that everyone felt fully repaid for having been there. I hope the publicity committee will soon be able to meet and put forth some plan that will assist the building brick manufacturers in getting that which is due their material.

With best wishes, I am, Yours very truly,
EBEN RODGERS.

Alton, Ill., March 2, 1915.

# The N. B. M. A. SMOKERETTE.

## What's Sauce for the Gander is Sauce for the Goose.

THE INFORMAL reception and entertainment tendered the visitors Wednesday evening by the Detroit Entertainment Committee was a most joyful occasion. It was the happy conception of Secretary Randall, for it was he who first suggested a Smokerette; that is, a smoker with the ladies present. The local committee proved equal to the occasion, and under the masterly direction of Secretary Wreford planned and carried out an evening's entertainment that delighted every participant.

The spacious ball room of the Statler was the scene of the unusual event and lent itself admirably to the function. A stage was erected at one end of the room, where the performers did their stunts. That is, most of them, and from the other end of the room champagne punch, chocolate cigars for the ladies and the real thing for their escorts, and other refreshments were served by an army of trained waiters, who apparently had access to an endless supply. The guests were seated at tables in little parties of six to a dozen and were very comfy and happy and unrestrained. There were no formalities except for a few moments, when Charles Bryan did the honors and welcomed the visitors in a brief but cordial manner.

Mrs. W. H. H. Rogers, Rochester, N. Y.
Mrs. L. W. Penfield, Willoughby, Ohio.
Mrs. C. P. Mayer, Bridgeville, Pa.

### CHAS. BRYAN'S INTRODUCTORY REMARKS AT THE SMOKERETTE.

Ladies and Gentlemen:

It is a privilege to include the ladies as well as the gentlemen in addressing you, and an honor, I believe, that has not been our pleasure on previous occasions, and I consider it a distinguished honor to be the first to have this pleasure. We sincerely hope that the precedent which we are establishing here in having the ladies with us at our smokers or other entertainments will be carried out in the future at all our conventions. The ladies present upon this occasion have the Detroit ladies to thank for the courtesies thus extended to them and in allowing them to honor us with their presence at this time.

About six weeks ago we invited the wives of the brick manufacturers of this city to a meeting and asked them what sort of an entertainment they wished to give the ladies visiting us during this convention. The matter of a smoker was mentioned and the Detroit ladies were unanimous in their opinion that an entertainment of such a character as we propose to give you this evening should be had which would allow us to invite the visiting ladies.

We are pleased to welcome you and trust you will enjoy this occasion together with the gentlemen present. To the latter I also wish to extend a welcome and in so doing want to touch lightly on one feature which we have here which differs somewhat from other cities you have visited. Something has been said in the official announcement about the Detroit Manufacturers' and Dealers' Association. It did not need any investigation by the manufacturers and dealers here to arrive at the conclusion that practically nothing was being said in a public way, in this section, about brick as a building material, while, on the other hand, we noticed that other materials were being spoken of quite frequently and advertised very largely. In fact, the wizard, Thomas A. Edison, has even advertised that it was feasible to pour houses. It is possible he has changed his mind since his recent disastrous and unfortunate fire, but, at any rate, not one word was said about brick. Drawing the conclusion that what benefited one benefited all of us, the organization of the Detroit Brick Manufacturers and Dealers' Association was organized for a purpose, and that purpose was the single idea of advertising brick as a building material with the slogan as adopted by our Association, "Build with Brick." This Detroit Association is now under the official management of Mr. William B. Wreford, who will be pleased to answer questions as to its workings and as to what we hope to accomplish.

You are not here this evening as the guests of this Association, but the guests of all brick manufacturers and dealers of Detroit, whether members of this Association or not. We wish that distinctly understood, and to give all full credit for any part which they may be taking with us at this time.

I have now arrived at the topic which was assigned me on

Mrs. Jotham Post, East Williston, N. Y.    Mrs. Anthony Ittner, St. Louis, Mo.
Mrs. T. A. Randall and Granddaughter, Indianapolis, Ind.

the program, "Wind from My Chest," and, while this might indicate to you that I am going to blow my own horn, I want to disabuse your mind of that idea at once and to have it distinctly understood that this program was not prepared by me, but that the topic assigned me was wished upon me. There are just a few things, however, which I would like to say at this time. I believe that it goes without saying and is not subject to contradiction that the man with only wind on his chest is a failure, while, on the other hand, the manly man or womanly woman, within whose breast there is a heart that beats and vibrates in response to the pulsation of all their kind, is the true man or the true woman and that as he or she steps out upon the great Broadway of life they can look everyone square in the eye with a clear conscience that they have done their best and have not intentionally done anyone any harm. It is probable and possible that during this commercial strife of life for desired riches, that sometimes the conscience becomes seared and we are forgetful of that true nature which should be within the true breast, but this we deplore, for, after all, what is great riches going to accomplish for us in the end after we lose all else? Will we be able to bribe the oarsman who rows us over the tempestuous sea to an unknown life, but rather if we had done our best will we not find comfort that now and then we have helped our fellow-man? This helping hand piles up riches for us which we never could accumulate in any other way. It makes friends and it makes good fellowship of which we are all so desirous. Good fellowship, my friends, I believe, is an asset and an education, and in such gatherings as we have here this evening and as we have had, and as I hope we will continue to have, during your stay in our city, it is this good fellowship which we are endeavoring to demonstrate. This little social gathering tonight is only one of the efforts we are making in a small way, for your enjoyment and your entertainment, that you may become even better acquainted with one another making better fellows of ourselves, renewing old friendships, adding new, thereby building up our most valuable asset. We hope, on your departure, you will be able to say that you met a bunch of royal good fellows and that you enjoyed your stay with us, for I am sure we Detroiters can say the same in return. (Applause.)

The music was of the popular sort, rollicking songs and parodies in which everybody joined, interspersed with special numbers by local professionals, who were encored time and time again. The great hit of the evening was made by the Michigan University Glee Club.

For a good many years this informal entertainment was dubbed "The Annual Powwow," and was always very popular, until some of the aesthetic members objected to this nomenclature, so the name was dropped, but the spirit of the powwow has always prevailed. Now, that the women have been initiated and accepted into full membership on equal terms with the men, the "Smokerette" may be considered a permanent feature of our yearly love feast, for so the national convention may be catalogued, and the stag smoker is a thing of the past, for the "girls" do add immensely to the enjoyment of the occasion.

When the program had been finished, the floor was cleared and those who liked, tripped the light fantastic to their heart's content.

That the stay-at-homes may get a better idea of the joy of the Smokerette, we are pleased to present to our readers the accompanying letters and portraits of some of the participants, the latter also being an innovation, justified by the general acceptance of the Smokerette as a decided improvement on the stag party. As Bre'r Gardner would say, "the world do move," and after twenty-eight years of watchful waiting, the women of the N. B. M. A. are at last on an equal footing with the men in all the amusement features of the convention. In fact, they have some exclusive advantages, such as afternoon teas, special theatre parties, auto trips, etc., delightful outings and entertainments provided for their special pleasure, all of which were most enjoyable. But we let the "girls" speak for themselves, as is their privilege and custom.

### THE CONVENTION WAS A GREAT SUCCESS FROM EVERY ANGLE.

Dear Mr. Randall:

My husband, who is strutting around (and to my mind appears to be carrying his shoulders just a little higher than he did before the convention at Detroit), while in one of his kidding moods, dared me to write my opinion of the Detroit convention.

Now, since we women will soon enjoy our full rights, if the plans of the suffragettes do not miscarry, I concluded to accept his challenge, and therefor this letter.

The convention, as I view it from every angle, was a great success. The attendance was large and the sessions well attended. The Statler Hotel is just the right kind of hotel to hold a brickmakers' convention in. The banquet was extremely fine, and last, but not least, the smokerette played the part of a cap sheaf on the whole convention. It might be called the sauce or spice of the convention. In my opinion, every inch of it was high-class entertainment except a few little things over which the entertainment committee had no control. That recalls to my mind one speaker who told the story of a man who had a habit of saying, "It was bad, but might be worse." The idea of having the ladies attend the smokerette stands glaringly to the credit of the entertainment committee of the Detroit convention.

And, now since the N. B. M. A., the world's greatest clay manufacturers association, has in advance of the nation recognized women's rights, I therefore, in behalf of many of the ladies and myself, who attended the convention, ask the executive committee (or the daddies) of the N. M. B. A. to hereafter give advance notice to all the cities who are contesting for future conventions, that no entertainments will be arranged without provision being made for the presence of the ladies. We know that smokerettes are not Sunday school affairs, and will always look for something sensational, and if it happens at the expense of my husband, I will say, Amen.

Let me go on record in admiration of the Detroit convention, particularly the good work of the entertainment committee.

All the Mayer Tribe joins me in sending best wishes to the Randalls and the N. M. B. A.

Very truly yours, MRS. C. P. MAYER.

Bridgeville, Pa., February 27, 1915.

## THE SMOKERETTE MUCH APPRECIATED.

Dear Mr. Randall:

It gives me great pleasure to express, through The Clay-Worker, my thanks to our members in Detroit for their many courtesies extended to us during our stay in their lovely city.

The Smokerette offered a rare novelty in entertainment which was certainly very enjoyable. The ladies, I am sure, felt honored that such a new feature of entertainment was planned for them.

Charles H. Bryan, Detroit, Mich.

Wm. B. Wreford, Detroit, Mich.

J. C. McDonald, Detroit, Mich.

It afforded me great pleasure to see so many of our old friends at the convention and I trust I may see them again in the near future. Most sincerely yours,

MRS. SARAH B. MILLER.

Washington, D. C., March 6, 1915.

## OLD FRIENDS ARE MISSED, THOUGH MANY NEW FRIENDSHIPS ARE FORMED.

Dear Mr. and Mrs. Randall:

We arrived home safely, delighted with our visit to Detroit and the splendid time we had at the convention. It was refreshing to meet the ladies, all feeling glad and happy to be there, each one remarking about the same thing, "having a lovely time, everything going beautifully, so pleased we came." Not one word of complaint did I hear. I find most of the women coming year after year are very friendly. We part at the close of the convention and begin another year just where we left off with the same interest in all things that appeal to us.

Most of the women are doing things in the world that make them broadminded and charming to be with. I always have many regrets after returning home that I miss so much pleasure not seeing more of them, but time goes so quickly, before we are aware of it goodbye is said with a smile and a hand shake and we have parted once more.

What a grand local committee we had to look after our comfort and pleasure, it was well worth going to Detroit to meet such charming people. I was glad we were invited to the smokerette, not that the men needed our presence, but they felt it would add to our pleasure, which it did. I am always looking for familiar faces after we arrive. This year I missed some, I wonder if they realized how much we wanted to see them. I am always glad to see new faces and make new friends, but one enjoys the old friends most so we hope and trust the next convention will bring our old friends and many new ones.

What would we do without you and your family and dear Miss Wallace? After seeing the Randall family and the welcome they never fail to give, I am at home and know everything will be all right. When I first read your letter I told "Will" it was impossible for me to write anything of interest, but he replied, "Write some of the things you have been telling me." Now, Mr. Randall, you may not know it, but Will is "boss" in this family, so as usual I have done as he bade me, and will confess I am glad to have an opportunity of thanking the Detroit friends for the many courtesies extended to us and to add my very best wishes to every one.

Yours sincerely,

MRS. W. H. H. ROGERS.

Rochester, N. Y., March 2.

## THE REALIZATION OF A LONG-DESIRED PRIVILEGE.

Dear Mr. Secretary:

It has been well said that "all things come to those who wait," and it might also be said that all things come to those who cultivate patience and a pleasant attitude of attention in listening to descriptions of forbidden joys.

During many meets of the N. B. M. A., the ladies who were present have heard wonderful accounts of the doings and sayings at the Smoker, but not until the meeting held in the city of Detroit have they been permitted to participate in its delights and allowed to form their own opinions regarding it.

At last, however, the bars have been lowered and we have enjoyed not only the staid and long familiar pleasures of the theatre party and the pink tea, but also the unprecedented experience of the Smokerette. But had we not a right to this, for are we not all, in a way, road builders, trying to make the road smooth for those who come after us, and happy if we can roll away a stone over which we, perchance, have fallen, that others may not stumble. But we confess that it was with some trepidation that we crossed the threshold of this previously forbidden precinct. As we took our seats at the small tables and glanced around at the smiling faces and grasped for a moment the glad hands which were extended to us, we entered heartily into the spirit of the entertainment, and as we nibbled our chocolate cigarettes and watched the smoke of the gentlemen's cigars go circling over our heads, we saw in it glorious visions of the ballot box. The pleasant talk, the decorous jests, the music and songs, made the young seem more beautiful and the old more youthful. And when the tables were pushed aside, although time had whitened our hair and taken the spring from our feet, yet in our hearts we cried, "On with the dance."

But the Smokerette was not the only pleasure for which we ladies should thank the local committee. The theatre party, the unusually pleasant afternoon tea and the auto drives around their beautiful city, the glimpse we had of the wonderful industries and beautiful hotel at which we were entertained and of which Detroit is justly proud, and the courtesy and kindness of the entire committee, all contributed to our entertainment and was duly appreciated.

We wonder sometimes if the gentlemen of the association who are absorbed in larger aims and more vital interests, understand what these meetings are to some of us who have been attending them for many years. How eagerly we look forward to the greetings of old friends and the welcoming of new ones. True, now and then, we miss a familiar face and know that another one of our number has passed on to "That bourne from whence no traveler returns," but this draws us closer together and makes us more tender and more kind. One of Indiana's poets has said:

"We should teach our hearts to deem
Life's sweetest drops the strongest,
And pleasant hours should ever seem
To linger round us longest."

Surely, the pleasant hours we spent together at our association are not soon or easily forgotten, and I know the ladies will all join in thanking those who have made these meetings and these greetings possible to us all. MRS. W. P. BLAIR.

### "WE HAVE SIPPED THE CUP OF PLEASURE AND OUR VISION NOW IS CLEAR."

My Dear Mr. Randall:

I have attended the conventions of the N. B. M. A. for several years, and have always had such a good time—in fact, each year I return home saying I have had the best time ever. This year in Detroit has surely been the very best of them all.

I think we owe a debt of thanks to the ladies' committee of Detroit, especially to Mrs. George Clippert, the chairman of the committee, who did so much to give the visiting ladies a splendid and enjoyable time.

And listen! A little bird told me that same charming lady was responsible for us ladies being initiated into the mysteries of the "Smoker"—and such a Smoker—we truly had the time of our lives, and now I know why some of the gentlemen have always been so anxious to attend that particular entertainment, and have looked so wise and mysterious when they came away from it.

My husband tells me that now we know just what they always do at their smokers *with one exception,* and as he was the exception, I tell him I am from Missouri.

Sure, I think the ladies should be included in the "Smokers" in the future.

Once again across the threshold
Where the fires of home shine bright,
Sitting idly by the fireplace,
Memory—insistent wight!
Whispers, whispers in the gloaming,
Till I'm grinning with delight.

And with gratitude unmeasured,
With my pen I'm jotting down
Words of just appreciation
For the "brick" men of renown,
Who, wherever they assemble,
Help their women "paint the town."

Close the tie that binds has drawn them,
Wined and dined as reigning queens;
But—once placed in brilliant play house,
To far more attractive scenes,
Have withdrawn devoted escorts,
Where man's fancy ever leans.

Mystic "Smoker" where abandon
Drives dull care on clouds of gray,
Drifting upward toward the ceiling,
As the hours are whiled away
With the charm of song and story,
Till the early hours of day.

With consuming flames of envy
Burning in each female heart,
We have seen them well dissemble,
And then eagerly depart
For this orgy of enchantment,
Straight as flies the winged dart.

'Twas from this that we were banished,
Just because that we were "we,"
Wearing petticoats and bonnets,
Full fledged femininity;
Though we longed with ardent longing
Some small part of it to be.

Then at last it came—the summons,
"Smoker" now was "Smokerette."
The forbidden doors swung inward,
Where cigar and cigarette
Wafted incense in the faces
Of each eager suffragette.

Long the memory will linger,
And as year succeeds each year,
May we never more be banished
From this inner sanctum dear;
For we've sipped the cup of pleasure,
And our vision now is clear.

So, kind gentlemen, we thank you,
Wish you joy and long life.
May we ever share it with you,
Mother, daughter, sister, wife,
Wish for you the joy of living,
Hoping that you miss the strife.

Cordially yours,
MRS. L. W. PENFIELD.
Willoughby, Ohio, March 1, 1915.

### HOPES THE SMOKERETTE WILL BECOME A PERMANENT FEATURE OF CONVENTION WEEK.

My Dear Mr. Randall:

Mr. Post and I arrived home safely last week, and I assure you I have never spent a more enjoyable convention week.

Detroit is certainly a city well worth seeing, and I feel that my visit there was an especially pleasant one because of the splendid reception the local committee of ladies gave us.

Then, too, I want to express my appreciation to the N. B. M. A. for the new feature of the convention, the Smokerette, which, I hope, will become a permanent event at our future conventions.

Sincerely yours,
MRS. JOTHAM POST.
East Williston, N. Y., March 1, 1915.

### NEVER A MORE ENJOYABLE CONVENTION.

Mr Dear Mr. Randall:

It is with great pleasure that I write to you of the very enjoyable convention we all had in Detroit. I, personally, never attended one where the local ladies were more attentive and sincere in their efforts that we should have a good time while with them, and see their city, which is indeed a beautiful one.

Thanking you and our Detroit friends again, I am,

Very sincerely yours,
ELIZABETH H. CONWAY.
Lansdowne, Pa., March 2, 1915.

### ENJOYED THE SMOKERETTE IMMENSELY.

Dear Mr. Randall:

Mr. Ittner tells me that he received a letter from you a day or two ago, asking if we were safe at home and if so, you would be glad to have me give my impressions of the "Smokerette." As I think you know, I enjoyed the convention very much indeed. It seemed to me that it was one of the most enthusiastic and successful conventions which it has been my good fortune to attend, and I have not missed very many of the N. B. M. A. meetings. I think Detroit people are most hospitable. I appreciate this particularly inasmuch as my daughter Nellie married a Detroiter, so naturally that city is very attractive to "Tony" and me. I spent a week there following the convention. As to the "Smokerette": It certainly was a most enjoyable entertainment. We all of us enjoyed it immensely and will look forward in the future to the pleasure of the smokerette as we have in the past to the annual banquet. With love to Mrs. Randall and best wishes for your entire household, and Miss Wallace, too, I am

Sincerely,
MRS. ANTHONY ITTNER.
St. Louis, Mo.

### THE YOUNGEST OF THE OFFICIAL PARTY WANTS TO PLAY A RETURN ENGAGEMENT AT DETROIT.

Dear Mr. Wreford:

My granddad says I may write you a letter telling what a good time I had at the convention. Granddad says he had a "bully good time," and I know I had more fun than he did. I told him when we got back home Sunday I wished we were back at the Statler. I like you and I'd like to come to another convention in Detroit.

This is my fourth convention. I am four and a half years old now. I have more fun every year and hope I will go to as many conventions as mama has. I went to the smoker and smoked all the chocolate cigars they'd let me. I thought that girl was awfully pretty when she danced on the tables. Wasn't it funny?

With love and kisses,

Your Honey Bunch,
ADELAIDE RANDALL GOULD,
Granddaughter of the N. B. M. A.

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### ATLANTIC CITY OR "BUST."

My Dear Randall:

Home again after a delightful week with our friends at Detroit. We certainly had a charming time, and their hospitality cannot be excelled. They have set a pace in that line which will make us Jerseymen go some when the convention is held at Atlantic City. With best wishes to you all,

Your friend,
CHARLES A. BLOOMFIELD.
Metuchen, N. J., February 25.

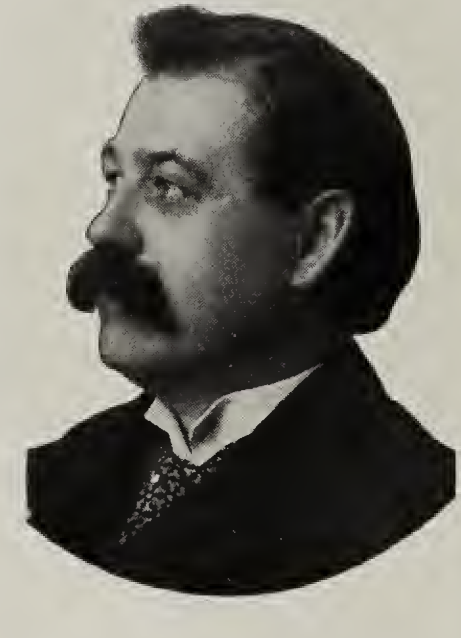
# THE ANNEX AND THE ANNEXERS.

IT was a busy week for the buttonholers and incidentally for those buttonholed, too. The machinery and supply men were there in force and reported generally that business had been decidedly better than they had expected during the convention. Some real fat orders were secured and any number of firms reported a splendid outlook. Of course, there were some blue ones, but they were few and far between, and were lost in the whirl of the busy ones, who seemed quite pleased with what had been booked and the prospects ahead.

The first one we met and almost the last one we said good-bye to was our old friend, Geo. B. Mentz, the Man Behind the Mould, also the pocket knife, who spent a busy happy week with his wife, friends and new acquaintances. He took time, however, to boost the Mentz Mould, a specimen of which he had on display in the Annex.

The J. D. Fate Company was represented by Harley Fate, Geo. B. Drennan, Ray Sykes, Henry Votaw and G. A. Anderson, occupying rooms 410, 12, 14 and 16. They were much in demand as were also their catalogues and attractive desk clocks, which went like hot cakes. We got in just in time before the last one disappeared into our jeans. Harley entertained many a delegate in his inimical way by telling stories of his boyhood days and the Turn-the-Crank-Johnnie, panorama tale. George looked happy, Roy and Henry enjoyed the excitement and Andy—well, he was there with both feet.

Richard P. Brown, Philadelphia, Pa.


Harry J. Flood, Chicago, Ill.

Herbert Simpson, Chicago, Ill.

The American Blower Company of Detroit, Mich., received a number of delegates at their large plant convention week and also had an attractive display in the Annex, showing miniature Sirocco multi-blade waste heat fans and decidedly interesting literature. Directions to the plant were shown on the table. The company was represented by R. G. Smith and T. Chester.

The Cleveland Alloys Company exhibited "Nugget" bearing metal, created expressly for brick and clay machinery. The firm was represented by Bernard Bigsby, Jr., and E. J. Mellen, who distributed beautiful carnations and were dubbed the carnation men before the week was hardly started.

The Chase Foundry and Manufacturing Company, of Columbus, Ohio, was represented by A. J. Dunn, J. J. Frank, F. A. Fleming and H. L. Killum, who were much in evidence. In room 352 they displayed wash drawings of their cars, and parts of same, and a pair of trucks showing their flexible bearing for dryer, transfer and clay cars. They reported more orders on hand than ever before for spring delivery.

The Standard Dry Kiln Company of Indianapolis had an attractive table filled with catalogues and their Book of Smiles. Their representatives were H. Wirsching, Edw. De Groot and Robert Elliott, Sr. Their metal pencil was a most acceptable souvenir.

The Bucyrus Company, manufacturers of steam shovels, had an electrical display in the annex which showed off to good advantage their steam shovels at work under various conditions. Forest Fordham, Sr. and Jr., and F. A. Rumbarger were always on the job handing out bulletins, catalogues and information.

George Potts, of the C. & A. Potts & Co., Indianapolis, had a busy week. You see, most of the Detroit plants use Potts machines, and George was buttonholed constantly for information.

The Charles Engelhard Company of New York displayed literature of their Heraeus (Le Chatelier) Pyrometers in the Annex.

The H. Brewer Company of Tecumseh, Mich., manufacturers of a high-grade line of stiff mud machinery, had room banner, with firm name in large letters. The representatives, Chas. Burridge, G. S. Brubaker, P. W. A. Fitzsimmons and H. R. Brewer, looked prosperous and did not seem to be worrying about the European war. They presented the delegates with large lead pencils bearing the slogan, "If Marked Brewer It's Good."

The Stupakoff Laboratories of Pittsburgh were represented by W. H. Gibb, who was duly approached by a number of delegates and always wore that fetching smile.
316, outside of which was stretched a huge blue and white

Will Simpson was "Willie" on the Spot and was feeling pretty good over the business he had secured during the first months of this year. He stated that the Frost Manufacturing Company of Galesburg, Ill., had booked a number of nice orders for their splendid engines, boilers and dry pans.

The Roessler-Haslacher Chemical Company of New York had a lively delegation in O. W. Wills, Warener Malsch, Harry W. Smith and Walter Schapper, who kept their eyes open for orders for their line of chemicals, both coloring materials and their carbonate of barytes for prevention of scumming.

The Ball Engine Company of Erie, Pa., had a couple of live wires in A. C. Vicary and F. L. Culbertson, who advocated the use of the Erie Revolving Shovel.

The Diamond Power Specialty Company of Detroit had on display miniatures of their soot blowers, which are made to suit every type of boiler.

Charlie Stevenson, the gentleman who had the experience of traveling the rough seas to reach New Orleans last year, came by rail this time and was on the job early and late. He stated that business of the Stevenson Company, Wellsville, Ohio, was good. He had a table in the annex on which he spread literature setting forth the advantages of their barrows, wire twisters, grinding and mixing pans, and full line of clayworking machinery. Thomas A. Hibbins also represented the company.

The Atlas Car and Manufacturing Company of Cleveland, Ohio, were represented by S. D. Wright. Their attractive metal pencil made quite a hit. It didn't do for the delegates to show them to their wives, for the souvenirs were just their style. Mr. Wright is an old-time member of the N. B. M. A., and, like the Atlas cars, needed few introductions, both being well known to the trade.

The Wellington Machinery Company of Wellington, Ohio, had a display of their brick moulds, catalogues and blue prints of their four-machine unit, two Wellington special No. 7, heavy Duty pugmill and extra heavy large disintegrator. H. S. and R. C. Bennett and their wives enjoyed the convention from start to finish.

Charles Burridge, Tecumseh, Mich.

William Simpson, Chicago, Ill.

L. E. Rodgers, Chicago, Ill.

A. A. Oldham and A. W. Aylesworth, representing the Bonnott Company of Canton, Ohio, were on the job early handing out their leather pocketbooks and yard measures as souvenirs, together with their catalogues and other literature.

The Stephens-Adamson Manufacturing Company of Aurora, Ill., had a display of their 18-inch belt conveyor with ball-bearing carrier run by electricity. Their catalogues, card and photo album were carefully inspected by the delegates. Colby M. Avery represented this firm.

The interests of the Lakewood Engineering Company of Cleveland, Ohio, were well taken care of by W. A. Meddick. Catalogues and cards setting forth the merits of their clay cars, drier cars, electric transfers and street mixers were distributed.

The Marion-Osgood Company of Marion, Ohio, manufacturers of steam shovels, was boosted at the convention by Earl C. Smith, who made many friends for his product.

The Chambers Bros. Company was ably represented by A. R. Root, one of the oldest members of the N. B. M. A., and Wm. G. Taylor, Jr., both pleasant, affable men, who made many friends and talked things over with the delegates in their room, where they exhibited wash drawings of the Chambers Bros. Company's suspended-wet-pan, cutting tables and various types of machines and catalogues of same.

The Dunn-Wire-Cut-Lug Brick Company, of Conneaut, Ohio, enjoyed the pleasure of seeing a large number of their licensees who were attending the convention. Mr. Frank B. Dunn and W. T. Blackburn had their wives with them and they enjoyed every minute of the week's entertainment.

The Marsh-Capron Company of Chicago, Ill., a new but live wire concern in the clayworking line, held forth in room 1401, where John M. Pierce, A. D. Masby and C. Greene boosted the game by word of mouth and well-printed literature.

Robert L. Frink of pyrometer fame was the busy fellow, for he was wanted in both the Hotel Tuller and Hotel Statler at the same time. He reported a good start for the present year.

E. M. Hall, of the Davenport Locomotive Works, was the busy bird catching the early worm and leaving good impressions for the Davenport Locomotive.

The Brown Instrument Company of Philadelphia, Pa., had a splendid display in their rooms on the third floor, where they exhibited various types of pyrometers and recording gauges in actual operation, the temperatures being recorded before the delegates' eyes. R. P. Brown, J. W. Lazear and G. L. Clapper were the representatives.

The clayworkers' friends, Ellis Lovejoy and W. D. Richardson, of the Richardson-Lovejoy Engineering Company, Columbus, Ohio, ably assisted by T. W. Garve, wore out several buttonholes, for they were kept busy convention week answering numerous questions relative to various problems in the manufacturing of clay wares.

The C. W. Raymond Company of Dayton, Ohio, which has for its slogan 'the largest exclusive builders of clayworking machinery in the world," was represented by R. H. McElroy, E. H. Morse and G. M. Raymond. They plugged for Dayton as the next convention city, but this was only a side issue, for most of their time was devoted to the C. W. Raymond Company's interests. They report excellent orders for their several lines.

The Marion Steam Shovel Company's interests were taken care of by Harry L. Cox and F. H. King, who reported many inquiries for their line of steam shovels.

The Thew Automatic Steam Shovel Company of Lorain, Ohio, had two live wire representatives in D. D. Deeds and W. R. Randall, who are clean-cut fellows with their eyes open for business first, last and all the time. A card displayed on a table in the annex shows their progressiveness. The wording was as follows: "300 brickyards using Thew—37 Thews working in Detroit. The excavation for this hotel was done with a Thew—Type O Thew is now digging a basement back of this hotel. Entrance from Bagley avenue on Clifford street." An Almy Electrical Automatic Advertising machine displayed photographs of the Thew shovel at work in various clay fields and shale banks.

The E. M. Freese & Co. of Galion, Ohio, had a jolly bunch of men, who passed out cigars that you really could smoke and a humdinger of a steel tape measure that the writer's wife is crazy about. Of course, there are several reasons—one is that it is serviceable and the other is—the poem devoted to her baby in their latest catalogue poetically written on everybody but boosting the Freese line in particular. These gentlemen were B. E. Place, A. J. Freese, H. H. Freese, R. H. Whiston and the poet laureate, E. L. Hess.

An unusual display was that of the Thwing Instrument Company, Philadelphia, Pa. In his room on the fourteenth floor Mr. Thwing had an ocular demonstration with his electric pyrometers attached to six electrically heated miniature kilns made of fire clay. His pyrometer will record any four kilns at one time. His test of multiple record recording pyrometer brought him several large orders during the week. He was very enthusiastic over the convention and declared the results were beyond his highest expectations.

Herbert S. Hersey, Wm. Koelliker and Arthur Dupuy, of the C. O. Bartlett & Snow Company, Cleveland, Ohio, mixed business and pleasure and felt well repaid for attending.

G. E. Luce, who has been identified with the clay trade for a good many years, told the delegates of the Lambert Process Company's 18-hour burning of brick in Chicago.

J. C. Schaffer of the Schaffer Eng. & Equipment Company, Tiffin, Ohio, secured several orders for his poidometers and said his kiln and dryer business was looking up.

Harry Flood of the Chisholm, Boyd & White Company, Chicago, Ill., had a good time; in fact, he enjoyed every minute while in Detroit, and didn't seem to have any trouble in getting delegates to listen to his arguments in favor of the Boyd presses and dry pans.

J. O. Trautwein and Claude Smith were a couple of pals hard to beat, and they had something mighty interesting to show the delegates, the Smith Steel Shell round down draft kiln, which, they claim, they can build cheaper than the ordinary down draft kiln of the same capacity.

Chas. A. Mattison of the Dodge Manufacturing Company, Mishawaka, Ind., brought his wife along and they did splendid team work all the week. Both thoroughly enjoyed the convention. Rough proofs of their new catalogue were on hand. This catalogue will be the most complete of any one on cut gears in the country. Patterns for every gear listed are owned by the company. There was quite a demand for their catalogue on power transmission. They gave a dandy souvenir, a calculator.

S. Kelly of the Arbuckle Company, Rushville, Ind., had few idle moments, for everyone was interested in the Powell Shale Planer.

Frank McClellan, a familiar figure about the N. B. M. A. conventions, represented the Arnold Creager Company.

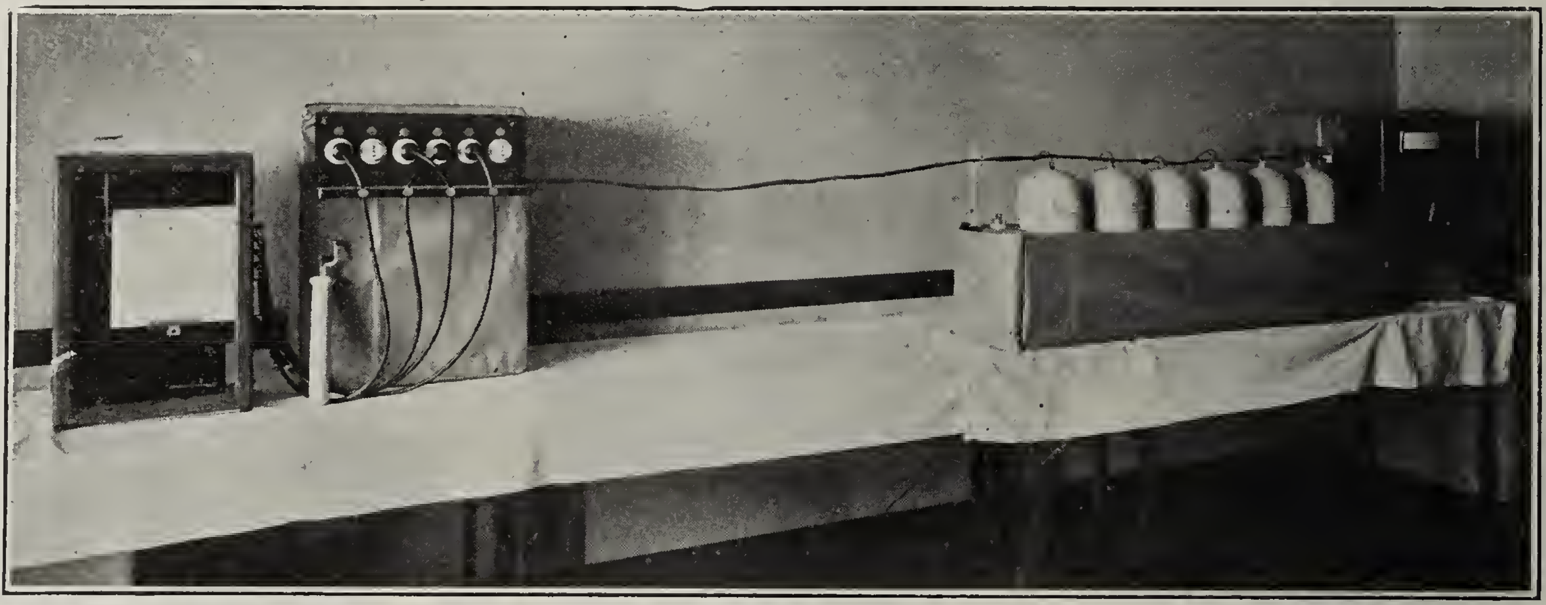
Alfred Yates displayed a number of Shawmut pavers and some original pottery that disappeared rapidly.

O Vera Well—You know L. E.— was there boosting the L. E. Rodgers Engineering Company, Chicago, Ill., with both feet and arms. He reported some splendid work during the past year and says the contracts he has on hand for building his Unitrol Dryer are mighty fittin'. H. Layer was there also.

The Mathews Gravity Carrier Co. exhibited a sample of their carrier. Mr. James A. Pollak distributed literature boosting this line, which has an enviable reputation.

H. C. Arnold, Columbus, O., button-holed the delegates and spread the gospel of the Ceramic Supply and Construction Company's several lines.

The Marion Machine Foundry and Supply Company of Marion, Ind., had many requests for information, which was handled by Robert A. Young.



The Exhibit of the Thwing Multiple Record Pyrometer.

R. D. McManigal boosted the McManigal Grateless Furnace. He is the inventor and heads the McManigal Furnace Company of Logan, Ohio.

The Manufacturers' Equipment Company of Dayton, Ohio, was well represented by I. W. Justice and W. H. Sacks, who told of the value of the Justice dryer and the Underwood system of burning.

W. N. Durbin, the genial gentleman from Indiana, had the smile that won't come off, which told as plain as words that business must be good for the Anderson Foundry and Machine Works, Anderson, Ind.

Another Hoosier who looked happy and contented was A. A. McClamrock of the Wallace Manufacturing Company, Frankfort, Ind. Mac never indulges in war talk, but just boosts their line of Wonder machines, which are scattered over the country, each one a standing ad with a satisfied owner to boost for him.

H. P. Jenks of the Hook Patent Kiln Company, Vigo, Ohio, says his initials don't stand for Horse Power Jenks, but The Hook Patent by Jenks. Many delegates were interested in his kiln and its operation.

Geo. C. Videtto was much in evidence convention week and had many a chance to tell of the merits of the American Pulverizer Company (East St. Louis, Ill.) machines. He was unfortunate at New Orleans, was taken sick the first day and was confined to his room for several weeks, so was greeted by many with "Glad to see you so well this time, George."

The Baird Machine Manufacturing Company of Detroit, Mich., was ably represented by W. J. Baird. A write-up of a pottery using the Baird Automatic flower pot machine in Detroit appeared in last month's issue. Several delegates visited this plant.

The Wilson Kiln and Dryer Company of Philadelphia, Pa., was represented by Thomas S. Wilson.

The American Clay Machinery Company of Bucyrus, Ohio, had the largest delegation and most comprehensive show of all the annexers. This concern is certainly a live one and kept things humping every minute. They reserved sixteen rooms in the Statler for their delegation, which consisted of R. C. Penfield, J. Preston Penfield, both of New York; H. C. Penfield, of Bucyrus, Ohio; L. W. Penfield and J. A. Penfield, of Willoughby, Ohio; R. O. Perrott, C. B. Sharer, F. L. Hopley, Davis Brown, L. Haigh and W. R. Cunningham, all of Bucyrus, Ohio; E. W. Dow, Pittsburgh, Pa.; F. H. Shankland and W. J. Carmichael, Willoughby, Ohio; H. S. Simpson and W. W. Wallace, of Chicago, and Jas. P. Martin, Lancaster, Pa. A continuous picture show was held in a large parlor on the ballroom floor, where were shown their five splendid films, all of which have been offered free of charge to the clay-workers of the land for use in their local cities to boost the demand for well-burned clay products. These films consisted of pictures of the fire test in Chicago, the one called "Bungalow Love," one on street paving, one on the manufacture of brick by the Penfield system in Kansas City and Chicago, and one on pottery-making in Spain. Large four-colored posters were placed in conspicuous places directing the delegates to their headquarters. The brick bug badges were hung on every delegate and demonstrated the up-to-the-minute methods of this company.

**BE A BRICK BUG**

**The American Clay Mchy Co**

(over)

**The "Auto" Bug lives**
**in Detroit**
**It adds much to its fame**
**But the "Brick Bug"**
**which has just arrived**
**Will save Detroit from**
**FLAME**

(over)

The Above is the Printed Matter Which Appeared on the "Brick Bug" Tags.

Firms who were not represented but displayed literature were The J. C. Steele & Sons of Statesville, S. C.; Chicago Brick Machinery Company, Chicago, Ill.; U. S. Rocking Grate Company, Chicago, Ill.; Ricketson Mineral Paint Works, Milwaukee, Wis., and Gandy Belting Company, Philadelphia, Pa.

## HEARD IN THE LOBBY.

"You know I just couldn't help but send those roses to the new President; you know I think a lot of my husband."

"Say, isn't that Eben Rogers a fine-looking man? He sure is and you just ought to see the picture he is showing his friends, a beautiful family group."

"I just wonder where Will is. I promised to meet him an hour ago, but I was having such a good time with the Detroit and visiting ladies. Guess Will enjoys these conventions as well as I do and that is saying a good deal. We are going back to Rochester tomorrow."

"Say, Bryan, that was a great advertising stunt of yours. Guess it tickled the boys at the plant, too."

"Well, Mr. Blair don't look old enough to be that many grandpapas."

"Yes, Billie had a great time last night over at the Tuller. When he got through there were 'Build with Brick' signs on every water bottle in the cafe."

"If you want to see something worth looking at, get Mr. Eisenhart to show you the group picture of his son's family."

"That man Purdy is a holy terror when he gets started."

"Who is that stylish-looking fellow leaning up against the telephone desk?" "Oh, that's the Beau Brummel of the Association, Archie Reid of Newark. They say he is a six-ring circus when he gets started, and say, bo, some after-dinner speaker, too."

"Did you every hear Adolph Hottinger or Albert Bleininger tell a joke? I never did, but they are mighty good listeners."

"It certainly seems good to see Mr. and Mrs. Ittner here with their daughter. They haven't changed much, either. Warren would have been here too but for the accident at Springfield."

"Say, did you notice the younger fellows who are attending the convention? I see Gregory, McCannell, Penfield and Hanley brought their sons along for the first time."

"Mr. and Mrs. Stephani certainly are enjoying the convention. It seems good to see the young couples here. You know I thought Richards of Edwardsville, Ill., had only been married a few months."

"Say, that man Jesse Taylor certainly gave us a whopping good Good Roads talk. He is some night Knight, all right."

"That Illinois delegation, John T. Hummert, George Walters and Wm. Hammerschmidt, are always on the job."

"Those 'Build with Brick' signs are mighty attractive and ought to do a lot of good, though they were not really intended for cafe decorations."

"Isn't it fine to grow old gracefully? It's good for tired eyes just to see how contented Mr. and Mrs. Conway are always."

## THE SPECIAL EDITION OF THE MICHIGAN MANUFACTURER.

We congratulate the Michigan Manufacturer on their special edition that they published during convention week. The cover was very appropriate and the subject matter very interesting. Here is more power to the Michigan Manufacturer.

# AMERICAN CERAMIC SOCIETY CONVENTION.

## A Banner Meeting, Many Valuable Papers Submitted, and an Urgent Request for the Consideration of Atlantic City for Next Yerr.

THE SEVENTEENTH annual convention of the American Ceramic Society, held in Detroit, Mich., February 15-18, with the Hotel Tuller as headquarter, was the most successful in the history of that technical organization. The total registration was 128, surpassing all previous records. Of these, twenty-nine were active members, including twelve presidents (past and present), seventy-eight associate members and twenty-one visitors, many of whom are applicants for admission and not yet acted upon. Every session was well attended, and the papers read and discussed held the close attention of all present. The convention was a success in every particular; many valuable papers were added to the immense fund of ceramic literature already credited to the society, a large number of new members were enrolled, entertainment of a refined, pleasing nature was enjoyed by the delegates, and every one left for home gratified to think he was so well repaid in the knowledge gained and the pleasant hours spent with his old friends and new acquaintances.

The convention was called to order at 10 o'clock Monday morning in the convention hall of the Hotel Tuller, by President Cullen W. Parmelee. Prof. Orton made the report for the board of trustees. He reviewed the society's growth since its last meeting in Detroit, fifteen years ago, and felt gratified that the A. C. S. in that time had grown five times stronger. He gave credit to Detroit for giving the impetus for research work in the meeting held there in 1900. The financial condition of the society is excellent; after publishing a large and creditable volume of about 800 pages, it still has a very comfortable surplus to carry over for next year's work. The present membership consists of: Honorary members, 4; contributing members, 2; active members, 61; active foreign members, 10; associate members, 360, and associate foreign members, 46. Prof. Orton then went into details as to the society's expenditures for the past year, and spoke of its resources, namely, several thousands of volumes of transactions and bulletins issued by the society in the sixteen years of its existence, and now carefully stored away in individual cases in a fire-proof storage. He reviewed the work during the past year and read the minutes concerning the midsummer meeting held in Niagara Falls, Toronto and Hamilton, Ontario, last summer. Incidentally he spoke entertainingly of his visit with the Swedish brickmakers the same days the midsummer meeting was being held in this country.

In the absence of Herford Hope, Prof. Orton read the report of the treasurer, which was referred to the auditing committee and afterwards adopted as read. Then followed the appointment of several committees, and topics under the head of unfinished business were considered. The one which enjoyed the longest discussion, and in which much fun was stirred up by Messrs. Purdy, Watts and Lovejoy, the "kidder" triumvirate, was that on defining the duties of the committee on nomenclature. It was finally decided that, as chairman of that committee, it was Watts-his-name's duty to give the definition of all terms submitted by any member to him directly or indirectly and a careful file be made in order that a nomenclature directory may ultimately be published.

After a few minor topics were discussed and an invitation was extended to the society to hold its next annual meeting in Atlantic City, Prof. Orton read the list of candidates for membership, which was unanimously accepted. There were fifty-five in all. The following associated members were promoted to active membership: P. H. Bates and W. E. Emley, U. S. Bureau of Standards, Pittsburgh, Pa.; C. E. Fulton, Pittsburgh Plate Glass Company, Creighton, Pa.; B. S. Radcliffe, University of Illinois, Urbana, Ill.; J. Minnemann, Bethel, O., and C. E. Brockbank, manager Exolon Company, Toronto, Ont., Can. The following were nominated for promotion next year: R. J. Montgomery, Pittsburgh Plate Glass Company, Creighton, Pa.; Alexander Silverman, University of Pittsburgh, Pittsburgh, Pa.; Wilbur T. Stout, Geological Survey of Ohio, Columbus, O.; Arthur E. Williams, University of Illinois, Urbana, Ill.; A. A. Klein, U. S. Bureau of Standards, Pittsburgh, Pa.; D. E. Humphrey, superintendent Deckman-Duty Company, Cleveland, O.; M. F. Beecher, Iowa Engineering Experimental Station, Ames, Ia.; Paul Teetor, Kansas Geological Survey, and Ira A. Williams, University of Oregon, Corvallis, Ore.

In President Parmelee's annual address he first reviewed the healthy growth of the society, spoke of points of vital interest to the organization and emphasized the necessity of co-

Prof. Edward Orton, Columbus, Ohio.

Prof. Cullen W. Parmelee, President American Ceramic Society, New Brunswick, N. J.

Ellis Lovejoy, Columbus, Ohio.

operation, and then read an excellent paper on "The Relation of the Industry to Foreign Trade." This was illustrated with a number of charts made from government statistics for the years 1905 to 1913, inclusive, and showed the population and the imports, exports and production of clay goods of the United States, England, France, Russia, Belgium, Germany and Austria. Many surprising facts were disclosed, chief of which was the important roll the little country of Belgium plays. We export more clays to Belgium than to France, while Germany leads in our exportation of clays. In our importation of clay Great Britain leads, chiefly in kaolin, while in our importation of wares the largest amount is from Germany. President Parmelee mentioned our large field for exportation in South America and the opportunity of securing the business here formerly supplied by the nations at war.

The effects of the war on the trade were discussed by several. members. The manufacture of potash from our sugar beets for the American supply, since most of our potash is secured from abroad, was suggested.

This completed the morning's session and the delegates repaired for lunch, after which the regular routine of the reading and discussion of papers was taken up in the succeeding sessions, which continued until late Wednesday afternoon. Sixty-six papers were on the program, only a few of which were read by title. The program was followed out almost to the letter. The first ten papers came under the general heading of "Occurrence, Mining, Preparation and Testing of Raw Materials," the next thirteen were on "Bodies, Glazes or Colors." There were four papers under the heading "Cements, Limes and Mortar Materials," fourteen under "Mechanical and Manufacturing Processes," nine under "Glass and Enameling on Metals," six under "Burning, Heat Reactions, Fuel, Kilns, Pyrometry," and eight under "Testing of Clay Products."

In addition to the regular program there were two lectures of more than usual interest. One was by Prof. E. D. Campbell, of the University of Michigan. He lectured on "The Theory of the Formation of Some Basic Silicates." This lecture was of the most intense interest, not only on account of the subject matter, which disclosed a wonderfully ingenious method of study, but also on account of the personality of the speaker.

The other lecture was given Tuesday evening by Wilbur T. Stout, of the Geological Survey of Ohio, and was the first statement of a new theory of the mode of formation of coal measure fire clays, a most important group of clay minerals whose origin seems to have been quite different from that of the more common types. Mr. Stout thinks these clays represent the insoluble mineral remains of some of the vegetation which formed the coal beds. When the vegetation was preserved, it formed coal, but when it got sufficient oxygen from the air to rot and oxydize away, it left its mineral matters behind it—to all intents and purposes the ash—and this material makes the clays, with or without mixture of a small amount of other mineral matter. Mr. Stout's theory is likely to be vigorously debated, but nevertheless is highly plausible.

There was a business session Monday evening followed by several section Q meetings, or round table talks, while Tuesday evening was devoted to an adjourned session and smoker, which was somewhat unusual in the fact that the various tables were labeled according to wares so that those who wished to buttonhole their neighbors and discuss certain topics knew exactly which table to select. The election of officers occurred Wednesday afternoon, resulting as follows: President, Richard R. Hice, Beaver, Pa.; Vice-President, Raymond T. Stull, Urbana, Ill.; Secretary, Edward Orton, Jr., Treasurer, Herford Hope, New Brighton, Pa., and members of Board of Trustees, Homer L. Staley, Ames, Iowa; F. W. Walker, Beaver Falls, Pa., and G. H. Brown, Pittsburg, Pa. Wednesday evening the ceramists joined in the frolic of the N. B. M. A. smoker, Prof. Purdy distinguishing himself as a heel and toe artist.

Thursday was devoted to an all day's tour over Detroit and through many of the interesting plants, such as those of the Detroit Roofing Tile Company, Geo. H. Clippert & Bro., the Hoskins Manufacturing Company, Dodge Brothers, Park Davis Laboratories and Pewabic Pottery.

Everyone voted this the banner meeting of the seventeen in the history of the American Ceramic Society.

# THE ILLINOIS CLAY MANUFACTURERS' ASSOCIATION CONVENTION.

THE THIRTY-SEVENTH Annual Convention of the Illinois Clay Manufacturers' Association, held in Springfield, Ill., February 8, 9 and 10, with the New Leland Hotel as headquarters, was one of the most successful ever held in the history of the organization. Not in point of attendance, for, while there was a fair number of delegates present, the register did not show the right proportion when one takes into consideration that there are nearly 300 clay product manufacturers in Illinois. Each session was well attended and great interest was shown in all the papers and discussions, for the program was splendid. A great amount of valuable information was added to the association's large fund of ceramic literature. It is inconceivable that any clayworker in Illinois could stay away from the annual meetings if he but realized that the slight expense would be returned a hundred fold through the knowledge gained and the better feeling created among competitors. Let us hope those who were not there will read this report and understand how important these meetings should be to them and to the trade in general.

It is not an exaggeration to say that the program was one of the finest ever offered. In the small space we have to give this review we hope to prove to the doubting Thomas' the treat they missed. It would be hard to pick out any one certain paper or address and style it the hit of the convention, for every paper had a great deal of merit. One of the most entertaining was the address on Efficiency, by Fred C. Schwedtman, vice president of the National Manufacturers' Association and general manager of the Racine Sattley Co., manufacturers of agricultural implements. An informal talk by Walter H. Bennett, State Fire Marshal of Illinois, certainly opened the eyes of the delegates in regard to better fire protection laws and created a great deal of discussion. The paper by Warren Ittner, Belleville, Ill., on Creating Demand, and one on Cost Accounting, by J. L. Buckley, of Aledo, Ill, were of much interest to the clayworkers.

The convention was called to order early Monday afternoon, February 8, in the convention hall of the New Leland Hotel, by President D. C. Haeger, who introduced W. A. Northcott, former president of the Commercial Association and formerly Lieutenant-Governor of the state, who gave a short address of welcome on behalf of the Governor. This was responded to at length by F. W. De Wolfe, Urbana, who displayed charts which showed the rank of Illinois in the various lines of the clay industry. These gave Illinois fourth rank in total production, producing one-twelfth of entire clay products made in the United States, first rank in production of common brick, second rank in architectural terra cotta, third in paving brick, etc. One chart showed location of clay plants in Illinois, there being 281 in all. Mr. De Wolfe spoke entertainingly of the importance of the Ceramic School, its research work and various phases of the business, and closed by thanking the representative of the Governor for his words of welcome.

The delegates then listened attentively to President Haeger's address. He reviewed the work of the association in its thirty-seven years of existence, showed the growth in the trade in Illinois, spoke of present conditions and urged the members to take steps which will prepare the craft for the effects the war is having upon the business interests. He urged steps which will make the individuals stronger, and in turn the association better, i. e., more efficiency in manufacturing and cost accounting and greater interest in the Build With Brick movement, stating that in the past the clayworkers have simply allowed their products to sell themselves. The income tax laws will make a more accurate cost accounting system necessary, therefore, a uniform system would be beneficial to all.

Mr. Walter H. Bennett, State Fire Marshall, spoke informally on Fire Waste, and treated the subject in a most interesting manner, showing the waste of our national resources and the good the government is doing now for its prevention. The destruction by fire in the United States is $2.50 per capita per annum; in other words, $57,000 worth of property is being destroyed every hour of the day, 90 per cent. of which, outside of fire loss by lightning, etc., is preventable. He spoke of the $250,000,000 fire loss in Illinois last year, and what the department is doing to cut down this awful waste. Their aim is to educate the public in order to save them from their own folly, to clean up the premises and thus reduce the fire hazard and to build of non-combustible materials. He told of fire tests in Chicago and also the Croker incident in New York, and pointed out that these show that there is such a thing as fireproof materials and that well burned clay products had stood the test.

Mr. Lambert Haigh, of the American Clay Machinery Company, then made a little talk, offering the fire test films, or any of the films owned by the company, free of charge for use in local work by any clayworker desiring same. Mr. Converse then discussed the paper and talked on the loss of trees and the conserving of wood. After quite a discussion an excellent paper was read by Warren W. Ittner, Belleville, on "Creating Demand." This will appear in full in a subsequent issue of the Clay-Worker.

R. T. Stull, Champaign, Ill.

Wm. Hammerschmidt, Lombard, Ill.

George J. Walters, Chatsworth, Ill.

The discussion which followed was long and most interesting, bringing out many important phases of the brick business, one in particular being that of competing with hollow block in the building of silos. It was the consensus of opinion that a brick silo was much cheaper.

Mr. J. F. Jones, of St. Louis, then read a paper on "Central Station Electricity vs. Private Plant Electricity," in which he advocated the electric drive because of its dependability, continuity of current, flexibility and lower cost.

The "Build With Brick Campaign" was the title of the paper read by Mr. J. E. Randall, junior editor of the Clay-Worker, Indianapolis. The paper pointed out the fundamentals of the movement, the necessity for it, and the rich harvest the clayworkers can secure by boosting it in their own territory. This was thoroughly discussed, resulting in the final adoption of a resolution advocating the earnest support of each individual member in the promotion of such a worthy proposition. This paper was given in full in the February Clay-Worker.

Monday evening the delegates were guests of the local clayworkers at a theatre party, which was thoroughly enjoyed by all. It was a clean, amusing vaudeville performance. After the show the delegates delighted in round-table talks.

Tuesday morning the second session was opened with the reading of a splendid paper by J. L. Buckley on "Cost Accounting." This same paper was read before the National Brick Manufacturers' Association convention in Detroit, and appears in full with illustrations in another part of this issue.

Mr. B. H. Richards, of Edwardsville, Ill., read a paper on "What Should Our Next Gain Be?" in which he pointed out the different sources the next gain could come from, stating there were so many different chances for gain, it was hard to pick out any definite one.

After a lengthy discussion, Mr. Douglas Stevens, of Cayuga, Ind., gave an informal talk on "Keeping Down the Cost," in which he stated that in no industry is there so much effort expended needlessly as there is in the clay industry. He pointed out the different places of lost effort and urged the clayworkers to give close attention to helping the men do the greatest amount of work with the least amount of labor by a careful consideration of motion and time study, and the installation of labor-saving machinery and equipment.

The address by Mr. Schwedtman on "Efficiency," which followed Mr. Stevens talk, was most entertaining, though it opened the eyes of all on many unthought of truths in regard to our wastefulness as individuals and as a nation. "America," declared Mr. Schwendtman, "is the most wasteful nation on earth, yet the richest and most favored." With all our abundant rich resources we do not make near the strides forward that other less favored countries in natural resources do, for the simply reason of lack of efficiency, lack of individual caution, causing accidents, fire waste, waste of products and waste of energy. He compared this country with others in points of efficiency and showed the importance of team work and right thinking.

Tuesday afternoon President Haeger honored Mr. Eben Rodgers, president of the N. B. M. A. by turning the gavel over to him for the afternoon. Prof. Stull opened the afternoon's session with a paper on the Progress of the Ceramic Department of the University of Illinois. He reviewed the history of the department, spoke of the increase in attendance from two in 1905 to 82 in the present year, the increase in the facilities and equipment and in the ceramic literature, told of investigations under way and their inestimable value to the industry and the need for larger quarters, etc. He displayed a water-colored sketch of the proposed new building, which is to be 65 by 190 feet, three stories high, built of brick, architectural terra cotta and glazed roofing tile. It is earnestly to be hoped that the government of Illinois will grant the needed appropriation and insist upon the structure being built of clay products, so that it will be a monument to the great clay industry of Illinois. This was the unanimous opinion of the delegates present. The following resolution was made and passed with enthusiasm:

> Whereas, As members of the Illinois Clay Manufacturers' Association, but more particularly as representatives of the entire clayworkers of this grat state, we are impressed with the fast growing economic importance of our industry, due to the nation-wide conservation and fire loss elimination movements.
>
> That we realize the immense value of our industry, of the work being done by the department of ceramics at our state university.
>
> That we see and appreciate the stimulating and dignifying effect attendant upon saving the buildings at the university and especially those connected with the ceramic department erected of burned clay materials.
>
> That, in view of the above, we feel that it would be a grave mistake to curtail the present plans for the expansion of the ceramic department and that any steps in this direction would be in the nature of false economy.
>
> That, as clayworkers, we pledge ourselves to the support of the university authorities in carrying out their plans in their entirety. Therefore, be it
>
> Resolved, That the foregoing is the unanimous sense of this meeting and that our secretary be instructed to transmit a copy of this resolution to the proper university authorities.

Mr. P. B. Eckels, representing the Campbell-Eckels Inter-Insurance Bureau of St. Louis, read a paper on reciprocal insurance, in which was explained the various forms of fire insurance and the benefits of their type of reciprocal insurance.

A representative of the Peoria Chamber of Commerce extended an invitation to hold the next convention at Peoria. Mr. Watson, representing the local brickmakers, urged the association to come back to Springfield in 1916, while Mr. Hummert extended an invitation from Quincy.

Mr. Frank Ellis, of Kansas City and Chicago, a member of the indemnity firm of Sherman & Ellis, with companies in several states, made an informal talk on Workingmen's Compensation Laws and Possible Legislation, and showed that doctor's bills brought under the workingmen's act were usually much higher than they were for private patients, where injuries were identically the same, and that the conditions in Illinois were the same as in Wisconsin, where last September 40 per cent. of the $100,000 or more awards was paid to doctors, which he believed to be excessive and unfair to both employer and employe.

Problems on Electrification of the Clay Plant, by J. W. Robb, was read by the author. This will appear in full in a subsequent issue of the Clay-Worker. An informal talk by Mr. Eben Rodgers, of Alton, pointed out the problems in the manufacture of brick, dealing with the question from clay bank to market and stated that the business was becoming less problematical for reason of the progress made and the advantages secured through associational work, the conventions being considered clearing houses of ideas.

This was followed by a long discussion of belt and chain elevators, after which the delegates prepared for the banquet, served in the sun parlor of the hotel. This was well attended, the toasts and roasts of the speakers, Messrs Schwendtman, De Wolfe, Hummert, Stevens, Buckley, Bennett and Robb, together with the humorous telegrams read by Dr. Converse, that inimitable toastmaster, were well received and enjoyed.

The Wednesday morning session was opened with a paper by A. E. Williams, of the Ceramic Department of Illinois, on Experiments to Prevent Efflorescence. This covered the ground pretty thoroughly and showed the causes and remedies for same.

This was followed by an illustrated paper by F. W. Donahue, of Chicago. The title of this paper was, Reaching the Farmer. The author pointed out the many ways the cement and lumber interests were boosting the silo and building game and urged the clay products people to offset this by organizing a promotion bureau that would handle this matter in an intelligent way.

This paper was followed by a moving picture show demonstrating the adaptability of hollow tile. These films showed the erection of a building where the National Fire Proofing Co.'s material was used and the latest time-saving methods were employed.

Some Neglected Opportunities in Illinois was the title of an informal talk by Prof. R. T. Stull, in the course of which he spoke of the large deposits from which raw materials could be easily secured but are scarcely touched or applied in any way, for making the higher grades of ceramic wares. He stated that more clay products were shipped into Illinois each year than were manufactured within its boundaries.

After quite a discussion a most interesting paper was read by Mr. A. P. Grout, a prosperous farmer, president of the Alfalfa Growers' Association and formerly trustee of the University of Illinois. His subject was Silo Facts, and he certainly covered the subject well. He told of his experience with different forms of silos and stated there was no question as to the superiority of the brick, stone and cement over wood and that he much preferred the brick. Much stress was placed on the preventing of air getting into the silo or ensilage. Air must be tramped out of the ensilage as the silo is filled.

A discussion as to the difference between the pit and other silos followed, after which Mr. Trumbul, of the J. P. Christenson Silo Co., Racine, Wis., made a talk on the construction of brick silos, which he much preferred over the other types, because, he declared, they were easier to construct and more substantial. He stated that he could point out in Wisconsin scores of brick silos 25 to 30 years old. His company erects each year from 300 to 400 silos, a large part of which are brick silos, 14 by 40, which cost on the average $350, brick costing $8.00 on the track being used, the farmer taking care of the hauling and board. At first their chief trouble was in securing support to keep the walls from cracking. This was remedied by the use of their reinforced metal. This is put in every two feet. Only four-inch walls are used for the most part. He asked the co-operation of the brick people in boosting of the silo business by spreading broadcast silo literature.

A business session followed in which reports of the secretary and treasurer were read and adopted and a motion to increase the dues to $5.00 per year was seconded and passed.

The following report of the resolutions committee was accepted:

### REPORT OF COMMITTEE ON RESOLUTIONS.

> Whereas, Our meeting in this city, the capital of our state, has undoubtedly been one of the best and most enjoyable we have ever held and that this has been made possible by the courtesy and cooperation of the people of Springfield; therefore, be it
>
> Resolved, That we hereby express our thanks and appreciation for the generous hospitality and entertainment given us. Particularly do we wish to convey this expression to the local clayworkers for their splendid theater party; the Springfield Paving Brick Company for the special trip to their plant; the city and state officials and Commercial Club of Springfield for their interest in this great industry; the hotel management for their splendid service and courtesy and to the people of Springfield as a whole.
>
> Whereas, The officers of this association have performed a service of inestimable value to the industry in Illinois; therefore, be it
>
> Resolved, That we express in this manner our deep appreciation for their untiring efforts in our behalf.
>
> Whereas, The papers submitted have been of great value in contributing to the knowledge of our industry; therefore, be it
>
> Resolved, That this association hereby expresses its thanks and

(Continued on page 438.)

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

| | |
|---|---|
| One copy, one year (in advance) | $ 2.00 |
| One copy, one year (if not paid in advance) | 2.50 |
| Six copies, " " | 10.00 |
| Ten copies, " " | 15.00 |

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ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LXIII. MARCH, 1915. No. 3

## CURRENT COMMENT.

Good old Detroit!

* * *

That local committee did things up brown—with Clippert edges.

* * *

That clarion "call to arms" made by F. W. Fitzpatrick will likely be heard far and wide before the echoes die away.

* * *

The N. B. M. A. has pointed the way to a new era in the industry and set a "busy bee" brick committee to lead the way into it.

* * *

Those who didn't go to Detroit missed something worth while, but they can read about it in The Clay-Worker, and get information and inspiration therefrom.

* * *

It is no new thing to hear a new Ford story, so we are not going to recount any of those sprung incident to the trip through the greatest auto factory in the world.

* * *

The recent annual doings fully demonstrated that a smokerette beats a smoker any day—or night—so future smokers will be smokerettes, set off with the feminine frills.

* * *

Even the lumber folks figure that it only costs 10 per cent. more to build with brick than with lumber. With only 10 per cent. in first cost against him, the brick man ought to be able to get away with most of the home-building jobs in his territory.

* * *

Most of the solutions to our big problems are simple when we once find them, and that is the way it is with the problem of promoting the use of brick. It is a simple matter of persistent, intelligent local exploitation, which will now be encouraged by the new national bureau of the N. B. M. A. In the meantime put up some "Build with Brick" signs in your own district.

* * *

The Detroit convention was a big, old-fashioned love feast, hugely enjoyed by everybody in attendance.

* * *

The machinery contingent was out in fairly good force at the convention, and they constitute a live wire bunch that helps keep the clayworking business alive and progressing.

* * *

Fitzpatrick set the wheels to moving for a more wide-awake exploitation of brick, and Salmen backed him up, and thus originated the proposition of the new bureau to promote publicity for building brick.

* * *

Concrete and other rivals of brick in building operations have attained prominence mainly through advertising. Proper exploitation will not only give brick more prominence, but it has the everlasting qualities that will make it stick and grow in prominence.

* * *

The Bureau of Standards has an interesting educational exhibit at the Panama-Pacific Exposition, which contains a display of structural and engineering materials designed with a view to educating the public in proper specifications and use. Brick ought to be conspicuous, but is it?

* * *

Because brick is the best building material is the one reason why the trade has neglected advertising it, thinking, perhaps, it would speak for itself. It will, too, but you will have to introduce it and get the attention of the people, so that brick will have a chance to make itself seen and felt.

## THE ANNUAL BANQUET.

As is always the case, the entertainment de luxe of the twenty-ninth annual convention of the N. B. M. A. was the banquet, which occurred Thursday evening. The participants enjoyed the rare treat of a number of songs by Michigan's famous tenor, Mr. Harold Jarvis. The oratory was of an exceptionally high order, so much so that The Clay-Worker desires to reproduce them verbatim with portraits of the toasters, and as we have been unable to secure same in time for this issue, we will defer the publication of the banquet proceedings until our following April issue, in which they will be given in full, and will afford our readers much food for thought, for they speak eloquently on matters of interest to every American citizen. The delightful verses of Poet Eddie Guest combine wit and pathos in a manner that will quicken the heart-beat of every reader.

The Detroit convention, successful in every respect and feature, forged another link in the chain of good fellowship which binds the N. B. M. A. together.

## THE CALL TO ARMS.

The unanimous appointment of a committee, with authority to establish a central bureau for boosting brick in building operations, at the annual N. B. M. A. meeting at Detroit, was a natural and proper result of The Clay-Worker's extensive "Build with Brick" campaign, and a fitting sequel to Fitzpatrick's "Call to Arms."

The "Build with Brick" slogan was the keynote of the Detroit convention, and was in evidence on all sides, even appearing at the banquet as a distinctive feature mark on the cigarettes.

One of the suggestions made when the campaign for the "Build with Brick" poster was started in The Clay-Worker, was that it would eventually lead to some central bureau to provide posters and to gather and disseminate information to assist in local exploitation. This bureau work is now in the hands of an able committee, which has promised to get into action soon, and the result should be the establishing of a central building brick bureau that will be the hub of the greatest effort ever put forth in the exploitation of brick and clay products.

With this bureau in action we hope to see fresh life and greater effort in all lines of publicity, not only in the posting up of the "Build with Brick" signs, but also in the local advertising and in general exploitation. Somehow, we feel pretty sure that out of it all will come the greatest era of prosperity ever known to the building brick industry.

All we need is hearty co-operation. So when this bureau formulates its plan and puts before the clayworkers of the country this work in definite form, every brick manufacturer in the land ought to get in line, sign up with the new bureau, and with its assistance boost brick more enthusiastically and effectively than it has ever been boosted before in any day or age.

## PORCELAIN AND LEADLESS GLAZES.

The Bureau of Standards of the Department of Commerce at Washington has been busy in the interest of certain branches of the clayworking industry lately, and incidentally has centered a fair amount of attention on the subject of research in the work of making porcelain crucibles and dishes used in chemical laboratories. These have heretofore been largely imported from Germany. Two years ago the clay products section of the bureau undertook the investigation of certain American materials. They have just announced the result of their investigation so far, which shows that successful experiments are being carried out in this work. It has also led them to experimenting with leadless glazes and to a study of the lead glazes used in this country, and they have developed some interesting information on this point. A report of what has been accomplished appears elsewhere in The Clay-Worker and is commended for earnest study by those interested in this branch of clayworking.

## "BUILD WITH BRICK" MARKS THE DAWN OF A NEW ERA.

There is something peculiarly appealing in the thought that we are now entering into the dawn of a new era in the building brick business, an era in which it will spread out and make itself felt as never before, an era of enthusiastic effort and remarkable growth.

The appointment of an executive committee to formulate a bureau for systematic work in the exploitation of building brick comes at such a time that this committee will get into its actual work about the Easter season. This is what makes the thought peculiarly appealing. In olden times the Easter season marked the beginning of not merely a new season, but literally a new year.

Easter properly marks the dawning of a new year day in the northern half of the world, when the sun warms up the earth and it sends forth its flowers and fruits again. Even to-day, while it is not regarded as the beginning of the calendar year, it is still the mark of the beginning of the spring or the growing season. There is something very fitting, therefore, in the fact that the laying out of the work of a central bureau to promote the exploitation of building brick, which it is expected will mark a new era in the brick industry, should take place at the Easter season. It might be taken as a good omen. Anyway, let us take it as a good start and everybody enthusiastically turn to, that we may be able to look back to it as distinctively marking the beginning of a new era in the brick business.

## "WOOD BURNS."

Various lumber interests of the country held a convention at Chicago, February 24 and 25, to discuss the subject of wood in structural work and discuss ways and means for the systematic exploitation of lumber. The final result of the efforts was to organize an exploitation bureau as part of the National Lumber Manufacturers' Association for the commendable purpose of systematically exploiting wood along broad lines for the uses to which it is best adapted.

Among the incidents of the meeting, however, were the presentation of much theory and data, some of it good and broad-gaged in its comprehension, but a part of it that will not stand the light of analysis.

One very elaborate report, given under the suggestive title, "Wood Burns," set forth in many ingenious ways figures to show that wood as a building material is not responsible for the large fire losses of the country.

Among other things, these figures point out that there are greater losses in brick buildings than in wooden buildings. The odd part about it is in that those setting forth these figures and pointing out these facts graphically do not seem to realize that they are playing with a boomerang and that the flare-back will hit them hard. If they would but stop to think a moment it would be easy enough to understand that when a brick building burns it is not the brick that makes the fire or does the burning, but something else combined with the brick. Persistent shouting about these losses in brick buildings will naturally lead to investigations, which will disclose the fact that it is wooden joists, wooden studding, wooden lath and flooring and interior trim that makes most of the conflagration. And the obvious way presenting itself to prevent this will be to eliminate the wood from many of the future brick buildings.

The lumber people have an excellent product, and they are, as a rule, broad-gauged people, who seek only that to which they are fairly entitled. Moreover, the general scheme of exploitation of lumber products is one that no one can offer objection to, for we all like wood in the places where it is best fitted, but it is futile to set forth the argument that wood will not burn, and it would be a flare-back against the lumber interest itself to insist upon parading the idea that there are more fire losses in brick buildings than in frame buildings.

## A TEN PER CENT. DIFFERENCE.

Even the lumber folks only claim a 10 per cent. difference in favor of frame construction as compared to brick, this fact having developed during and becoming a part of reports of the Forest Products Federation meeting at Chicago, February 24 and 25.

On the subject of comparative cost of residences, in order to obtain a comparison, an architect prepared complete plans and specifications for one and two-story buildings and obtained bids thereon. These buildings were typical of the low, medium-priced cottages built in great numbers in Chicago, and the bidders were responsible contractors. In each case in which a frame building was compared with a similar brick building, the size of rooms, plumbing, trim and inside finish, etc., was identical. In all cases the frame building had a shingle roof, while the brick building was provided with a non-combustible roof.

The average of the bids on these buildings, according to the reports, ran as follows:

| | Frame. | Brick. |
|---|---|---|
| One-story cottage, 22x30 ft. | $1,719 | $1,823 |
| One-story cottage, 20x36 ft. | 2,394 | 2,684 |
| One-story cottage, 21x48 ft. | 3,419 | 3,906 |
| Two-story flat, 24x34 ft. | 4,185 | 4,564 |

"From these figures it is seen that the cost of the frame building was about 10 per cent. less than a similar brick building."

Now, therefore, taking the lumbermen's own figures, we have here some splendid argument for brick in home building, because with only 10 per cent. additional in the way of first cost, the brick building will have the preference in the mind of nearly every home builder, and in time it will more than make up this difference in cost by the economy in insurance, in paint and in durability, to say nothing of the satisfaction of the good brick home. What better argument does the brick manufacturer need than this to boost his business?

(Continued from page 435.)

appreciation for the time, study and effort expended by the writers, thus adding to the value of our fund of ceramic literature.

Whereas, The question of cost accounting is of vital importance to the health and strength of the clayworking industry of Illinois, for it is only through a practical accurate system that the absolute cost of our products is secured; therefore, be it

Resolved, That a committee be appointed to investigate cost accounting systems and take such steps as to secure for the consideration of our next convention the adoption of a uniform cost accounting system.

Whereas, The association appreciates the great importance of the "Build with Brick" movement for by a great co-operation in promoting the "Build with Brick" idea, the demand will be increased while the cut price evil be decreased and each of us will be instrumental in safeguarding the lives of our people by giving them fireproof and sanitary houses; therefore, be it

Resolved, That each and every one of our members do everything possible to assist in the progress of such a worthy proposition.

Whereas, This association as well as the clayworkers of America have sustained a great loss in the death of D. V. Purington, which occurred during March of last year, we feel it to be the opportunity pass of expressing our deep regret of the passing into united sentiment of the members of this association not to let the the great beyond of so noble a spirit, who in this sphere had proven such a helpful, unselfish friend and was a great factor in the advancement of our craft; therefore, be it

Resolved, That this association hereby express its own deep sorrow at his loss and its sympathy to those who mourn. That we acknowledge and pay tribute to his high merit as a man, his steadfastness as a friend and his value as a co-worker in our industry. That the secretary be instructed to engross this resolution indelibly upon the minutes of our association and that a copy be sent to the members of his family.

W. W. ITTNER,
J. E. RANDALL,
EB. ROGERS.

The following officers were unanimously elected: President, J. L. Buckley, Aledo; vice president, Douglas Stevens, Danville; Treasurer, George Walters, Chattsworth, and secretary, Alvin Huckins, Urbana. After speeches by the newly elected officers, a few minor matters were discussed and the convention adjourned.

At 2:30 p. m. a large delegation boarded a special train for the Springfield Paving Brick Co.'s factory, where a mighty interesting afternoon was spent in an inspection tour through this electrically driven plant. Many unusual features were seen, the point of chief interest seemed to be the Freese Automatic Cutting Table, where over 140 Dunn Wire-Cut-Lug Brick were being cut per minute. These brick are high grade and much in demand.

The Illinois Association owes a debt of gratitude to the Springfield clayworkers for their royal entertainment and whole-souled hospitality. May we meet there again soon.

## A SPLENDID PLANT JUST COMPLETED.

The Milton Brick Company, of Milton, Pa., has just completed one of the finest brick plants in the country. It is electrically driven, the capacity is 100,000 daily, making both red building brick and paving brick from shale. The ware is dried and burned by a Wilson kiln and dryer system, Thomas A. Wilson being the inventor and engineer who did the construction work. The officers of the company are: W. A. Scully, president; Frank Oberkirch, vice president; Thomas M. Wilson, general manager; Louis W. King, secretary, and Wm. E. Hall, attorney. The Wilson Kiln and Dryer Company, of which Mr. Thomas M. Wilson is chief stockholder, makes a specialty of building brick plants with their improvements, which are claimed to be of unusual value.

## THE SALMEN BRICK.

The issue of Salmen Brick which was distributed at the national convention made a hit with the delegates. It shows what a live wire our old friend and honorable Second Vice President Fritz Salmen is. Hats off to the Salmen Brick, for in this case it isn't a cull or poor grade of ware, but an excellent proposition.

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**"GETTING THE MOST FOR A DOLLAR"**
has been given as a definition of good engineering such as is done by
**The Richardson-Lovejoy Engineering Company.**
[See page 441.]

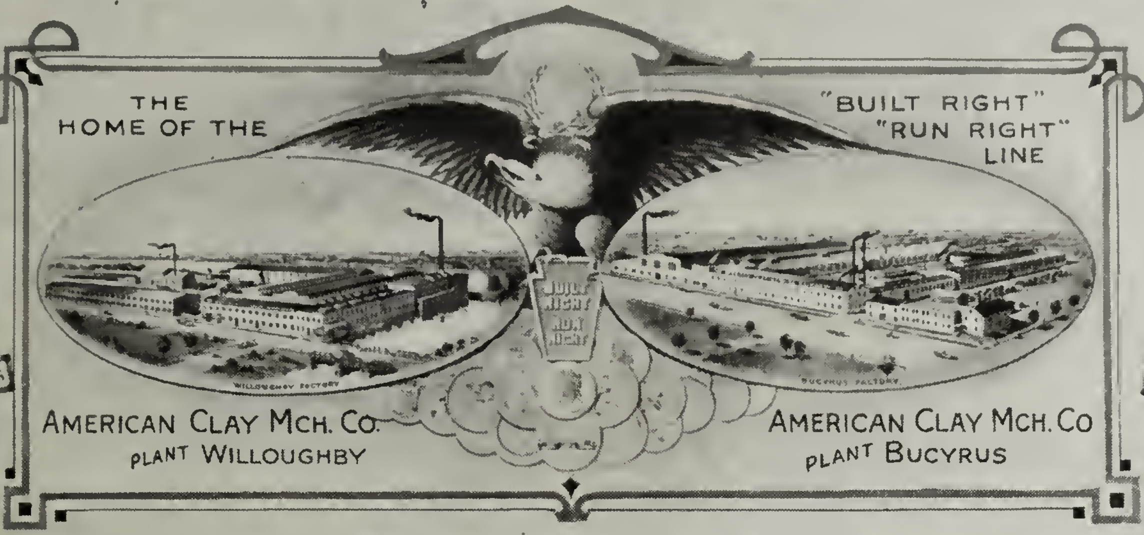
## PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

The opening of the greatest of all expositions, the P. P. I. E., occurred Feb. 20, and was most auspicious, the attendance being greater than that at the opening of any of the great expositions of the past. While many of the lesser buildings and displays are unfinished, the chief attractions are completed and are so numerous that visitors are delighted with the show as it now appears. It will grow better, of course, as minor details are perfected.

At the recent N. B. M. A. convention it was decided that it would be impractical to arrange for a national convention so far from the center of our membership, but it was agreed to make the last week in August Clayworkers' Week at the Exposition, and our readers who can do so will find the pleasure of the trip to the Exposition largely enhanced by planning to be there at that time.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

AMERICAN No. 292 REPRESS


THE HOME OF THE "BUILT RIGHT" "RUN RIGHT" LINE

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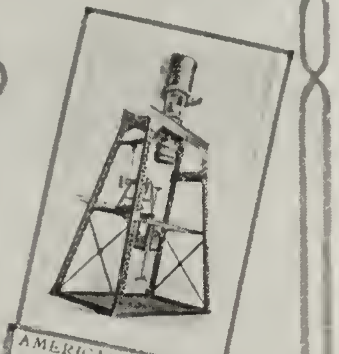
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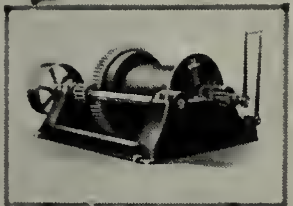
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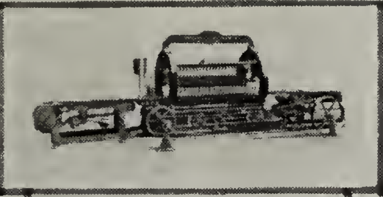
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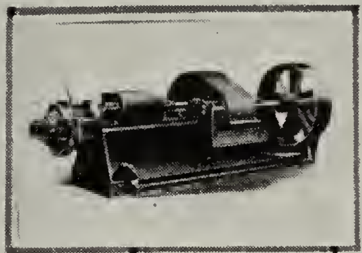
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AMERICAN STEAM SHOVEL

AMERICAN STEEL FRAME FOR PUG MILL

# SPRING OPENINGS

Its time to open your clay pit.

Its time also to dig into methods.

A steam shovel will dig for you both in the clay pit and in modernizing your equipment.

A lessening of clay cost means an increase in profits.

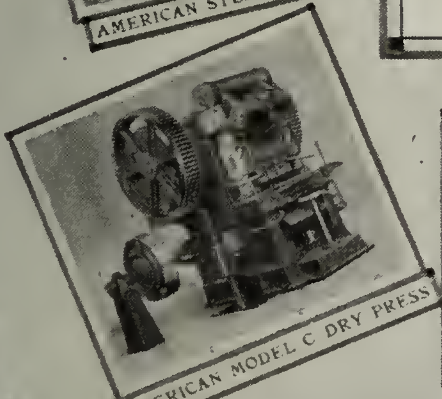
Our Steam Shovel is built for clay pit work. Its not for railway construction nor canal building especially for the clayworker.

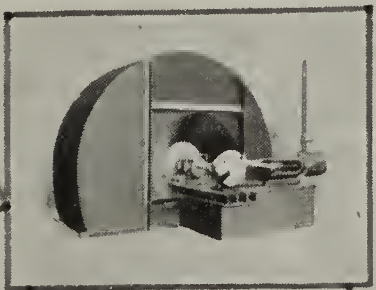
It has many clay plant features which we would like to tell you about. Let us send our catalogue. Its full of figures, facts and photos.

Its Haigh Kiln time, too. Nothing like the Haigh Continuous Kiln for saving cost. A half the fuel and a half the labor. Better material, too. Ask for Catalog.

We make every machine and appliance needed for making clay products by all processes. Let us have a word with you about large or small wants.

**The American Clay Machinery Co.**
**Bucyrus, Ohio**


AMERICAN MODEL C DRY PRESS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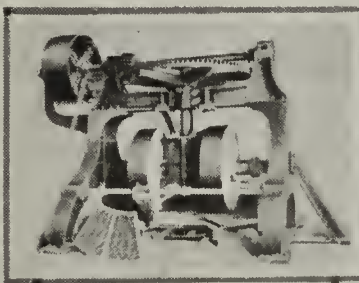
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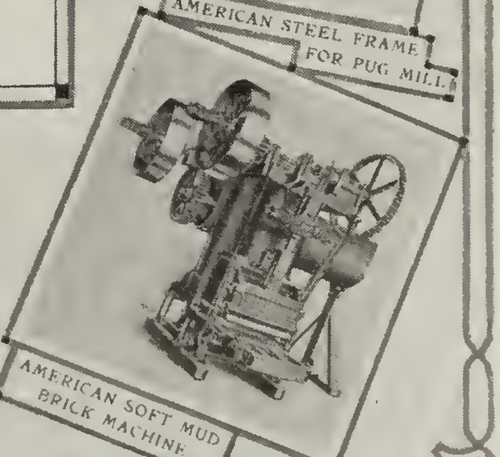
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We Build Every Machine and Appliance Needed in the Clay Trade.

**If You Don't Know That**

**Stevenson's Machinery**

**will OUTWEAR and OUTDO**

any rival machinery made, with less expense for repairs, and consequently less time lost for replacements,

**ASK THESE BIG FELLOWS**

who have fully proven it, as their installments show:

ROBINSON CLAY PRODUCTS CO., of Akron, Ohio, with 50 or 60 pans, a dozen or more presses, and other equipment in proportion.

AMERICAN SEWER PIPE CO., of Akron, Ohio, with possibly as large an equipment.

Close following in size of equipment are these:

THE EAST OHIO SEWER PIPE CO., of Irondale, Ohio.

THE STRATTON FIRE CLAY CO., of Empire Ohio.

THE KAUL CLAY MFG. CO., of Toronto, Ohio.

THE BUCKEYE SEWER PIPE CO., of Akron, Ohio.

THE PENNSYLVANIA CLAY PRODUCT CO., of West Winfield, Pa.

THE ST. MARY'S SEWER PIPE CO., of St. Marys, Pa.

THE CLERMONT SEWER PIPE CO., of Clermont, Pa.

THE STREATOR CLAY MFG. CO., of Streator, Ill.

THE STANDARD CLAY PRODUCTS CO., of New Glasgow, Nova Soctia.

THE DOMINION SEWER PIPE CO., of Swansea, Canada.

THE WASHINGTON BRICK, LIME & SEWER PIPE CO., of Spokane, Wash.

THE AMERICAN FIRE BRICK CO., of Spokane, Wash.

THE WHAT CHEER CLAY PRODUCT CO., of What Cheer, Iowa.

THE McLAIN FIRE BRICK CO., of Pittsburgh, Pa.

THE KITTANNING BRICK & FIRE CLAY CO., of Kittanning, Pa.

THE FOSTER PAVING BRICK CO., of Bradford, Pa.

THE TORONTO FIRE CLAY CO., of Toronto, Ohio.

THE EVANS CLAY MFG. CO., of Uhrichsville, Ohio.

THE EVENS & HOWARD FIRE BRICK CO., of St. Louis, Mo.

**Then COME at OUR EXPENSE and SEE FOR YOURSELVES.**

**THE STEVENSON CO.**
**Wellsville, Ohio**

# EDITORIAL NOTES AND CLIPPINGS.

The Marion Brick Company contemplates the erection of a brick plant at Fairmont, W. Va.

G. W. Eichelberger, of Anniston, Ala., writes that he is in the market for some brick machinery.

The plant of the Coffeyville Vitrified Brick and Tile Company, at Cherryvale, Kans., was slightly damaged by fire recently.

The plant of the American Sewer Pipe Company at Uhrichsville, O., which was destroyed by fire February 18, will be rebuilt at once.

Business is gradually picking up at Brazil, Ind. All of the clay plants, with one exception, are now working a full force of employes, and one plant is working a night shift in addition to the regular day force.

The Anders Shale Brick Company, of Cincinnati, Ohio, has been incorporated, with $40,000 capital stock, by Adam C. Anders, Anna D. Anders, Edith Anders, John Anders, Theodore Anders and Anna M. Anders.

The Trumbull Brick Company's plant, at Leavittsburg, O., has been purchased by F. F. Rowland, J. W. Wollcott, C. M. Dixler, and others. A number of improvements will be made in the plant preparatory to placing it in full operation.

The Chestnut Ridge Brick Company, New York City, report they have sold 400,000 face brick for apartment houses in New York City and suburbs since the first of February, which is a pretty good indication of trade improvement.

The Denniston Tile Works, of Fergus Falls, Minn., were recently incorporated, with $50,000 capital stock. The officers of the company are: President, A. H. Denniston; vice president, A. R. Kitts; secretary and treasurer, W. L. Potter. The plant will be enlarged.

The Vigo Clay Company and the American Clay Company, of Terre Haute, have been consolidated and the name of the new concern is the Vigo-American Clay Company. The concern has been capitalized with $375,000, and the directors are John L. Crawford, Henry S. Preston, Lee R. Whitney and others.

A New England brickmaker writes that he has a good proposition for any one who would be interested in buying a brick plant in good working operation, within shipping distance of a fine market where big building operations are being planned for the season. Interested parties can address "New England," care The Clay-Worker.

Lewis Minor, one of the oldest and best known citizens of Birmingham, Ala., died February 17, following an illness of two weeks with typhoid fever and other complications. Mr. Minor went to Birmingham about 1886 from Connellsville, Pa., and had been engaged in the fire brick business ever since. He was largely instrumental in building up the Bessemer Fire Brick Company into the successful industry it has become. He was fifty-five years old and leaves a widow, three daughters and two sons.

Factory No. 3 of the Laclede-Christy Clay Products Company, Manchester and Sulphur avenues, St. Louis, Mo., was destroyed at a loss of $100,000 at 8 o'clock, February 17. It is believed the fire started in the drying room of the plant. The greatest loss was in expensive tile-making machinery. The factory was a two-story building of brick and frame construction, covering a space of 250 feet square. Fred Talbot was called home from the Detroit convention on account of the fire.

In a recent letter E. F. Buffat, president of the Piedmont Coal and Coke Company, of Oliver Springs, Tenn., writes: "We are in the coal mining business and have under lease 2,800 acres of coal lands, containing several beds of workable coal, and in addition to the coal it also contains large deposits of clay which we believe would be suitable for brick, tile or other clayworking industries. We would like to get some clay industry to locate on our property, and could give them an interesting proposition in the way of a location and their coal and clay delivered at their plant at a low price. Clay in-

EDITORIAL NOTES AND CLIPPINGS—Continued.

dustries in this part of the country are not numerous, and we feel that there is a good field for one here."

R. C. Rand, 207 Randolph street, Huntsville, Ala., expects to go into the brick business in the very near future.

The Dais Paving Brick Company has begun the erection of a large plant at Athens, Ohio, for the manufacture of paving brick.

M. J. MacCormick, an employe at the Mason City Brick and Tile Company's plant at Mason City, Ia., was struck by a small car used to haul clay, and instantly killed.

The plant of the Garfield Fire Clay Company, Robinson, Pa., which was partially destroyed by fire recently, entailing a loss of $25,000, will at once be rebuilt. J. W. and F. E. Robinson are owners.

The Cummins Brick and Tile Company, of Syracuse, N. Y., has filed certificate of incorporation with the secretary of state. The directors are: Bertram J. Cummins, E. R. Baltimore and Neal Brewster.

J. S. Poythress, Henderson, N. C., reports that he has a fine bed of clay and wants to establish a brick plant at that point. Mr. Poythress is a believer in the "Build with Brick" idea, and expects to build a $5,000 brick residence.

The McArthur Brick Company, McArthur, Ohio, through their Cleveland agency, has secured the order for 4,000,000 face brick, which are to be used in the big filtration plant at Cleveland, on which work has now begun, and the company is now making shipments on the order.

One man was killed and two severely injured by falling down the shaft at the clay mine of the Hydraulic Press Brick Company's plant, St. Louis, Mo. The men were overcome by gas following a dynamite explosion and plunged to the bottom of the shaft.

In the case brought by Mrs. Mary Neugenbauer, of Lincoln, Cal., against the Gladding-McBean Company, owning the large pottery works in that city, to recover damages of $50,000 for the death of her husband, who, she alleges, was poisoned by the gases from hydrofluoric acid, the jury to-day awarded the plaintiff a verdict for $7,000.

The brickyards of Flanagan Bros. Manufacturing Company, Kansas City, Mo., have been purchased by Dr. H. J. Zeller. The plant, which had been closed down for some time, will be overhauled and put in operation at once under the firm name of the Flanagan-Zeller Brick and Manufacturing Company.

The new plant of the Danville Refractories Company, at Danville, Ill., is expected to be in operation between May 1 and June 1. It will start with an initial capacity of 50,000 9-inch silica brick. The designed capacity is 150,000 daily. Cassius C. Chany, now superintendent of the American Refractories Company, Joliet, Ill., will become works manager of the Danville plant on April 5.

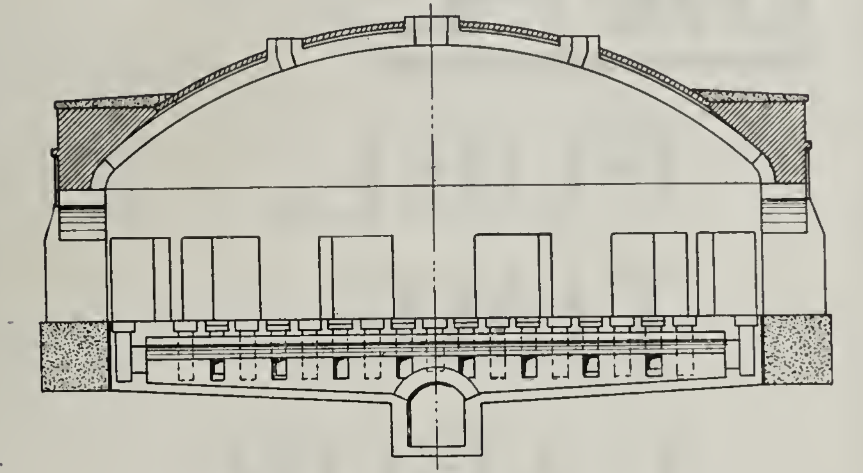
Arrangements have been completed for organizing the Municipal Shale Brick and Block Company at Martinsburg, W. Va. The company has been incorporated by the following: M. J. Beach, Samuel A. Vervalen, both of Baltimore; Henry P. West, president, and L. Perry West, secretary-treasurer, of West Bros. Brick Company, Washington, D. C.; J. W. Candler, Cleveland; Herbert W. Geslwind, engineer and contractor, Philadelphia; F. Vernon Aler and Allen B. Noll, Martinsburg. An immediate expenditure of $150,000 is proposed, to build plant with daily capacity of 60,000 paving blocks, to be increased to 80,000 by midsummer, and to expend $100,000 to add departments for manufacturing bricks, sewer pipe, vitrified fire-proofing, etc.

The annual report of the Illinois Brick Company, Chicago, Ill., shows net profits of $500,000 for the year ended December 31 last. Thus, notwithstanding the shut-down of all its plants for three months early in 1914, owing to labor troubles, the company earned more than 10 per cent. on its $4,700,000 outstanding stock. The building trades had a good year. The demand for brick was such as to tax the capacity of the company's active yards at times. The price of $7 a thousand for common building brick prevailed throughout the year. The outlook for 1915 is encouraging, according to authorities in the brick trade. In recent years earnings of the company have shown the benefit of the use of the Penfield setting device, which, it is asserted, does the work of thirty men in placing in the kiln 1,000 green blocks at a time. The cost of

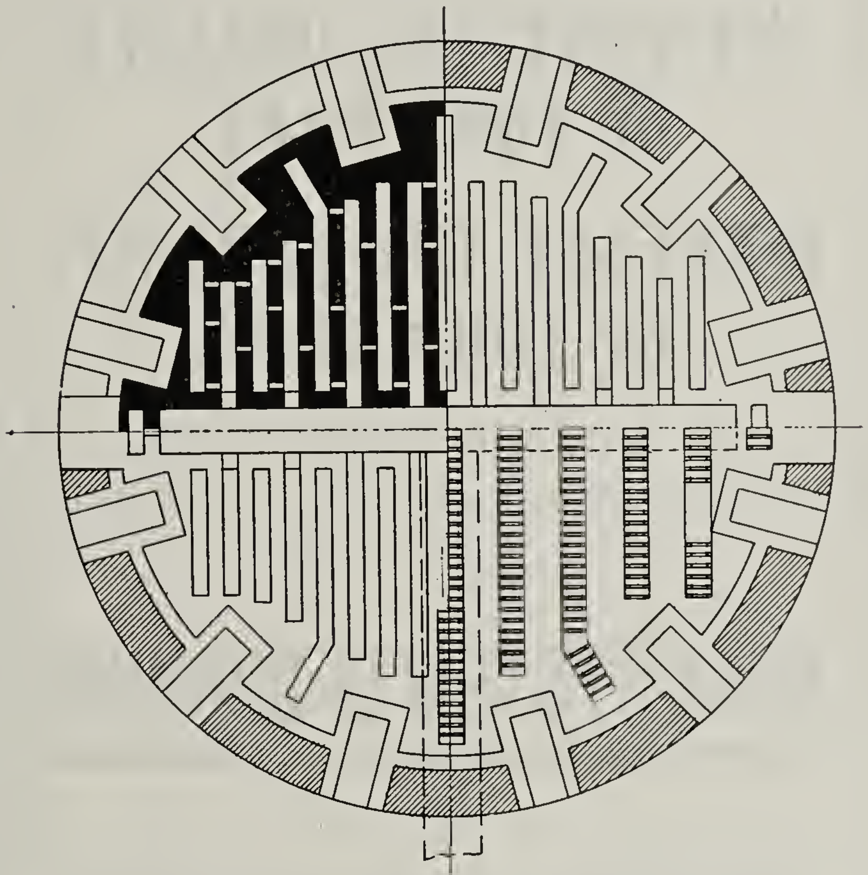
(Continued on next page.)

AN EDUCATION IN KILNS

A Time-Tried, Reliable Kiln



Cross-Head Flue Type Especially Designed for Burning Bricks



Thirty-two Feet in Diameter But Can be Built Any Size up to Forty Feet in Diameter

See February Clay-Worker for center well type of kiln, and watch this corner for other types in later issues.

The Richardson-Lovejoy Engineering Co.
Columbus, Ohio
Consulting Engineers to the Clay Industries.

GEOLOGICAL EXAMINATIONS.
CLAY TESTING.
INVESTIGATIONS OF CLAY-WORKING INDUSTRIES.
FAULTS OF MANUFACTURE CORRECTED.
APPRAISALS OF PLANTS AND PROPERTIES.

Pamphlet, "Ceramic Engineering," free

SAVE

FUEL,
TIME,
LABOR.

IMPROVE THE QUALITY OF YOUR WARE.

INCREASE THE CAPACITY OF YOUR KILNS

By turning them more often.
All this can be done by the installation of the

HOOK SYSTEM OF BURNING

Old kilns can be converted to the Hook System at comparatively small expense and new kilns built at less cost, as a rule, than kilns of other types.

We can furnish plans for remodeling old or building new kilns, or where desired, send competent masons.

*Estimates on request.*

HOOK PATENT KILN CO.

Main Office, Vigo, Ohio

Canadian Office, 250 Defferin Street
Toronto, Ont.

## EDITORIAL NOTES AND CLIPPINGS—Continued.

The Petrous Manufacturing Company, of Gainesville, Ga., will build a new fire brick plant, at an expenditure of $300,000.

The Glen View Brick Company, of Clarksburg, W. Va., was almost completely destroyed by fire February 18. The loss is estimated at $10,000, on which there is no insurance.

this operation has been reduced to one-fifth the former expenditure.

W. R. Evans, Roundup, Mont., advises us that he would like to receive catalogue and price lists of brick machinery, as he expects to go into the brick business at that point.

W. E. McKinney, secretary of the Commercial Club at Mexia, Tex., would like to communicate with parties who would be interested in starting a hollow brick and tile plant at that point.

P. R. Morrison, secretary and treasurer of the Alto Face Brick Company, Rome, Ga., writes that after having been closed down for the past six months, the plant is again in operation, with good prospects for good business.

The National Brick Company, Montreal, Canada, has been awarded a contract by the city of Montreal for 5,000,000 brick for use in sewers. It is stated that the contract price was $9 a thousand. Seven different companies had made bids for the contract.

Walter Acheson, formerly superintendent of the Indiana Paving Brick Company's plant at Brazil, Ind., has moved to Martinsville, Ind., where he will have the management of the plant of the Adams Clay Products Company. On Mr. Acheson's last day with the Indiana Paving Brick Company the employes of the plant presented him with a handsome leather chair, and Mr. Walter W. Winslow, the owner of the plant, gave him a gold watch.

The Savage Clay Products Company is the name of a new corporation formed under the laws of Delaware, with a capitalization of $1,000,000, to take over the properties of the Savage Fire Brick Company at Hyndman, Williams and Keystone, Pa., on the main line of the Baltimore & Ohio Railroad in Somerset and Bedford counties, as well as the holdings of the Freeman Fire Brick Company, of New Cumberland, W. Va., on March 1.

Articles of incorporation have been filed by the Mena Brick and Clay Company, of Mena, Ark., with G. W. Conklin, L. F. Conklin, D. B. Simpson and Edith M. Simpson as incorporators. The general nature of the business to be transacted is the manufacture of paving brick and blocks, sidewalk brick, face brick, shape brick, hollow brick and common building brick, also drain tile, silo blocks, hollow building blocks of all kinds, sewer pipe, hollow conduits, coping and other clay products.

Alonzo Hampton, a colored employe of the Cherokee Brick Company, Macon, Ga., was awarded a verdict of $2,500 against the brick company by the Superior Court of Bibb county for the loss of his left hand. He had been an employe of the company, and one day was ordered by the superintendent to fire a muzzle-loading shotgun into a flue of a brick kiln, with the object of blowing out the soot in the flue. The explosion of the gun tore away the soot all right, and likewise the negro's hand. Damages in the sum of $5,000 were asked, but this figure was cut in half.

The Alsey (Ill.) Brick and Tile Company are erecting four round down-draft kilns, 30 feet in diameter, which will increase their capacity to 30,000 fire brick per day. This company makes a very high grade of fire brick, fusion test on them being cone 31½, or 3083 degrees F., as shown by the Bureau of Standards, of Pittsburg, Pa. They have an unlimited supply of fire clay, owning the exclusive mining rights on 800 acres, underlaid with a vein of clay 20 feet thick. The vein is overlaid with a deep, solid vein of rock, and is mined on the room and pillar system. The hoisting shaft and kilns are situated in the heart of the field, thus no trouble for getting clay is encountered. The Alsey Company has an up-to-date plant and is prepared to turn out an excellent fire brick. Their shipping facilities are good, having rates on thirty-seven different connecting lines.

FOR SALE.

A tile mill, with saw mill and cider press in connection. Either as a whole or any part of machinery, as wanted. Rare bargain. TILE MILL CO.,
3 1 cm Hamilton, Ind.

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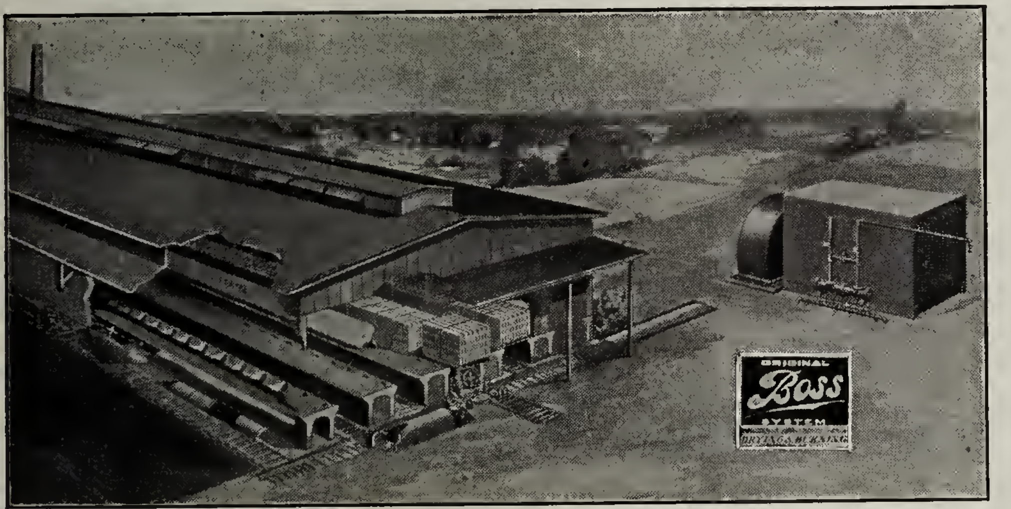

The Boss Ten-Hour Unit-Control Exhaust Steam Dryer.

**Mr. Brickmaker:**

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

**NO CLAY TOO TENDER.**

Ask us to show you how we do it.

**JOHN C. BOSS COMPANY**
**Elkhart, Indiana**

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**WEBB WIRES WEAR WELL**

**WRAPPED** **TWISTED** **SOLDERED**

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

**The WEBB WIRE WORKS, New Brunswick, N. J.**

# Classified Advertisements

### FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.

## FOR SALE

### FOR SALE.

Some tile factory equipment. Address,

THOMPSON BROS.,
12 tf d Rolfe, Iowa.

### FOR SALE.

Two kiln brick and tile plant in southern Iowa. Cheap, if taken soon. Address

T. N. ADLAND,
3 1 c Riverside, Iowa.

### FOR SALE.

Old established brick yard. Good reasons for selling. This is a proposition that will bear investigation.

SCHALLER-YOUNG LUMBER CO.,
3 3 cm Edgerton, Wis.

### FOR SALE.

Sand mold brick plant with fifty-eight acres clay land. Located near Minneapolis, Minn. All newly rebuilt. Address

MRS. W. C. PIKE,
602 E. 25th St.,
3 1 cm Minneapolis, Minn.

### SOMETHING OF INTEREST.

FUEL ECONOMY IS OUR SPECIALTY. We can offer large savings for a comparatively small investment. Sketch of your plant and detail of operating conditions will bring, without cost, an estimate of savings which we can make and investment necessary.

BISSELL ENGINEERING CO.,
426 Board of Trade,
31 cm Indianapolis, Ind.

### FOR SALE.

One Andrus four-mold dry press machine, which has made but 400,000 brick. Practically new. $1,200.00 on cars, Memphis.

One five-mold (can be changed to six) Hercules soft mud machine.

One six-mold Hercules soft mud machine. Overhauled and in good condition. $250.00 each, on cars, Memphis.

One No. 0 late model Thew steam shovel, which has been worked about six months and is in good condition. $2,300.00, on cars, Memphis. Address

SOUTH MEMPHIS BRICK CO.,
3 tf d Memphis, Tenn.

### FOR SALE.

170 roller-bearing, double-deck dryer cars. Never been used. Write for particulars and cuts.

MINNESOTA BRICK & TILE CO.,
3 3 c Millville, Minn.

### FOR SALE.

Large size Freese cutting table complete. Small air compressor of the Ingersoll-Rand make, and McGowan cold water pump. Address BOX 84,
3 2 d Portsmouth, Ohio.

### FOR SALE.

125-h.p. boiler, 100-h.p. engine, 2 brick machines, pulleys and shafting, all in good condition. Address,

J. P. VOGAN,
12 4 d Franklin, Pa.

### FOR SALE.

One American Clay Machinery Co.'s special giant auger brick machine, used for making fire proofing. In workable condition. Address

BOX 1—J. A. R.,
1 tf d Care Clay-Worker.

### FOR SALE.

We offer two Standard paving brick rattlers which will be sold for $75.00 each, or one-half regular price. New and first-class in every respect. Address

THE PORTSMOUTH ENGINE CO.,
3 3 cm Portsmouth, Ohio.

### A BUSINESS PROPOSITION.

To anyone procuring a $5,000.00 loan on my $35,000.00 brick and tile plant, will lease same for four years for fifty per cent. net earnings and will pay eight per cent. on loan. Will rent my furnished home for $28.00 per month. Answer immediately.

JOHN BUCKLEY,
3 1 c Montrose, Colo.

### FOR SALE.
### AN INTERESTING OFFER.

Death and affliction have opened an opportunity to acquire the best brick proposition located in Cincinnati territory. Two plants, combining ten million capacity annually, that have never failed to produce dividends for years, besides paying well for management. One or both plants can be had. So look sharp, as this will prove a valuable message to some one. Address

BOX 54,
Builders & Traders Exchange.
1 3 c Cincinnati, O.

### FOR SALE.

Ross-Keller six-mold dry press and disintegrator. Nearly new. Can be bought for one-fourth original cost.

THE SHOREY-WILLIS BRICK & SUPPLY CO.,
3 1 d Cincinnati, Ohio.

### FOR SALE.

One Stevenson, 9-foot dry pan, latest model, used but little, with all new equipment and guaranteed equal to new. Price, $600.00 to a quick buyer.

J. S. MILLER,
3 1 d Bolivar, Pa.

### FOR SALE—SHALE SITE.

I have an unlimited quantity of high grade shale in hills, on railroad in Jackson Co., Ind. Will sell property or contract to deliver in carload lots. Will send analysis and samples on application.

A. J. NAVIN,
58 Baldwin Blk.,
1 3 cm Indianapolis, Ind.

### FOR SALE.

Soft mud brick plant in live town of five thousand. Only plant in town and 80 miles from Memphis, Tenn. In the center of the noted fruit and trucking section. Capacity 20,000. Boss system of burning, and railroad switch running into yard. Also small soft mud plant in Brownsville, Tenn., 55 miles from Memphis on the L. & N. R. R. Prices and terms satisfactory to right party.

McKNIGHT BROS.,
12 3 c Humboldt, Tenn.

### FOR SALE.

The Ashaway National Bank will sell a controlling interest in the capital stock of the Ashaway Clay Co. for a nominal sum. The plant was built in 1907 and cost about $70,000. On account of a lack of experience and capital, it has never run all told a full year. The company has just been reorganized with a capital of $35,000 and no debt. It is a thoroughly modern and up-to-date plant with new equipment throughout, consisting of Freeze intermediate size brick machine, capacity up to 60,000 brick per day, disintegrater for preparing the clay, Corliss engine with high pressure boilers, waste heat dryer, direct connecting fan and steam coils for auxiliary heater, 25 chamber Haigh continuous kiln with stack 135 feet in height. The equipment for handling clay from the bank consists of tramway and cars with elevated track at plant and winding drum to hoist cars. There is a switch into the plant with depressed track for loading. Address

FRANK HILL,
1 3 cm Ashaway, R. I.

# Classified Advertisements—Continued.

WANTED.

Second-hand small or medium size brick and tile machine. Must be in good condition. Address

BRICK WORKS,
220 Park St.,
3 1 c Brockville, Ont., Can.

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WANTED.

Successful superintendent desires change. Thoroughly conversant with all classes of kilns and machinery. Would contract to burn in good sized yard, salary or thousand. Guarantee results. Apply SUCCESS,
3 1 d Care Clay-Worker.

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WANTED.

Good, practical clayworker, familiar with the manufacture of brick of any kind or color. Also other clay goods, is open for position as manager or superintendent with a good reliable firm. Address, BOX 2—ACME,
2 1 d Care Clay-Worker.

---

WANTED.

Position as superintendent by a thoroughly competent man familiar with the manufacture of all lines of clay ware. Executive ability and a knowledge of all details from pit to market. Twenty years' experience. Address

BOX 3—IND.
3 1 d Care Clay-Worker.

---

WANTED.

Position by first class superintendent with 20 years of practical and theoretical experience. Can take complete charge of up-to-date brick and face brick plant. Thoroughly competent and reliable. A1 references. Address,

BOX 2—R,
2 2 d Care Clay-Worker.

---

**E. SCHMATOLLA**
Consulting, Designing & Constructing
**Engineer and Patent Attorney**
To the Manufacturers of
Brick, Lime, Magnesia, Silica & Ceramic Wares.
150 Nassau St., New York, U. S. A.

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## PATENTS

**WILLIAM N. MOORE**
**Patent Attorney**
Loan and Trust Building
WASHINGTON, D. C.

The first important step is to learn whether you can obtain a patent. Please send sketch of your invention with $5.00, and I will examine the patent records and inform you whether you are entitled to a patent, the cost and manner of procedure.

PERSONAL ATTENTION
ESTABLISHED 25 YEARS

(Continued on next page.)

---

WHEN YOU BURN OFF A KILN.
First: You use too much fuel.
Second: You waste too much time.
Third: You use too much labor.
You also have trouble with drying as well as other troubles.
Why not reduce a lot of this unnecessary expense by engaging the
in all departments, from chief burner who has had twenty years' experience
Write me full particulars regardiup to superintendent.
an interesting and profitable propositiong your troubles and I will make you
services of an expert for a short time,n. Address,

HACKETT, THE CLAYWORKER,
Good Reference. 319 North Illinois St., Indianapolis, Ind.

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Designing
Constructing
Operating

Producer Gas-Fired
Continuous Kilns and Dryers
Cost and Efficiency Systems

**JAMES P. WILLIAMS**
CLAYWORKING ENGINEER

Resident Address
2803 N. KING'S HIGHWAY
St. Louis

Specializing in
HIGH GRADE FACE BRICK
VITRIFIED PAVERS
and
HOLLOW WARE

---

## WANTED, ETC.

WANTED—DRYER CARS.

100 second-hand dryer cars. Must be in good condition, 24-inch gauge. State best price and location.

STAR CLAY PRODUCTS CO.,
3 1 d San Antonio, Texas.

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WANTED.

Position by a first-class engineer and machinist. Capable of superintending a yard if required. Address

G. A. REPLOGLE,
3 1 c Murphysboro, Ill.

---

WANTED.

Position as manager or superintendent of brick plant. Experienced in all leading clay lines. Employed, but desire change. Best references. Address

BOX 3—BRICKMAKER,
3 1 cm Care Clay-Worker.

---

WANTED.

Experienced moldmaker, molder and burner. Charcoal furnace plant. Good opportunity for right man. No other need apply. Address

BOX 3, A. B. C.,
3 1 cm Care Clay-Worker.

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WANTED.

Position by experienced German kiln builder, with twenty-five years' practical experience, thoroughly efficient in ceramics. E. WURZ,
755 Broadway,
3 3 dm Albany, N. Y.

---

WANTED.

Position as superintendent. Thoroughly experienced in the making, burning and selling of brick, drain tile and hollow ware. Am employed but desire change. Will start with reasonable salary. Good references. Address

BOX 1—Iowa,
1 3 cm Care Clay-Worker.

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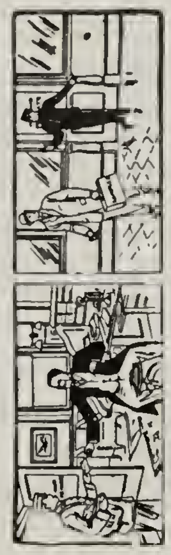
OPEN FOR ENGAGEMENT.

Technical engineer, with 21 years of experience in clayworking; several years' American practice. Efficiency expert and fuel economist; constructor and operator of continuous and other kilns. Have solved most difficult problems in stiff mud and dry press process, and am especially prepared to remodel plants or equip same for a new line of manufacture. Am energetic and ambitious, always sober, and familiar with machinery and all details of manufacture. Let me prove it. Highest references. Address

BOX 11—PERMANENT,
Care Clay-Worker.

## Classified Advertisements.



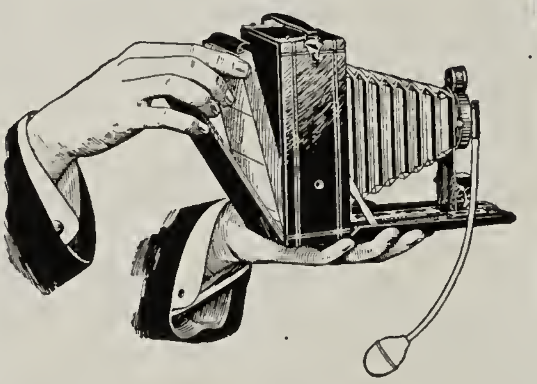
*A man's mail will reach him where no mortal can.*

**Mailing Lists** 99% Guaranteed

covering all classes of business, professions, trades or individuals. Send for our complete catalogue showing national count on 7,000 classifications.

**Ross-Gould** 493 N. 9th St. **St. Louis**

**Open back—drop in pack—close back—that's all you do to load a**



# Film Premo

The smallest, the lightest, the easiest to load and operate of all cameras—and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it today.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

**Rochester Optical Division**
Eastman Kodak Co., Rochester, N. Y.

# MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**

MINERS AND GRINDERS.

## FOR SALE.

Fine Fire Brick Property and Plant at Half Price.

Opportunity knocks at every man's door once. If you want to own a fine Fire Brick Plant making high grade fire brick and flashed face brick, here is YOUR opportunity.

For reasons good and sufficient when all the facts are known, this fine property is offered at less than half its real present value, and it will greatly increase in value as the property is further developed.

The property embraces 900 acres of fire clay, with necessary equipment for mining same. It has many desirable features, including a 30-inch vein of coal of good quality, and good railroad facilities, one line running through the center of the tract.

The clay plant consists of a three-story factory and an equipment of machinery for making fire brick and face brick which will be described in detail to anyone who is interested. There is also on the premises a two-room office building and a boarding house with accommodations for twenty men.

An analysis of the fire clay shows that it is equal to the famous St. Louis Cheltenham fire clay.

The title is clear and it is in every way a most desirable proposition. For analysis of clay and other particulars, address

OPPORTUNITY,
Care The Clay-Worker.

## BARGAIN LIST OF SECOND-HAND MACHINERY, REPAIRED AND READY FOR SHIPMENT.

| | |
|---|---|
| 1 | 150-H.P. Non-Condensing Steam Engine. |
| 2 | 6-H.-P. Upright A B Fan Engines. |
| 15 | 12 to 15-H.P. Various Makes, Slide Valve Steam Engines. |
| 10 | 15 to 35-H.P. Various Makes, Gas Engines. |
| 1 | 54-inch by 16-foot Atlas Boilers. |
| 2 | 36x15 A B Ventilating Fans. |
| 1 | 24x12 Pressure Blower. |
| 1 | No. 7 Sturtevant Blower. |
| 2 | C. & A. Potts Soft Mud Brick Machines. |
| 1 | Ross-Keller Four-Mould Dry Press Brick Machine. |
| 1 | Penfield Six-Mould Dry Press Brick Machine. |
| 1 | Raymond Automatic Cutter. |
| 1 | Hummer, Jr., Fates Brick & Tile Machine, with Full Set of building Block Dies. |
| 1 | 100,000 Arbuckle Horizontal Pug Mill. |
| 1 | 100,000 Michigan Horizontal Pug Mill. |
| 2 | Second-hand Rust Clay Feeders. |
| 1 | 20,000 Kells Brick Machine and Cutter. |
| 1 | 25,000 Disintegrator. |
| 1 | Bechtel's Automatic Side Cutter. |

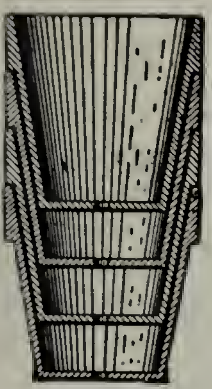
## NEW MACHINERY AT SPECIAL PRICES.

| | |
|---|---|
| 1 | 100,000 Stiff Mud Brick Machine. |
| 1 | 30,000 Stiff Mud Brick Machine. |
| 1 | 20,000 Stiff Mud Brick Machine. |
| 1 | 25,000 Disintegrator. |
| 1 | 50,000 Disintegrator. |
| 1 | 100,000 Disintegrator. |
| 400 | New Brick and Tile Barrows. |
| 10 | New Spring Trucks Complete. |
| 2 | Bechtel's Automatic End Cut Brick Cutters. |
| 1 | Iron Frame Winding Drum. |
| 1 | Wood Frame Winding Drum. |
| 1 | 10-foot Clay Elevator. |

Above machinery offered subject to prior sale at reduced prices.

**MARION MACHINE, FOUNDRY & SUPPLY CO.**
**Box 156 Marion, Indiana**

Mention THE CLAY-WORKER
When writing to Advertisers,
Mention THE CLAY-WORKER



**Make Money**

WITH THE ONLY SUCCESSFUL

**Flower Pot Machine**

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

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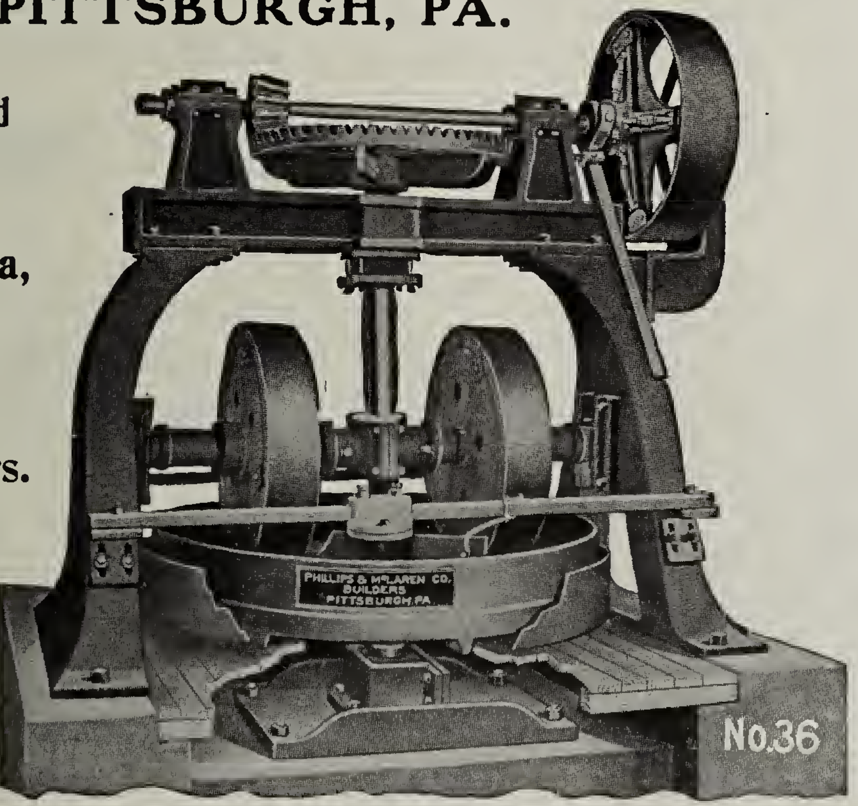

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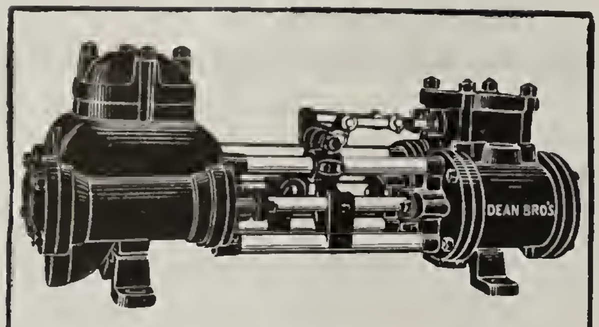

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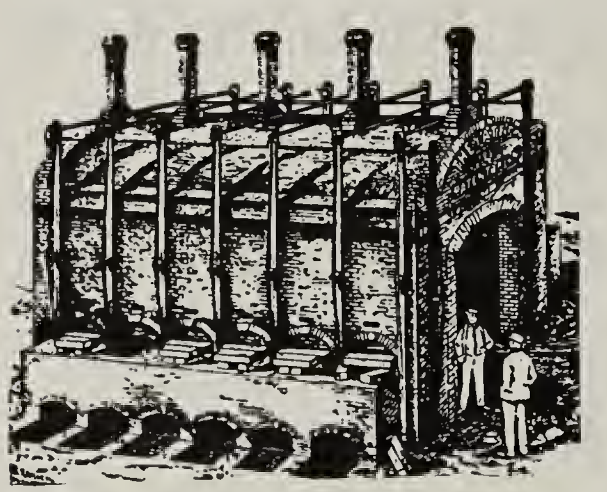

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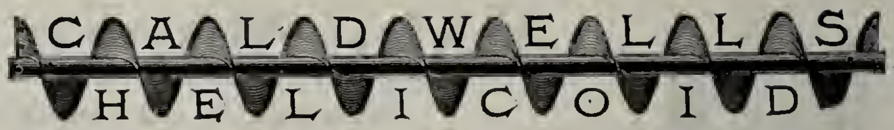

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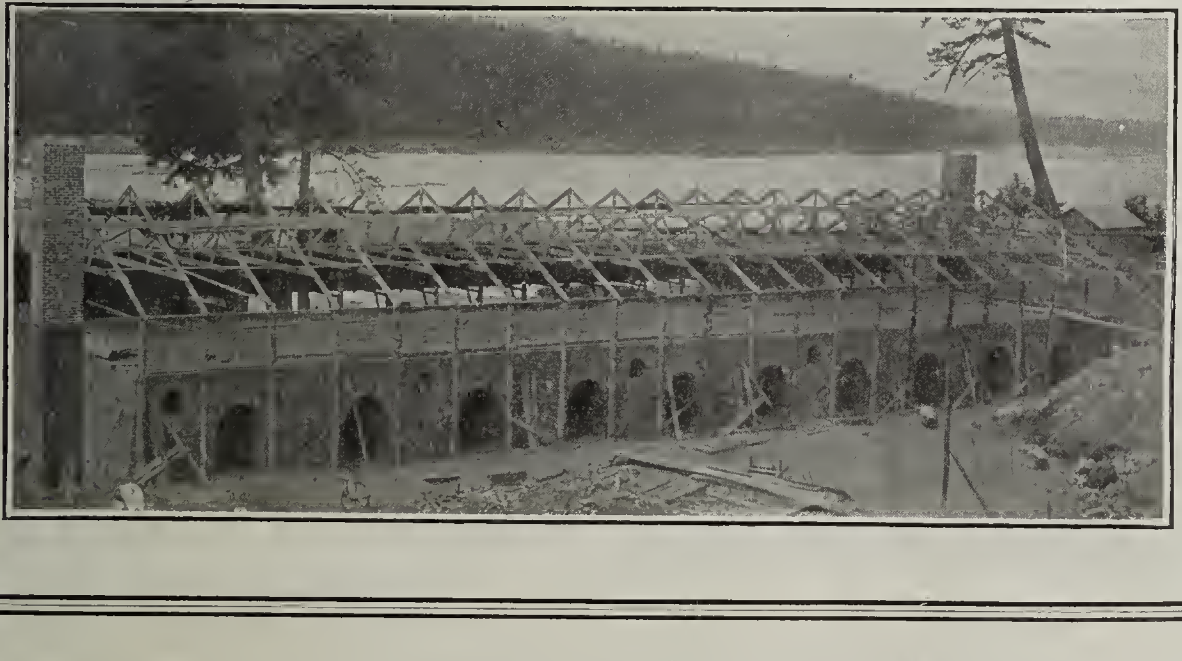

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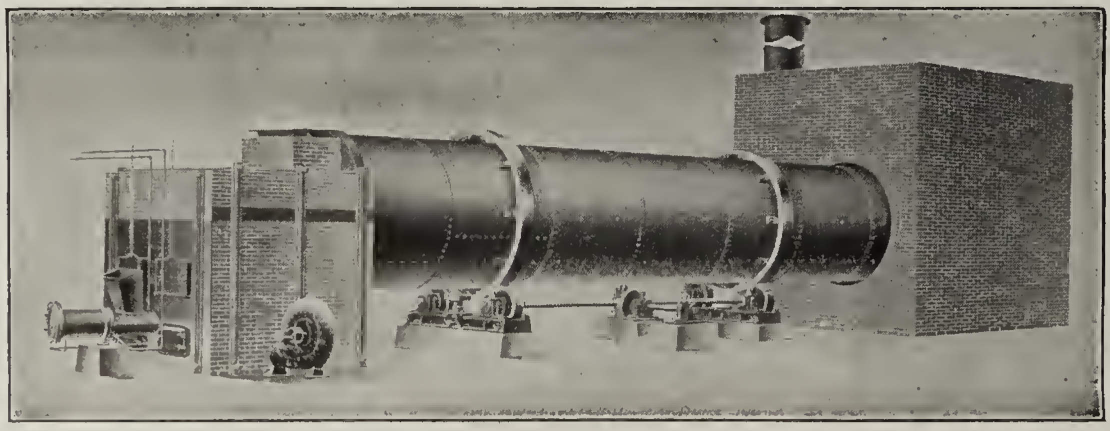

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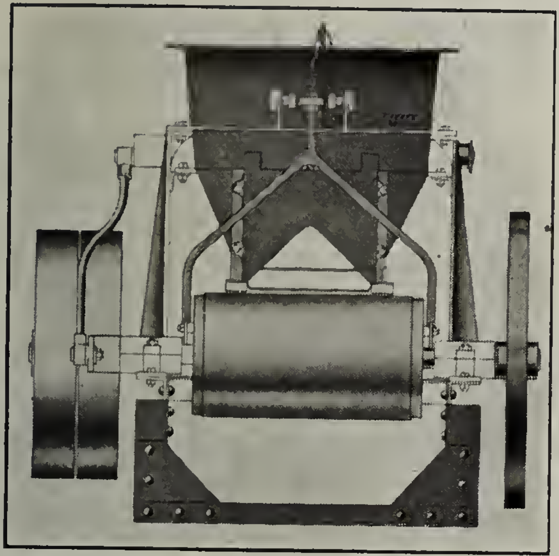

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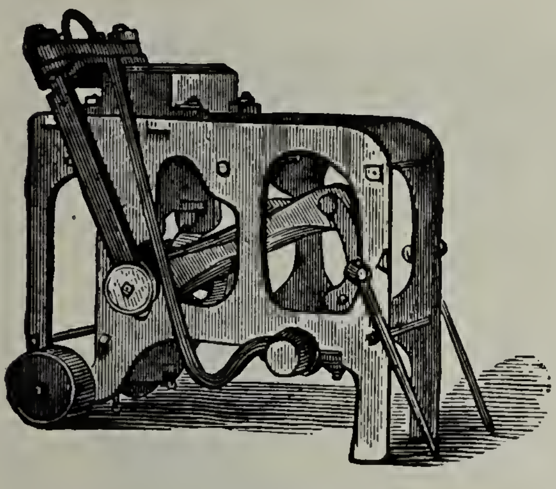

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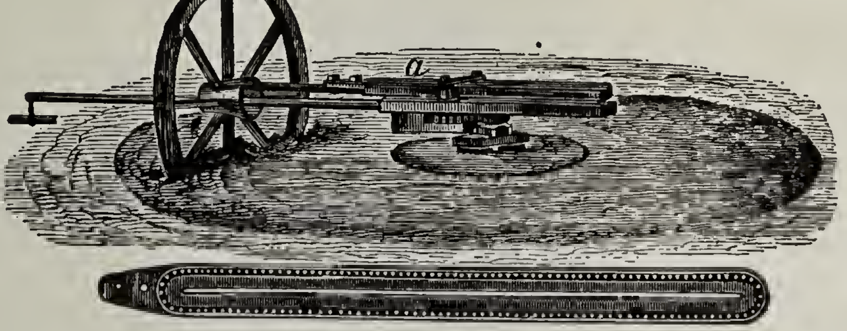

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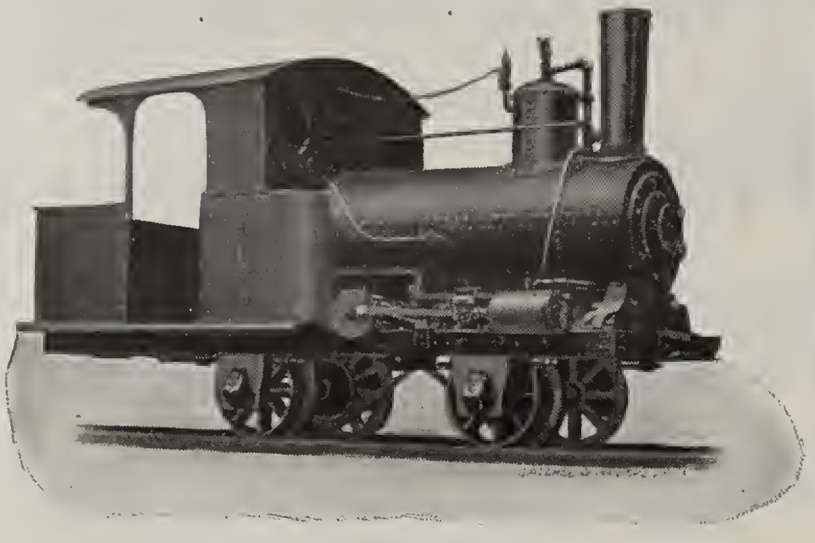

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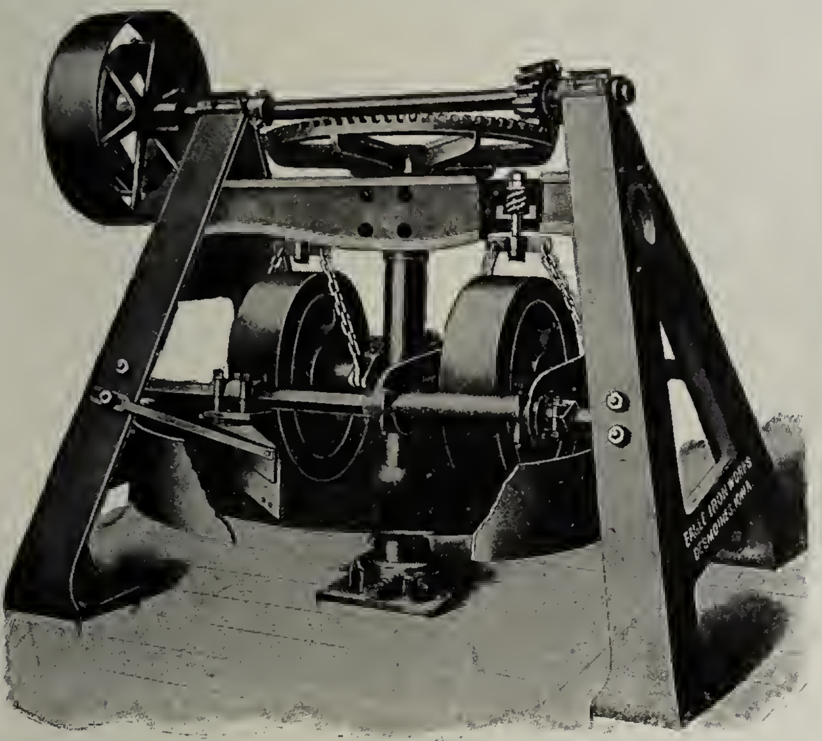

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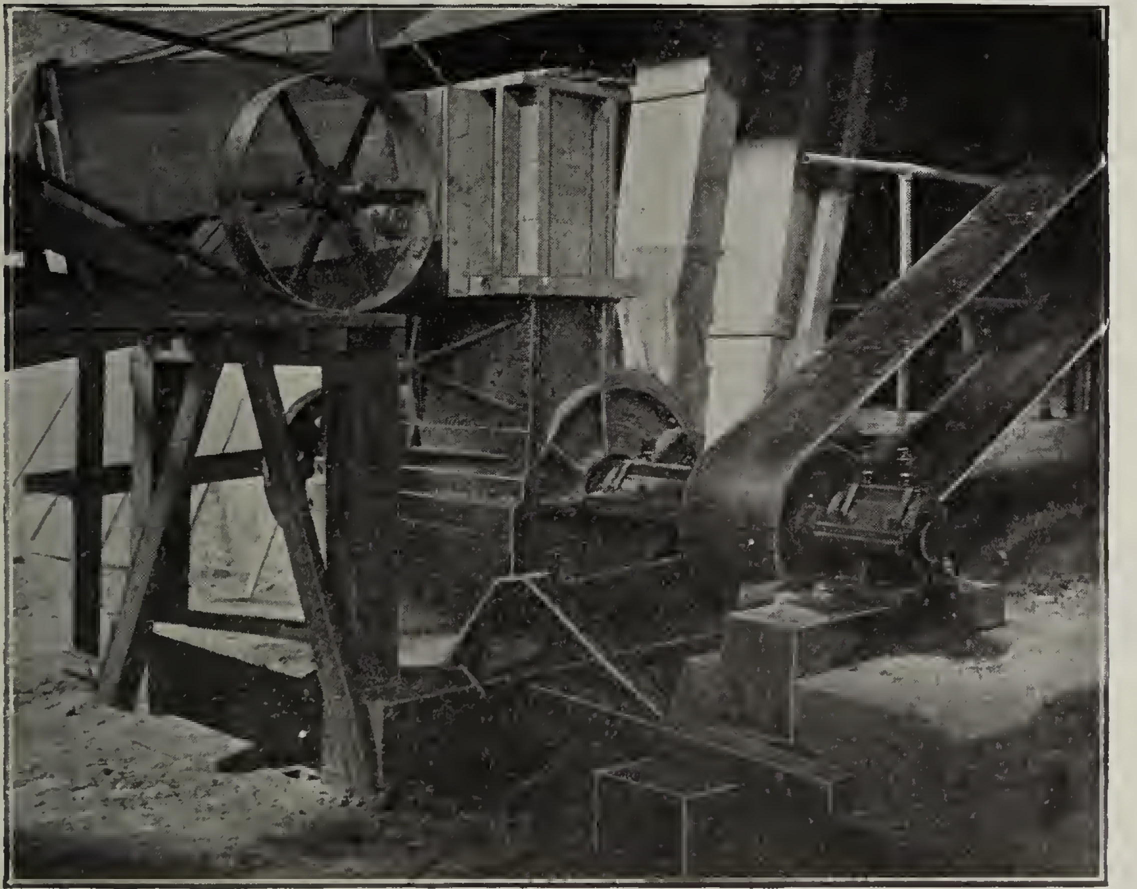

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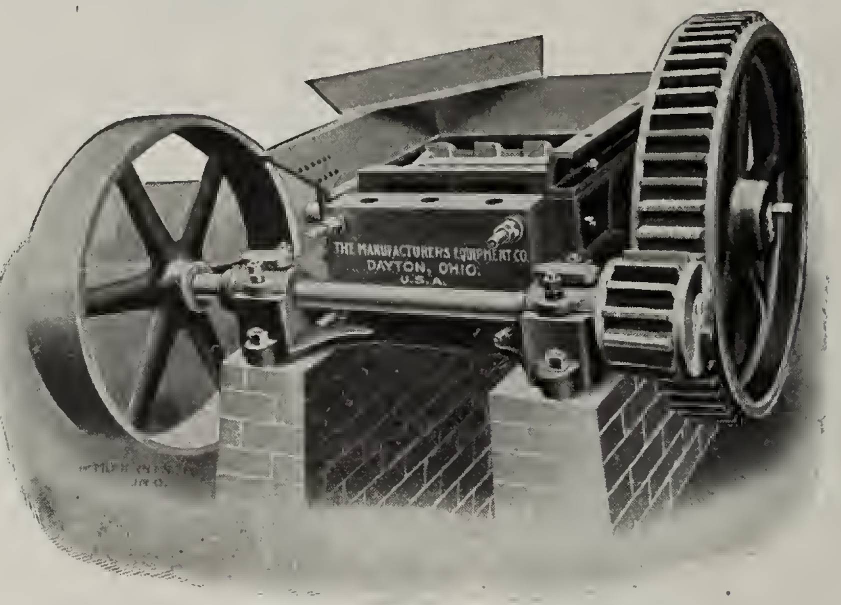

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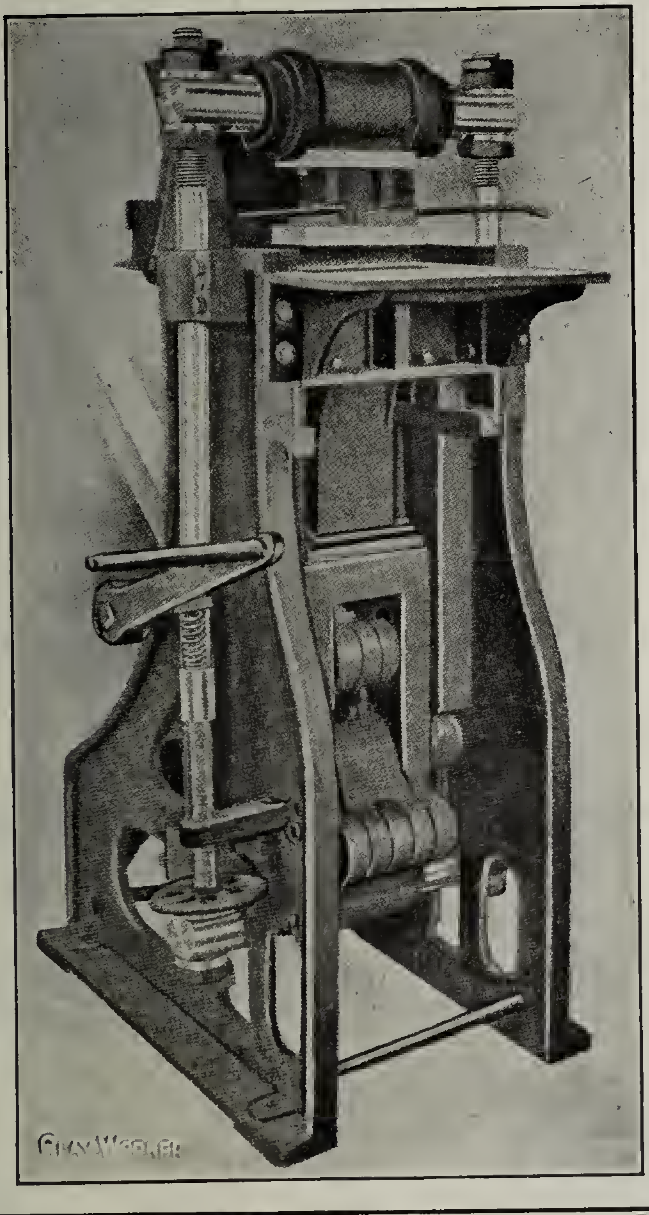

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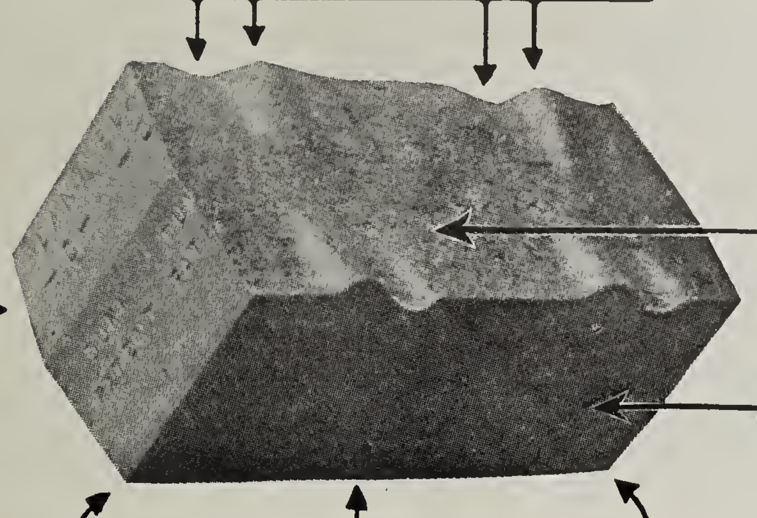

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Bessemer Limestone Co..Youngstown, Ohio
Three Plants at Bessemer, Pa.
Peebles Paving Brick Co..Portsmouth, Ohio
Two Plants at Portsmouth, Ohio, and One at Firebrick, Ky.
Murphysboro Paving Brick Co.......................Murphysboro, Ill.
Southern Clay Mfg. Co..Chattanooga, Tenn.
Plants at Robbins, Tenn., and Coaldale, Ala.
McAvoy Vitrified Brick Co.........................Philadelphia, Pa.
Plants at Perkiomen Junction, Pa.

Windsor Brick Co..............Akron, Ohio
Hocking Valley Brick Co....Columbus, Ohio
Plant at Logan, Ohio.
Veedersburg Paver Co.....Veedersburg, Ind.
Springfield Paving Brick Co..Springfield, Ill.
Terre Haute Vitrified Brick Co.........................Terre Haute, Ind.
Albion Vitrified Brick Co........Albion, Ill.
Alliance Clay Product Co.....Alliance, Ohio
Westport Paving Brick Co...Baltimore, Md.
Mack Manufacturing Co.................................New Cumberland, W. Va.
Four Plants at New Cumberland, W. Va.
Hydraulic-Press Brick Co.....St. Louis, Mo.

# The New Way

IT IS NOT THE PLAN of a city nor the plan of the farm, but instead it is a combination of the two. It provides a place for a home that will support you instead of you supporting the home. It provides for a *small* amount of ground to produce a *large* amount of INCOME. That's why it is THE NEW WAY. That's why it is named

INCOME PARK,

A WINTER RESORT AND PERMANENT HOME COMMUNITY on the Gulf Coast, a community devoted to the cultivation of Figs, Oranges, Grapefruit, Pecans and such other fruits and vegetables as the individual fancy may direct. The plans of this NEW WAY community are comprehensive and provide for co-operative marketing and buying, for pleasure grounds, for boating, bathing and fishing, for telephone, light, water, transportation and other conveniences.

THE NATURAL ADVANTAGES and conditions include good soil, excellent water, splendid drainage, abundant rainfall, delightful climate, and freedom from floods.

THE AVERAGE MONTHLY TEMPERATURES for the past thirty-five to forty years range from 50 degrees for January to 81 degrees for July and August. The rainfall for the same period averages 62 inches. We know of no other place in this or any other country where there are brought together by nature so many of the things that man requires and enjoys. The Gulf waters afford an abundance of the finest oysters, red snapper, pompano, sheepshead, flounder and other sea foods, and the small streams furnish bass and other fresh-water fish. The soil produces practically every known vegetable, citrus fruits and a large variety of other fruits and nuts.

TO TAKE ADVANTAGE of these conditions is your privilege, and to share in the profits of the development of this property is your opportunity. Let us show YOU:

HOW, as an investment, to be sure of a big profit.

HOW to own a WINTER HOME on the Gulf Coast at a profit instead of an expense.

HOW to own a PERMANENT HOME on the Gulf Coast, with an income of more than you are now earning.

HOW to provide a competency for old age.

**MOBILE BEACH & LAND COMPANY**
**State Life Building**
**Indianapolis, Indiana**

Mention The Clay-Worker.

# Another Plant Using

# BROWN PYROMETERS

**Recording Instruments in Office**

**View of Kilns**

**Indicating Instruments in Burner's House**

The Metropolitan Paving Brick Company, Canton, Ohio, has equipped their Imperial plant with Brown High Resistance Pyrometers. Indicating instruments inform the burner of the exact temperature at each end of the fifteen rectangular kilns, while recording instruments in the superintendent's office make a record of the temperature day and night. Brown Pyrometers are making good at hundreds of plants, and the list is constantly growing. Why not give them a chance at yours?

Our 64-page catalog for the asking.

**The Brown Instrument Co., Philadelphia, Pa.**

**Established 1860**

**New York** **Pittsburgh** **Chicago**

# "A Man With a Message"---

## For the Brick Man

By this title was Floyd E. Waite heralded after his address at the joint convention of Face Brick Manufacturers and Dealers, held at French Lick December 8, 9 and 10, 1914.

Mr. Waite did not appear to the Clayworkers as a "wrecker," but as a "Builder." His talk was constructive.

Not only were the weaknesses and the mistakes in the business of promoting fire-resisting materials pointed out—a remedy was offered. And it is a perfectly practical, within-your-reach remedy, too.

A printed copy of this address FREE if you write for it. Read this vital message. It's YOUR business.

SAFE

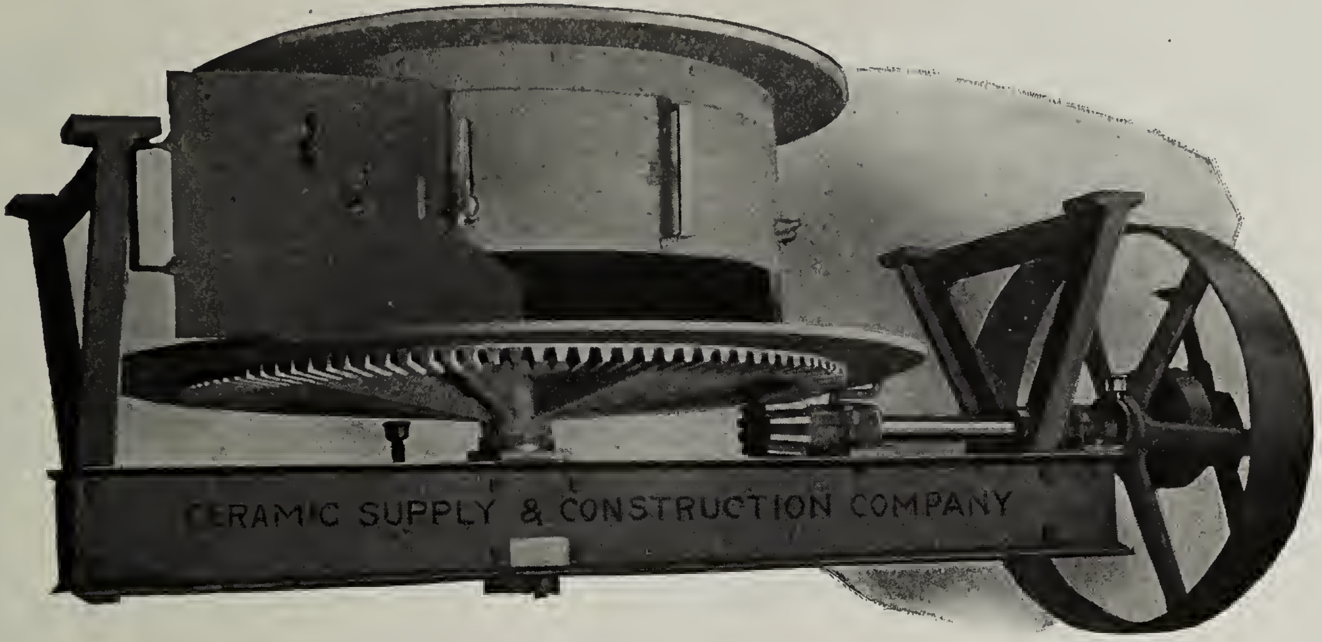
PROTECT YOUR HOME

**Society Advocating Fire Elimination**

**R. P. Stoddard, Secretary**

**340 Leader-News Building CLEVELAND, OHIO**

# BOLT IT TO THE BIN!



No auxiliary machine on the brick plant yields such LARGE RETURNS ON THE INVESTMENT as the COLUMBUS FEEDER.

We were the first to introduce this type of feeder in America, and MORE OF OUR FEEDERS are in operation in this country THAN ALL OTHER DISC FEEDERS COMBINED.

Our improved design is the most practical and universally applicable of any dry clay feeder on the market. IT EMBODIES THE RESULT OF YEARS OF EXPERIENCE in feeding clay by our MR. W. D. RICHARDSON, who operates five of these feeders at the plants of which he has charge.

Write for descriptive circular and list of satisfied users.

**The Ceramic Supply & Construction Co.**
**Columbus, Ohio**

*ANNOUNCEMENT*

# THE NEW POTTS

## Horizontal Soft Mud and Fire Brick Machine

The most powerful Soft Mud and Fire Brick Machine on the market.
Weighing 2,000 pounds more than our Standard Horizontal Machine.
Requiring less horse power to operate.
Steel and semi-steel CUT GEARS.
Large DROP FORGED Crank Shaft.
Front of Machine Steel Lined where large Feed Wings work.
Larger Boxes and Bearings.
Larger Push-Out and Press Shaft.
Legs and the entire Front and Rear of Machine Heavier.
Press will take in Brick up to Six Inches Thick.
No Noise or Grinding of Gears.
Machine Manufactured from the Best of Material throughout.
This Machine like our Standard Horizontal Machine is simple in construction and simple to operate.

**Write us for full Information**

**If its used on a Brickyard**

**C. & A. Potts & Co.**

**Potts has it.**

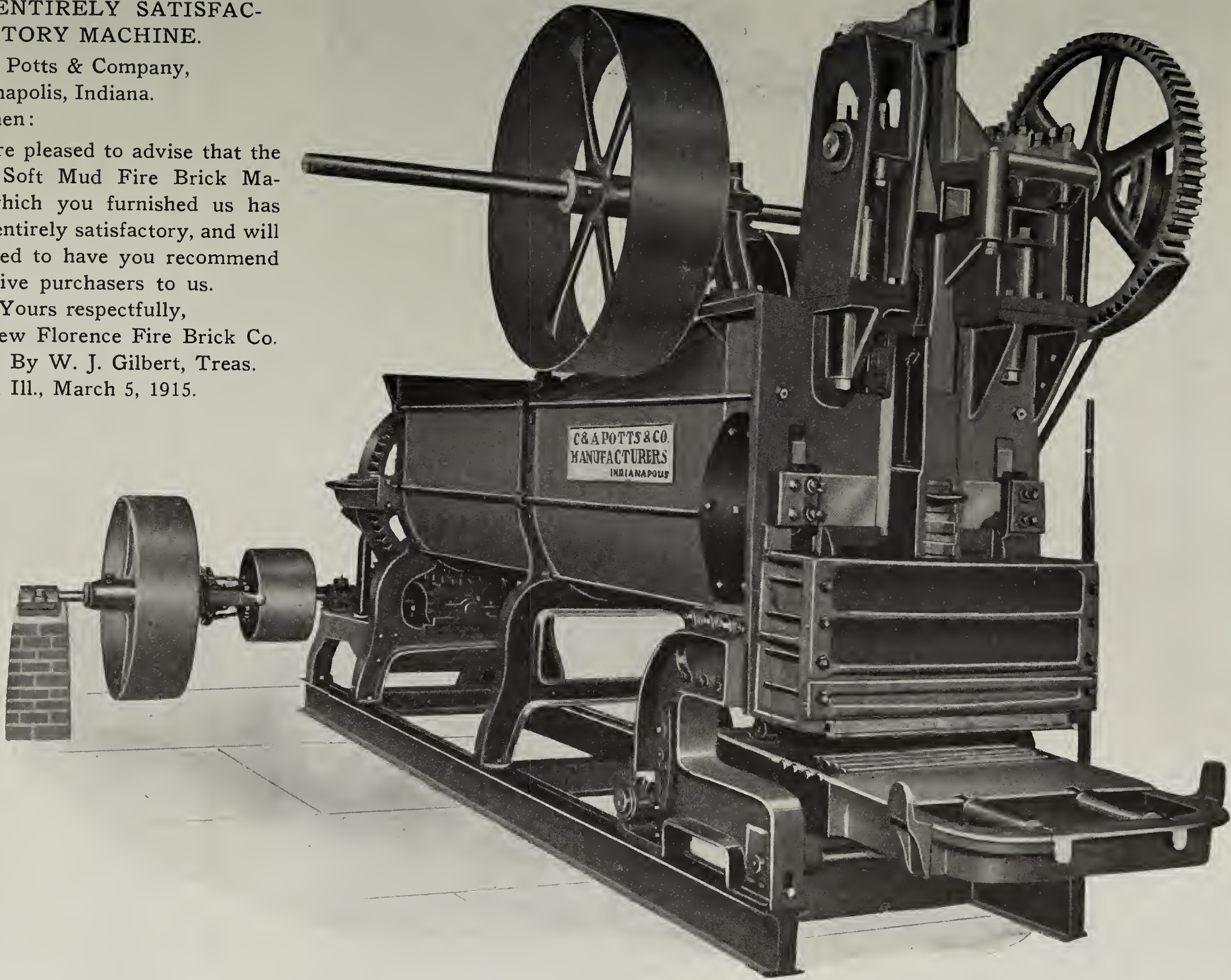
**Manufacturers——Indianapolis, Indiana**

## AN ENTIRELY SATISFACTORY MACHINE.

C. & A. Potts & Company,
Indianapolis, Indiana.
Gentlemen:

We are pleased to advise that the Special Soft Mud Fire Brick Machine which you furnished us has proven entirely satisfactory, and will be pleased to have you recommend prospective purchasers to us.

Yours respectfully,
New Florence Fire Brick Co.
By W. J. Gilbert, Treas.
Chicago, Ill., March 5, 1915.

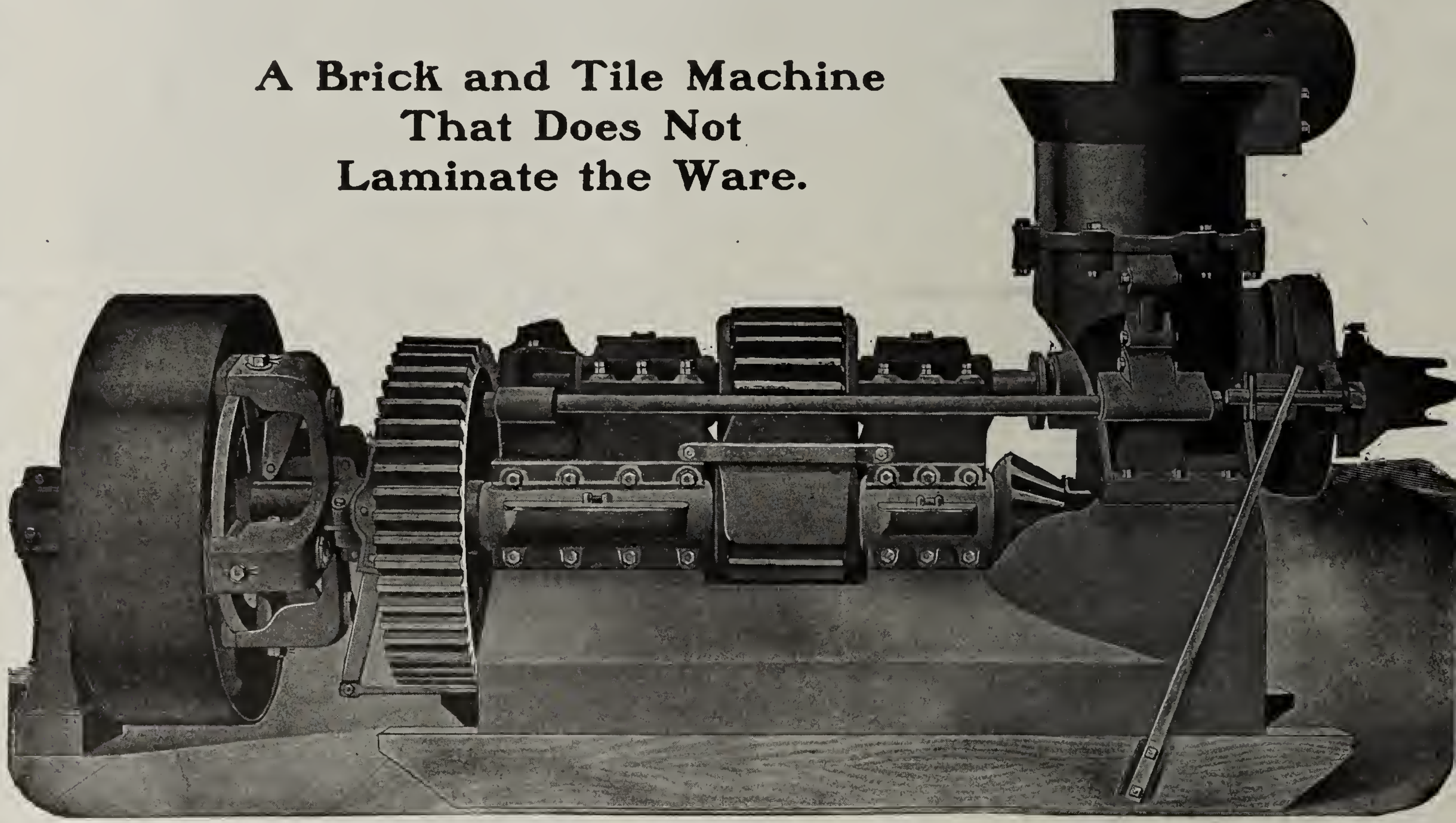


TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

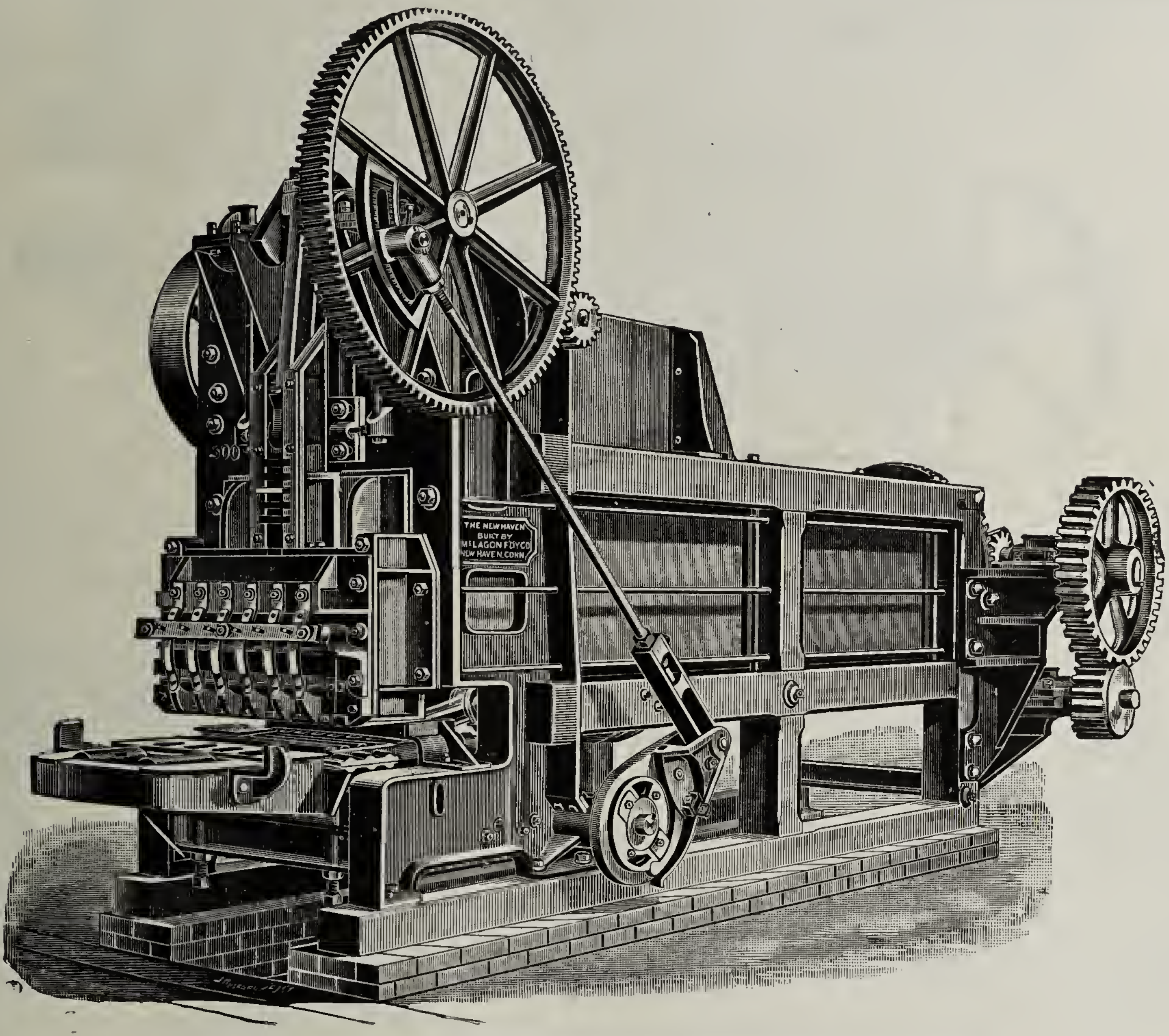
*Write for Catalog and Prices.*

THE WALLACE MFG. CO.
FRANKFORT, IND.

# Endurance the Crowning Quality

***The "New Haven" Horizontal Brick Machine is the Strongest Soft Clay Brick Machine in the World.***

It is adapted to work any clay and is suitable for any yard, large or small, that uses steam for motive power. The brick made on it are solid and square, having smooth surfaces and sharp corners. For ***Quantity and Quality*** of production we challenge comparison with any machine built. The capacity of the machine is really limited only to the facilities for handling the brick as they are made.



"NEW HAVEN" HORIZONTAL BRICK MACHINE.

We will be pleased to submit estimates for a complete plant or any portion of one. We can furnish machinery of the most modern and approved construction for soft mud plants of any capacity at reasonable prices. Shafting, hangers, bearings, pulleys, gearing and machine work of all description.

## The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

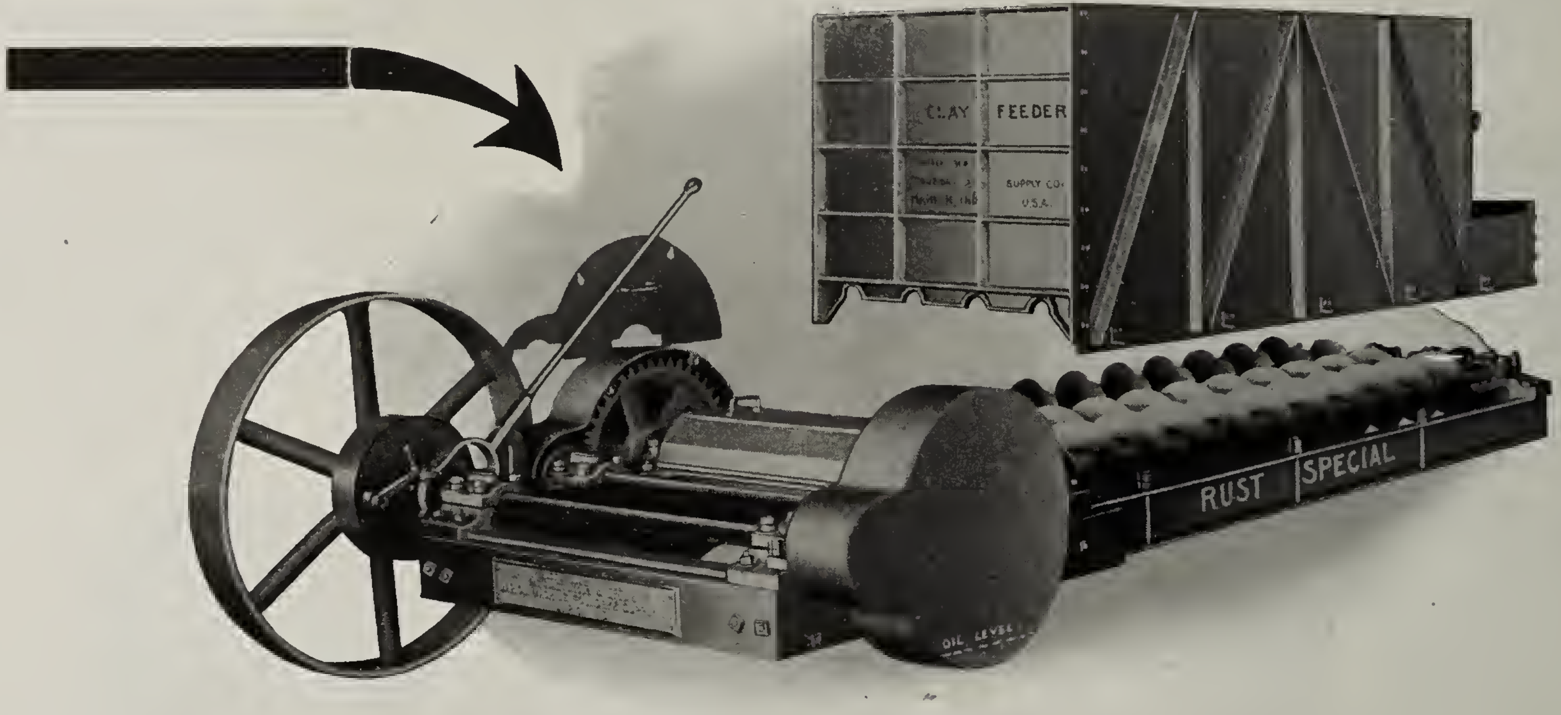
"Father," said a young man one day, "I am worried, so many manufacturers are copying our designs."

The old man smiled. "It will be time to begin worrying, my son, when they stop copying them."

The Rust Clay Feeder and Mixer has been on the market for over ten years, and is manufactured under original Rust Patents. Has been copied and recopied many times, but NEVER equaled.

**Now we again take a few steps forward and announce**

# The New Rust
# SPECIAL CLAY FEEDER AND MIXER



**There is No Exposed Gearing——in the New Rust Special Clay Feeder**

Every cog—every pinion is covered up. No dirt—no grime can get in to cut and wear the parts. Careless fingers and passing blouses cannot become entangled to cripple valuable employes and to pave the way for expensive damage suits.

**Every Gear Runs in Oil**

Lubricants prevent friction—and increase efficiency of any machine, but the slightest particle of grit or grime undoes all the good the best lubricant can do. Each gear being housed and running in a well of oil, free from grit, insures perfect lubrication.

**And Then—the Rust Saves the Labor of TWO MEN**

But the one great interest-compelling feature about the Rust Special is that it actually cuts out the labor of two men—Figure it yourself—see what this means to your profit box in a year.

If you pay $2.25 per day to your hand-feeders at the pug-mill, and if you require two men to do this work—and there are 300 working days in a year and your plant runs a full year—doesn't that foot up a saving of $1,350?

The Rust therefore, pays for itself before the first year is ended and every year you have a clear profit of 1,000 dollars.

Besides, there is the even-tempering of your clay—and the regular feeding which speeds up your entire plant.

**Send for FREE Book Giving Facts and Figures**

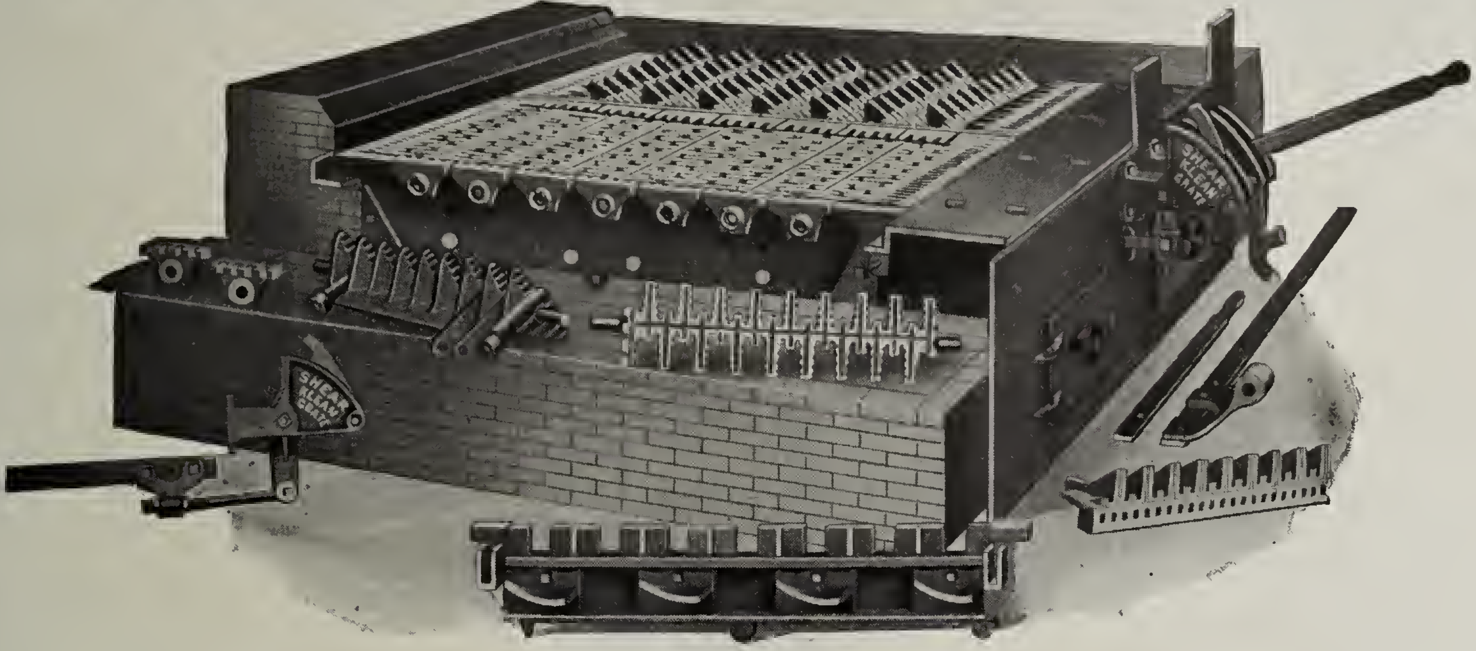
We have prepared a booklet that describes the Rust Clay Feeders—it gives all the information you will want to know about the Rust, and further produces PROOF of all our claims for clayworkers who have used the Rust.

**Marion Machine, Foundry & Supply Co., Marion, Indiana**

**P. O. Box 156**

# The "Shear Klean" Grate

## Saves Fuel---Saves Waste--Eliminates All Clinkers



This grate is especially adapted for burning low-grade "clinkering" coal, especially slack or screenings—and it burns them so effectually that it makes them give a full day's run, without cleaning through the fire doors.

Its working principle is such that the fireman can handle and control his fires WITHOUT THE USE OF SLICE BAR OR POKER.

At plants using the SHEAR-KLEAN there is no inrush of cold air to chill the walls and fire-bed—interrupt the distillation of gases, and reduce the temperature of the furnace.

You know as well as we, that OPEN FIRE DOORS CAUSE LEAKY FLUES—producing smoke, waste heat, and lower steam pressure. The SHEAR-KLEAN prevents these wastes.

## You Need This Wire Twister Because You Can Not Get the Same Results Without It

**PRICE ONLY**
**$5.00 NET**

It twists both wires and the wire will break before the loop will pull out.

Heretofore we have confined the sale of our Wire Twister, as far as we could, to users of our Clayworking Machinery.

It has proven so handy, however, that we have determined to throw it unreservedly on the market.

Will ship anywhere on approval, charges prepaid,

Not only twists the wire better, making the loop stronger than when done by hand, but does it so quickly, it soon pays for itself in TIME alone. Place your order for one now.

## The Marion Rotary Soot Blower

### Prolongs Life of Your Boiler

The Marion Flue Blower is a permanent fixture in the rear wall of the boiler opposite center of flue space and by its use the life of a boiler is prolonged by keeping the soot from the tubes.

Soot, if permitted to remain on the tubes, precipitates acid, causing corrorosion, and the accumulation of soot causes a great loss of fuel.

We have so much confidence in the Marion Flue Blower we are willing to ship it anywhere on a 30-day Free Trial. If it fails to do all we claim for it, ship it back and we will refuud freight charges.

With the Marion Flue Blower the soot is blown in direction of the natural draft out through the chimney, cleaning the boiler while in commission, thereby avoiding strains which occur in old method of opening front of boiler, causing flues and seams to leak.

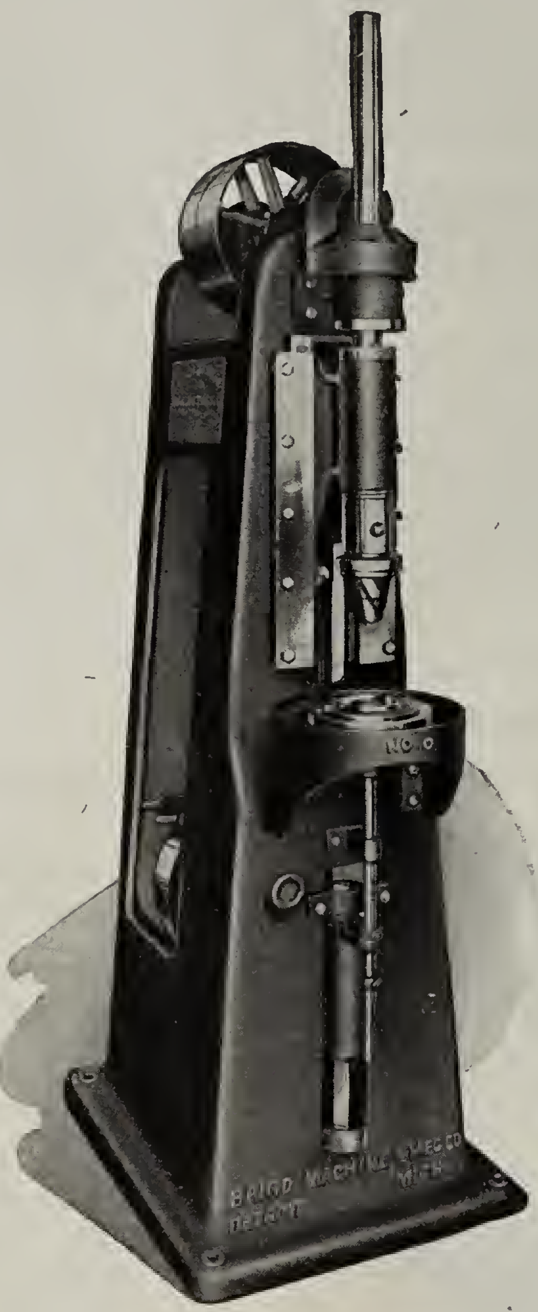
**Please send for our new 56-page book entitled "EFFICIENCY."**
**It will be worth reading. It is FREE.**

## Marion Machine, Foundry & Supply Co., Marion, Indiana

Chicago Office, Monadnock Bldg. P. O. Box 156

# Baird Pottery Molding Machine

New Size No. 0



The machine
is a hummer
when it comes
to making
small pieces
up to 3 in. x 3 in.

We also make
a number of
other sizes
with capacity
up to
12 in. x 12 in.

**We Guarantee Service.**

Correspondence solicited.

## Baird Machine & Mfg. Co.

34-36 Jefferson Avenue
Detroit, Mich.

# The Verdict–Guilty!

We have been accused, after having placed the Powell Patented Shale and Clay Planer on the market for over one year, of giving the Clayworking Industry, one of the greatest helps that it has ever had, the ARBUCKLE up-to-date line of Paving Block, Stiff Mud Brick and Hollow Ware Machinery, as well as supplies of all kinds for the clayworker, not being excepted.

The Patented Shale and Clay Planer reduces the pit gang like a German 42 centimeter gun would reduce a Belgium fort. That is, it leaves only one man who is necessary to operate the machine.

It also reduces the number of Dry Pans ½ to ⅔.

It saves all explosives.

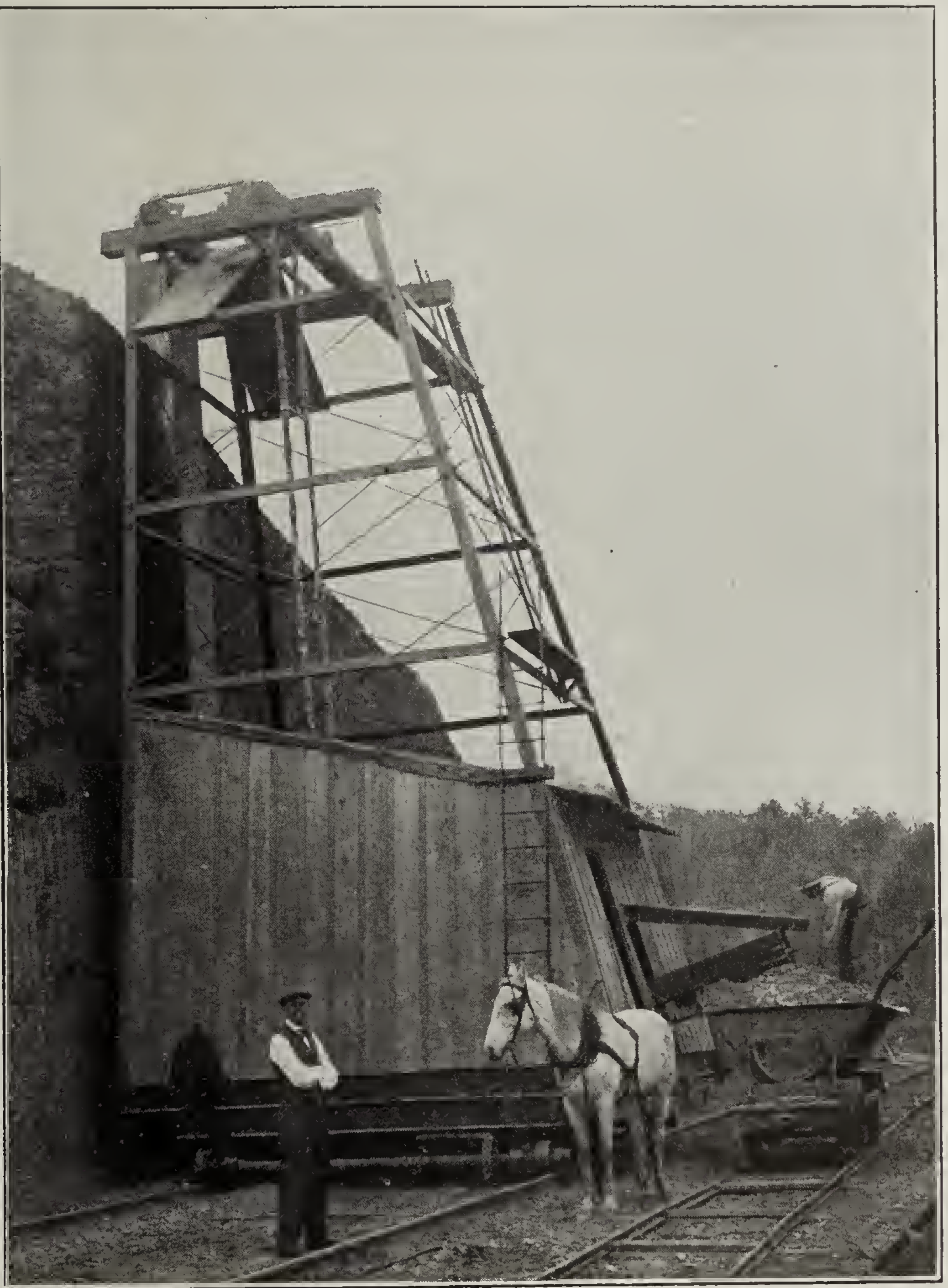
**Above all,** it gives a thorough mixture of the Bank face, cut up into fine pieces.

No Labor Troubles with the Shale and Clay Planer, which is ready to work at any season of the year.

Built in sizes to handle your proposition from a two-foot surface clay bank to a hard shale bank 100 feet high.

When writing state approximate height of bank and also composition of same.

**KNOW THE ARBUCKLE FIRST**



## ARBUCKLE & COMPANY

Exclusive Manufacturers

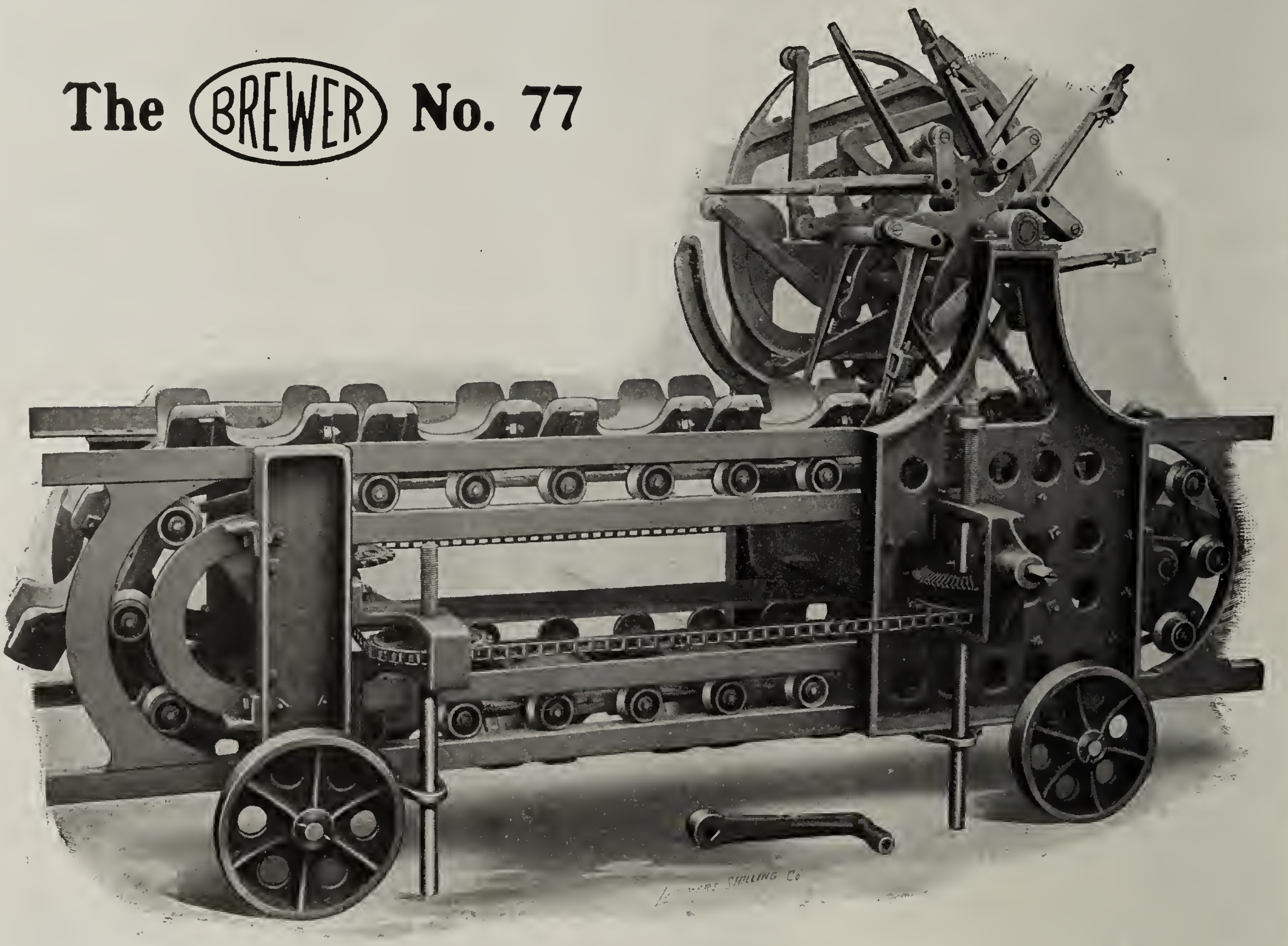
RUSHVILLE, INDIANA = = U. S. A.

Infringements will be promptly and vigorously prosecuted.

IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD IF MARKED BREWER IT'S GOOD

# Automatic Drain Tile Cutters

## The BREWER No. 77



## ADVANTAGES

No guide arms connected with the moving chain of carriers which interfere with the rapid removal of the ware.

Quick elevating and lowering device for adjusting height when changing sizes.

Mounted on wheels, easily moved to and from its position in front of the machine.

Cutting reel and chain of carriers geared together==cannot get out of time.

Wear confined to parts easily replaced.

A HIGH GRADE MACHINE IN DESIGN, CONSTRUCTION AND RESULTS.

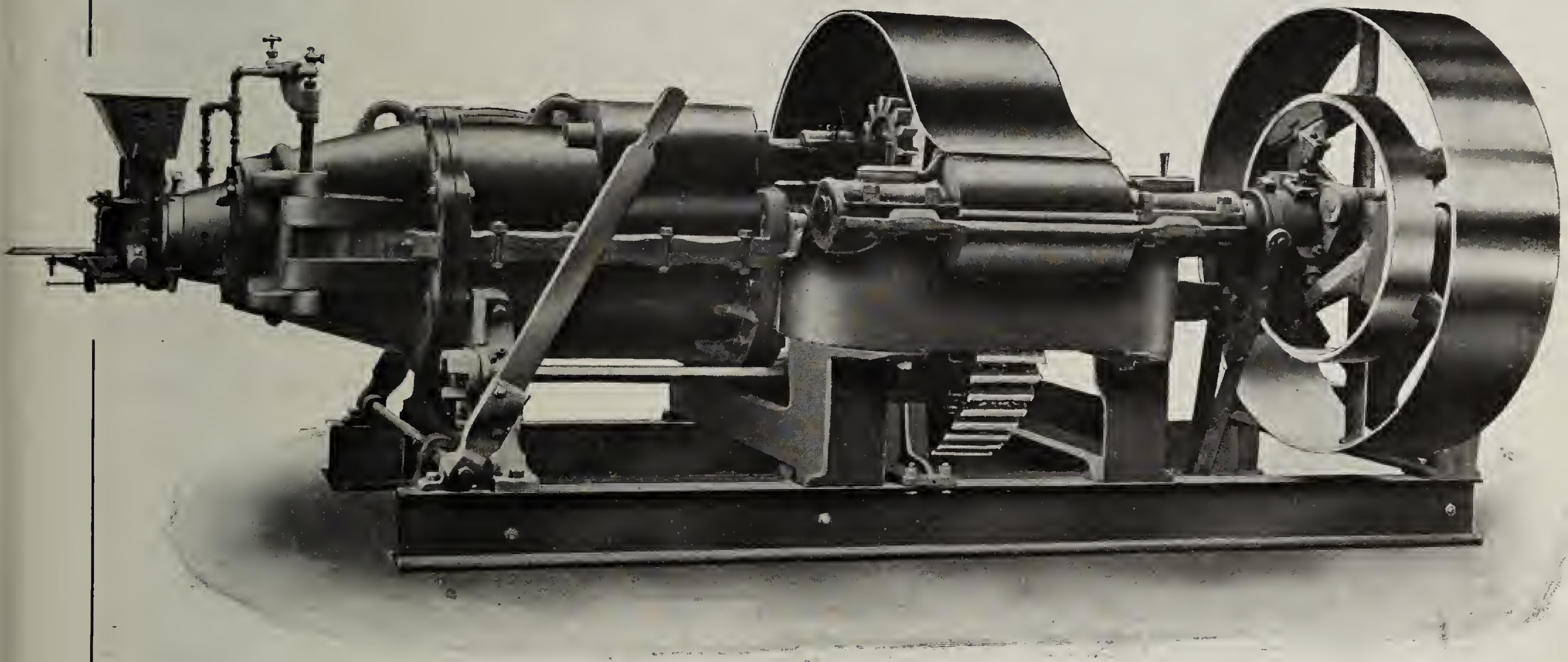
**H. BREWER & COMPANY, Tecumseh, Mich.**

# Steele No. 4 Brick Machine

One Brick Machine may look as good as another, may be built first-class mechanically and of ample weight, and still prove a disappointment.

It is the hidden effort and experience back of the Steele Machinery which gives the results.

A proper relation of parts makes the difference between the finished and easy output of the Steele Machinery and the labored efforts of improperly designed machinery.



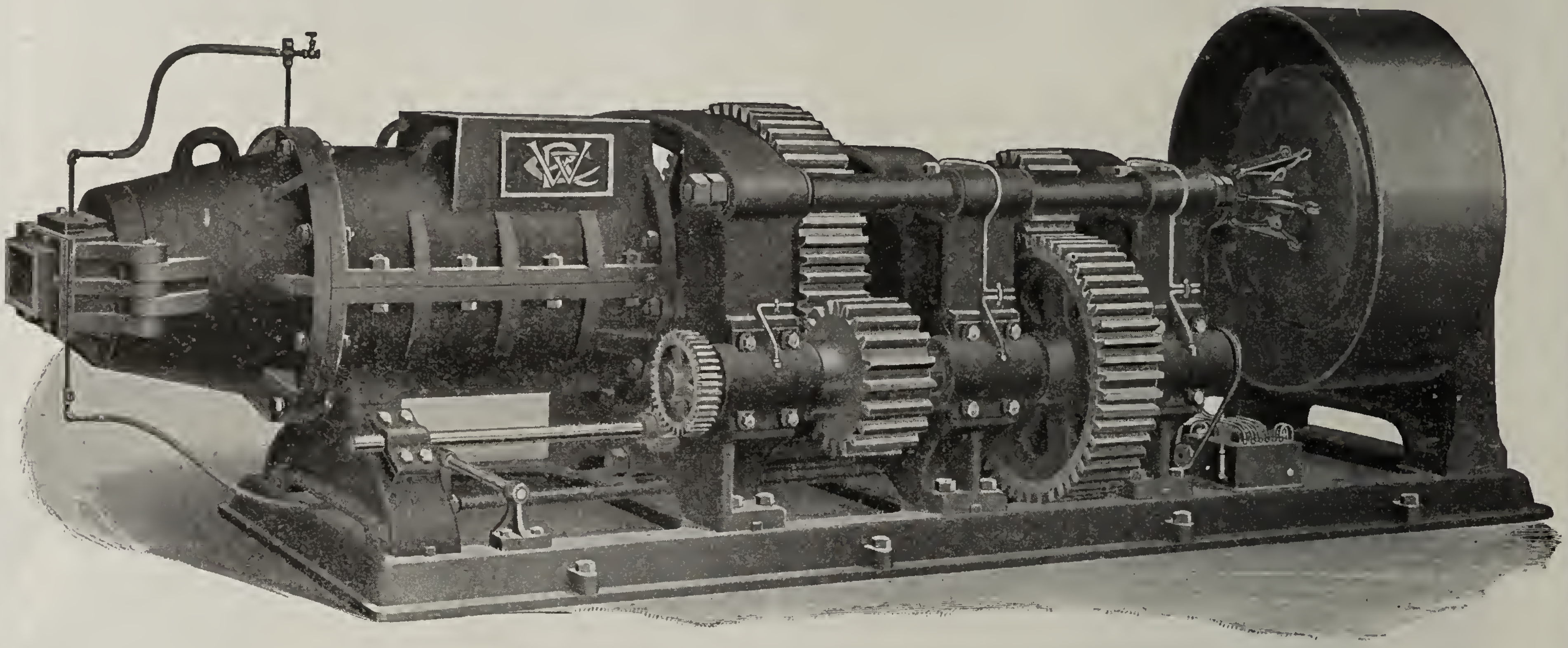
**No. 4. 35,000 to 50,000 per day**

A direct geared machine with large gear, which is required to give the leverage, reduce the tooth load and the bearing strain. We were leaders in direct gearing for large machines.

**J. C. STEELE & SONS**

STATESVILLE, N. C.

STRENGTH + SMOOTH ACTION



**THE RAYMOND "CWR" BRICK MACHINE**

It has been said that the ocean is at the same time the most powerful and smoothest acting element. This statement may also apply very nicely to our own "CWR" Brick Machine. You know the strength is there by looking at its massive construction and you will know that the action is as free from vibration and jerks as the briny deep on a clear, balmy day. The handy oiling system keeps it running smoothly at all times. These remarkable features plus the maximum output, longevity, and Raymond dependability, should settle the brick machine question for you. Plant your faith and money in this machine and you will reap a rich harvest. Drop us a card Now.

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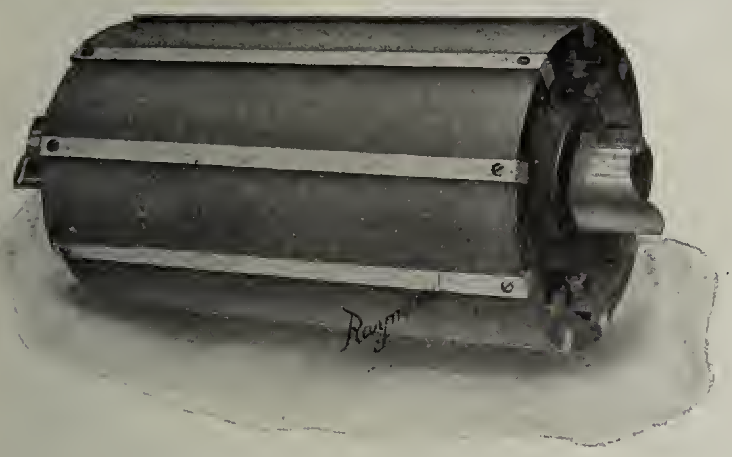
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

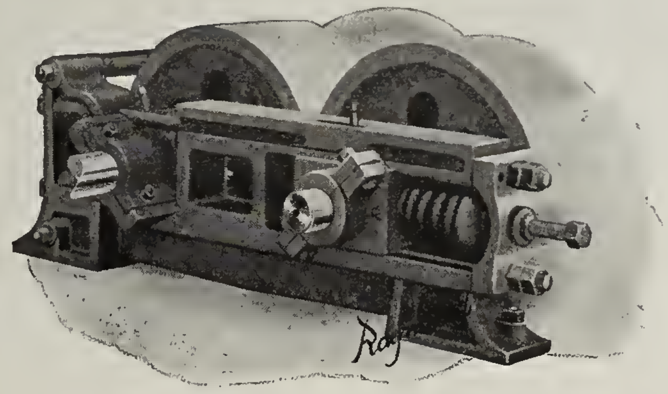
**Dayton Ohio U. S. A.**

# SPARES



ADJUSTABLE KNIFE ROLL

The time of the year is coming when many brickmakers will reopen their plants after the winter's inactivity. It will be necessary in many cases to replace some worn or rusted parts. We have now, as always, a reserve supply of spare parts and can assure prompt deliveries.



FRAME CONSTRUCTION

Perhaps the knives in your disintegrator are worn and cannot do their work efficiently. Let us know and we can send new ones at once.

Our duplicate parts are all made from the same pattern and template that measured the original—thus a spare part from us will do its work properly, is of the proper material and will stand up as long as the original and longer.

JOURNAL BEARING

Be sure and notify us if you find yourself in need of any part of any of our machines.

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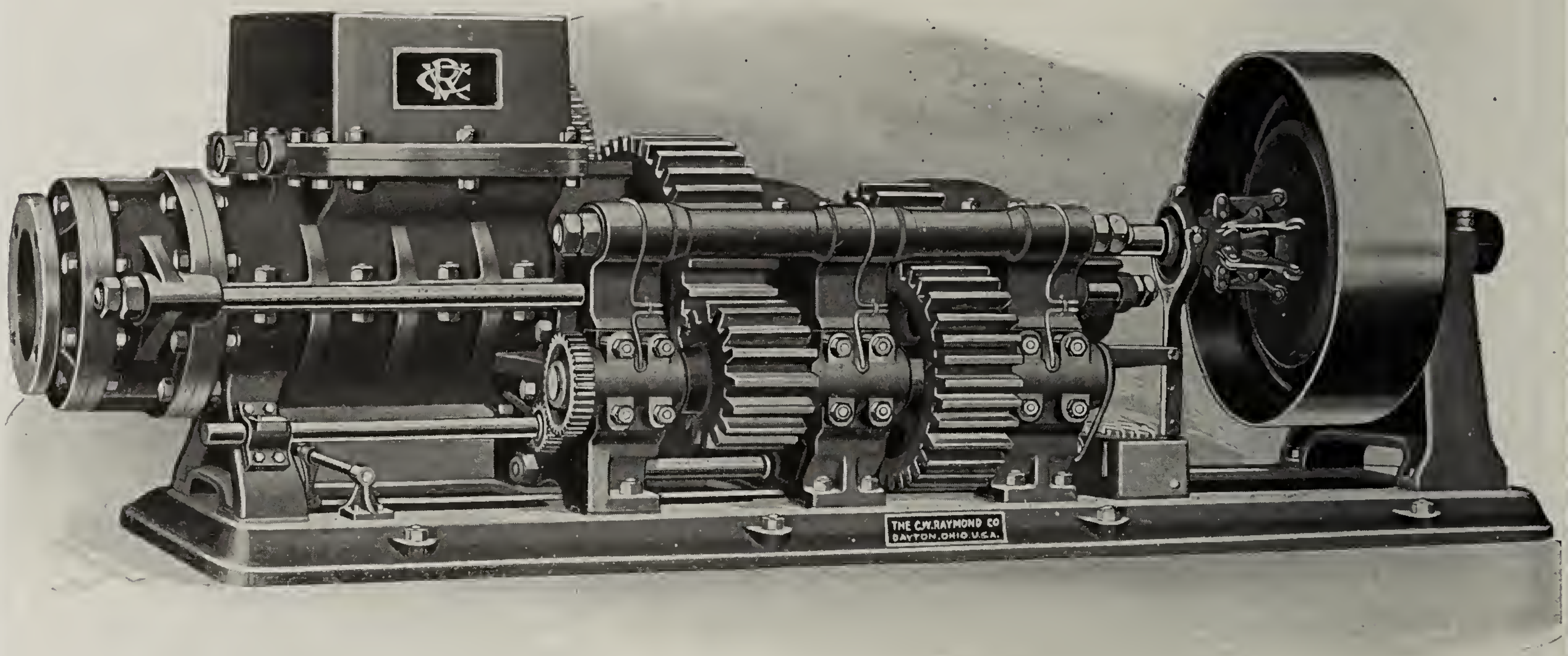
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# WHAT MAKES IT THE BEST?



## THE RAYMOND CVR" HOLLOWARE MACHINE

We all know what makes a good machine **good.** It is the best material, made by the best workmen, under the most sanitary conditions, that does the trick. That's why the "CVR" is undoubtedly the premier holloware machine of the times. Strength, rigidity, vibrationless action, maximum capacity, expert workmanship and the best of material, makes it what it is, the only real holloware machine containing all of these features. The cut, fine though it is, cannot give you the impression that the real machine does. But at that, you know a suggestion is there which is found in none other. And that suggestion is the best you can get—Profits!

---

**The C. W. Raymond Company**

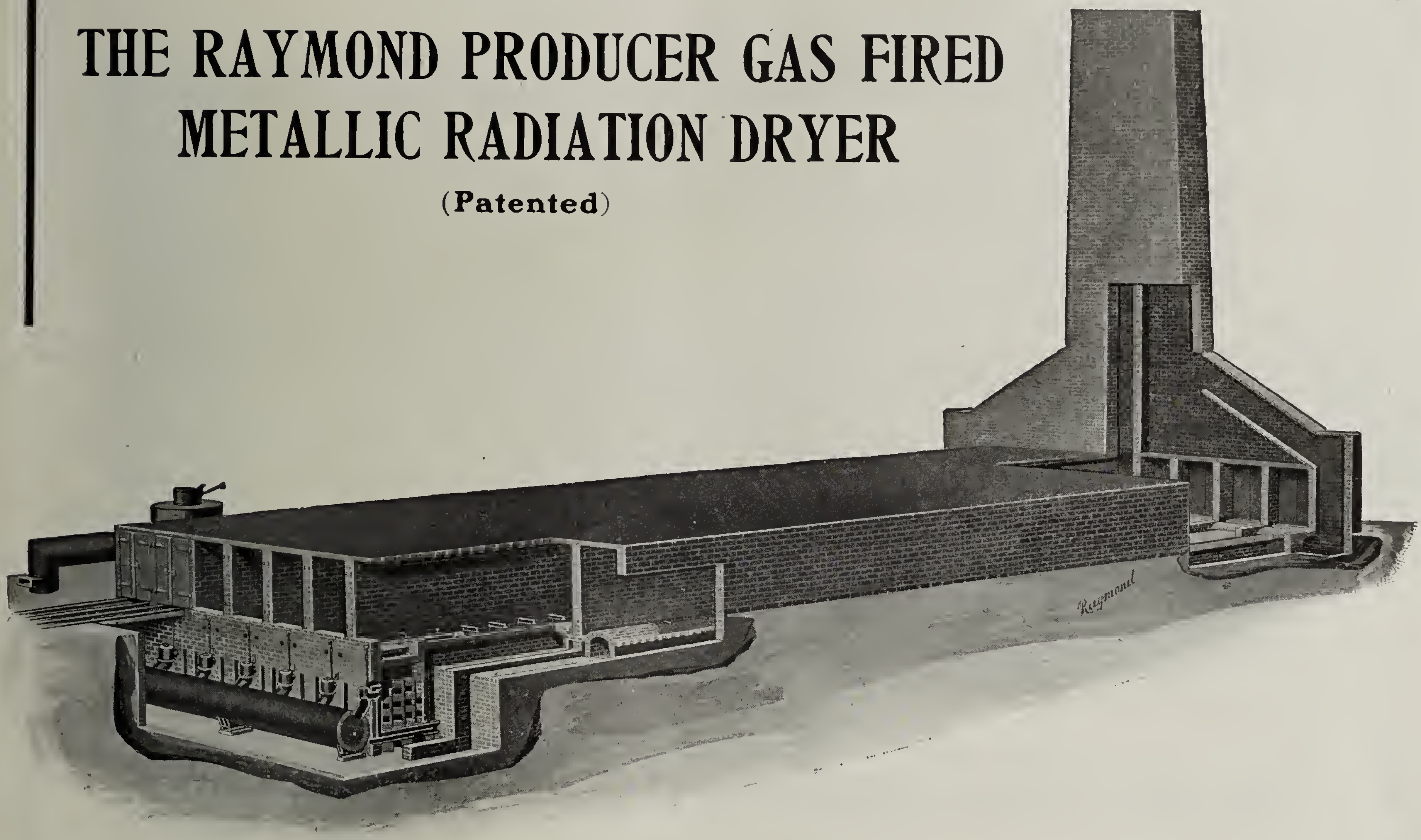
**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# WHY YOU NEED

## THE RAYMOND PRODUCER GAS FIRED METALLIC RADIATION DRYER

(Patented)



There are many reasons why you should have a Raymond Producer Gas Fired Metallic Radiation Dryer, but first and foremost is this—that it is the only Dryer made today that has been proven to be the most economical to use. Many Dryers claim economy, but we have proved ours to actually burn less than half of the ordinary amount of coal used in any other. It conserves space as well as coal supply, which is concentrated at the Producer end of the Dryer. The tunnels can be used singly or collectively, with the same result; namely, perfectly bone dry clay ware at minimum of expense.

---

**The C. W. Raymond Company**

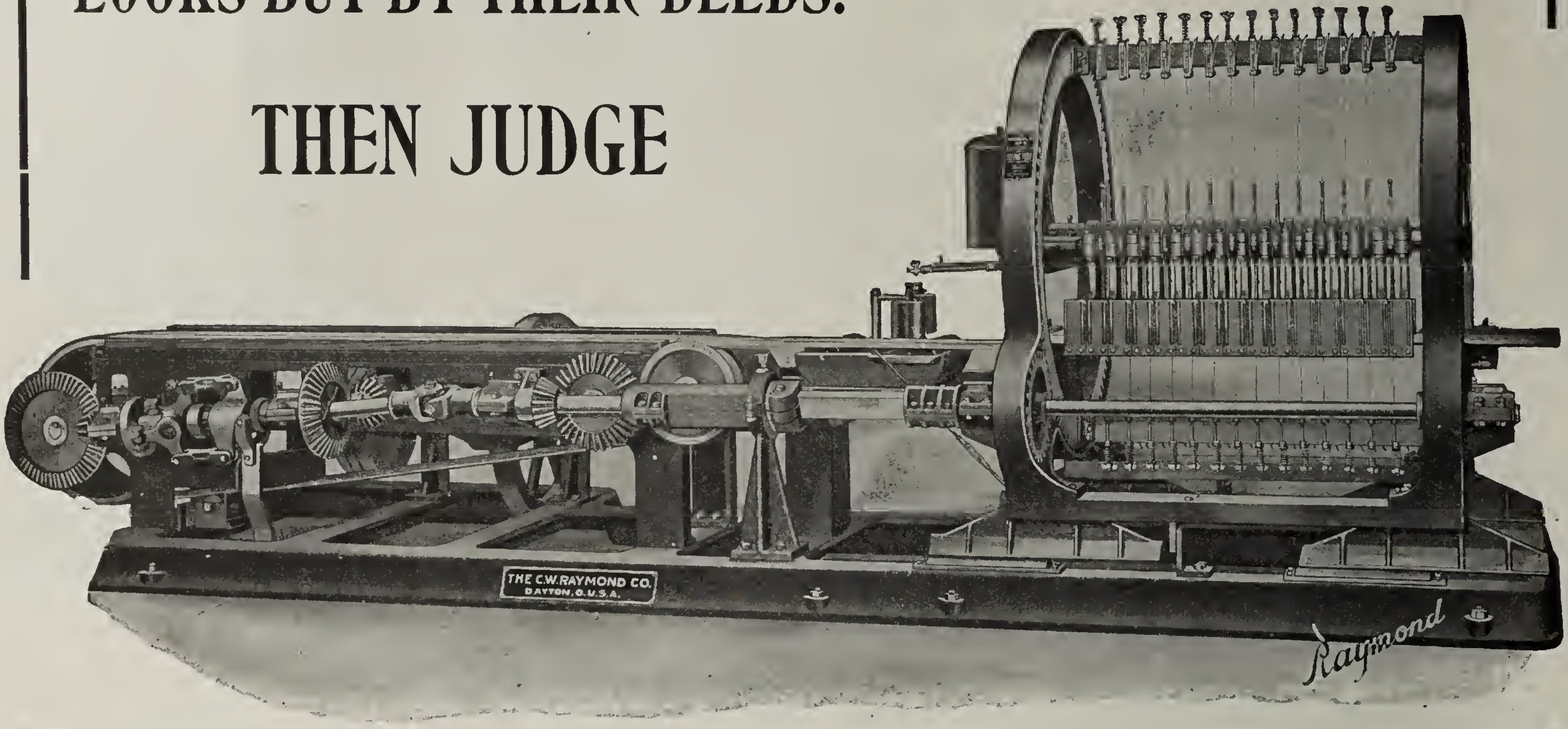
**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# YOU DON'T JUDGE PEOPLE BY

## LOOKS BUT BY THEIR DEEDS.

## THEN JUDGE



### The Raymond "Mobile No. 4" Automatic Side Cutter

By its deeds, and not because of its looks alone. Of course, a machine that is pleasing to the eye is not always pleasing to the pocketbook, but when it is pleasing to both, then you want to look into the matter. The man who uses an erratic cutter that spoils more of the clay column than it uses, can never hope to come out ahead. But when using a Mobile No. 4, which has automatic action, cannot stop or skip about a yard of the clay bar, always cuts straight brick with smooth action, never causes the bar to stick, because of its being lubricated on the under side, and with sliding oil reservoirs, and can truthfully claim that the capacity means every brick a perfect brick—then you can look forward and see yourself away ahead of the average, both in looks and pocketbook.

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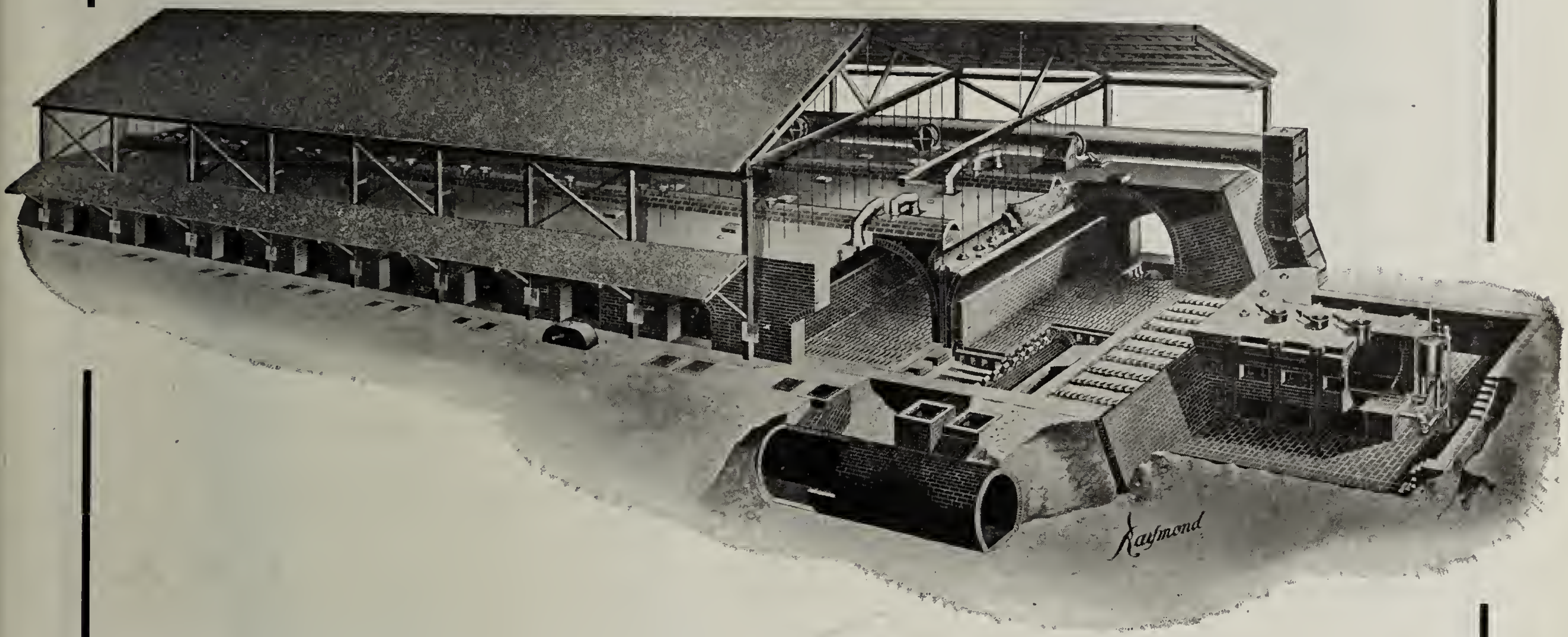
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# MADE WITH A PURPOSE



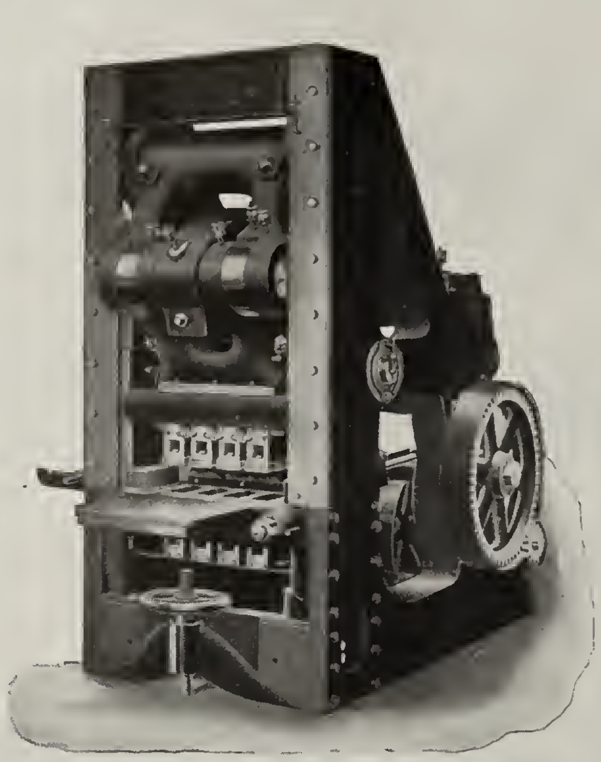
### The Raymond Producer Gas Fired Continuous Kiln

This "kiln of kilns" was designed and is made with the same purpose that is the reason of your being in business—PROFIT! You work that you may make money; the Raymond Kiln works that you make more money. Wouldn't you welcome a chance to increase your profits and decrease your bills? Well, then, let's see you do it. Here's the chance. By the use of Producer Gas you use less than one half the coal you use now and get a better burned product. Isn't there some horse sense in that? Many men in other business would jump at such a chance as yours. Let's talk it over.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**



BERG FOUR MOLD PRESS

# JUST LOOK AT THIS

And you will have seen the best, most modern and powerful Dry Press "wot am." Here are a few of its advantages: Massive frame, few but generous sized bearings. steel renewable collars where possible, thus saving costly repairs; three pressures, first from bottom, second from top and third both top and bottom as brick is lifted through the die, giving a prolonged pressure and thorough polish; all working parts above clay line; easily changed molds; having a capacity of 20,000 brick per 10-hour day.

Why hesitate any longer on the Dry Press question?

## The C. W. Raymond Company

**The Largest Exclusive Builders of Clayworking Machinery in the World**

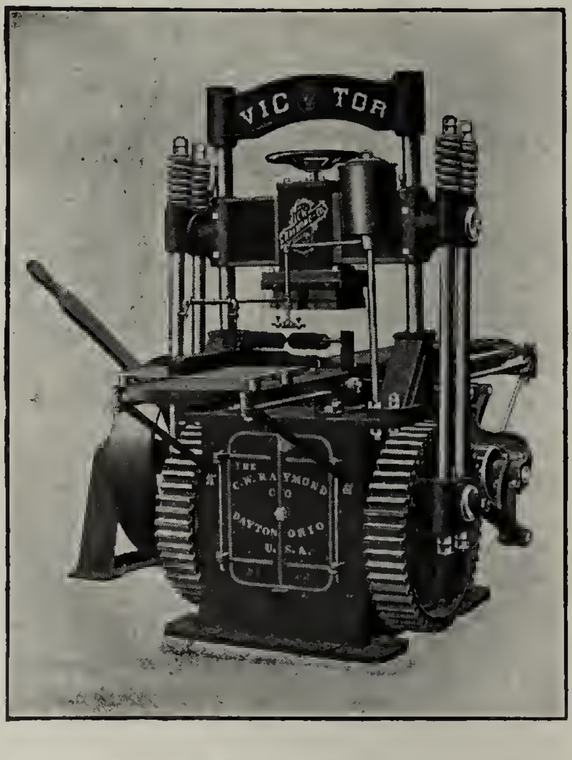
**Dayton Ohio U. S. A.**

---

# THE ZENITH OF SIMPLICITY

Has been reached in the production of this wonderful Repress. No other can boast of these same features, namely: Only two shafts, a solid iron base, which encloses the working parts, keeping them clear from clay and dirt. This base accomplishes a twofold purpose by giving rigidity and solidity to the machine and takes the pressure of the brick instead of throwing it on a moving cam or shaft. The hand wheel on top regulates the pressure.

If you can find a Repress containing these features (and these are not all by any means) we would be pleased to know about it.



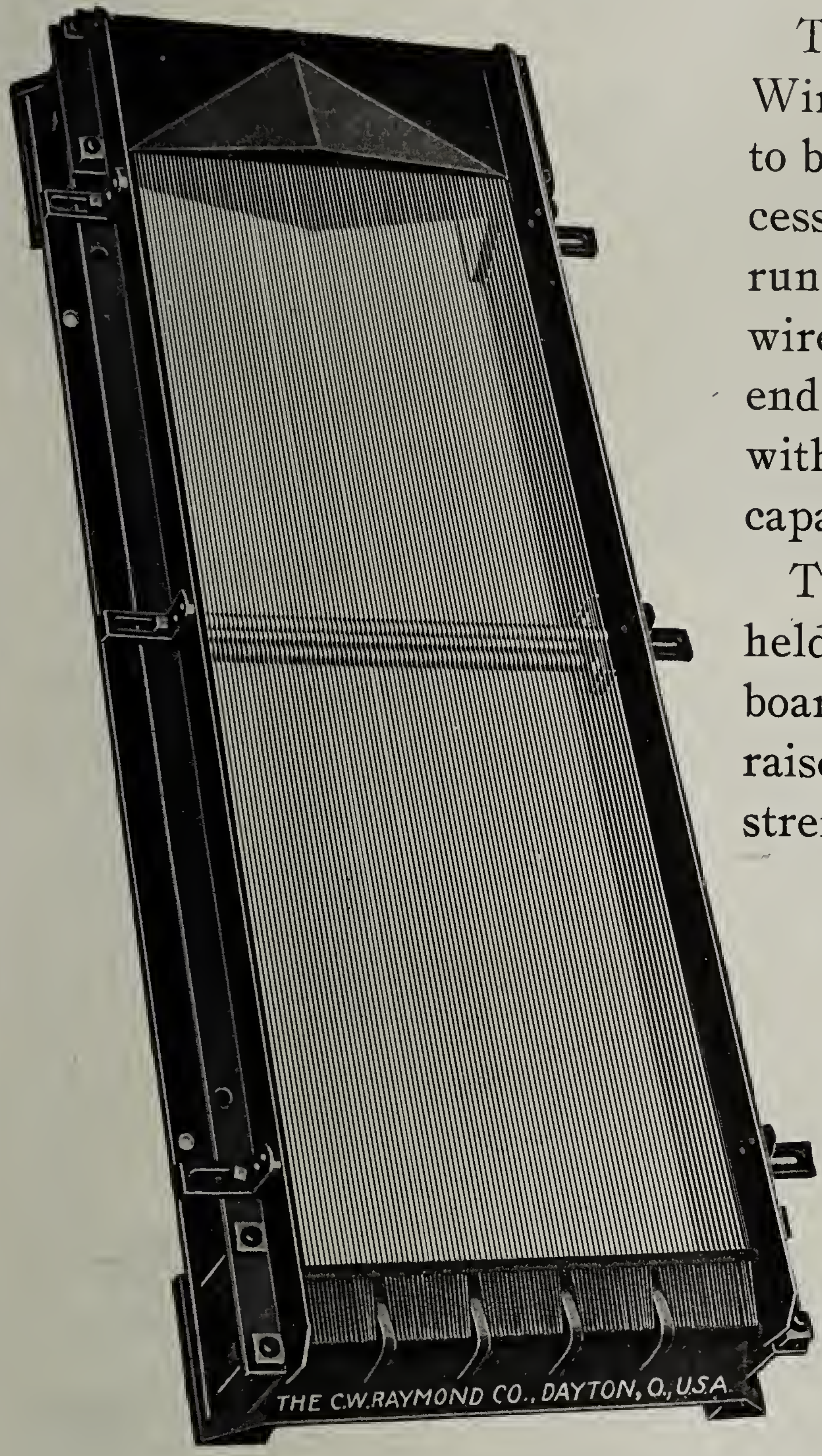
RAYMOND VICTOR REPRESS

## The C. W. Raymond Company

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# THE SCREEN OF THE AGE


THE C.W.RAYMOND CO., DAYTON, O., U.S.A.

RAYMOND NO. 2 PIANO WIRE SCREEN

The principle upon which our Piano Wire Screens are built has been proven to be correct, consequently they are successful. It has gravity operation, cutting running expenses. There are no cross wires which clog, but as they all run from end to end, the material passes thru with least resistance. This allows greater capacity.

Two heavy steel channels securely held at the ends by the key and loop boards, and in the middle by a slightly raised bar, show the sturdiness and strength of this No. 2 Screen. The midway bar relieves vibration and holds the wires in the groove provided. Can be adjusted to any mesh desired.

We make different sizes and shapes, according to the materials used. Screen No. 2 is 24 inches by 60 inches, containing 10 square feet of screening surface.

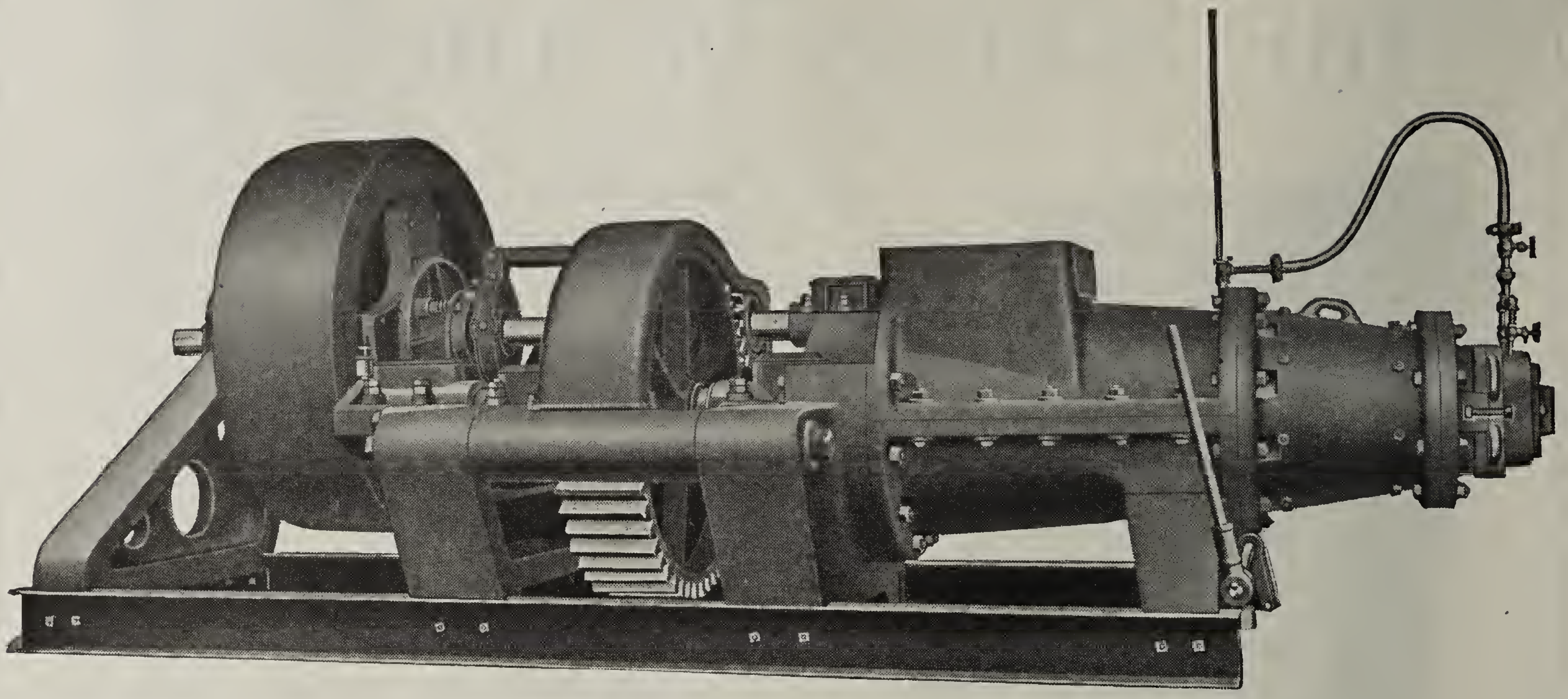
If your present screen is giving you trouble, write to us for detailed descriptions of all of our screens.

**The C. W. Raymond Company,**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton** **Ohio** **U. S. A.**

# THE SIMPLE GC



Model GC Auger Brick Machine

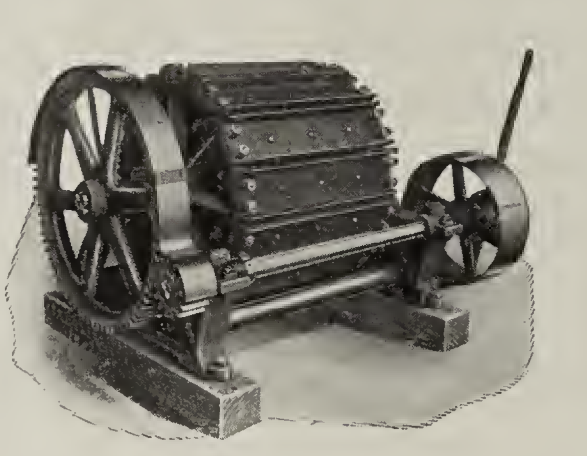
AN UNUSUALLY POPULAR MACHINE BECAUSE:

It has only two shafts and two gears—none running over 125 r. p. m., reducing repairs, noise, power consumption and shutdowns to a minimum.

It has an internally lubricated thrust bearing that can be removed, renewed, or rebabbited without disturbing any other bearing.

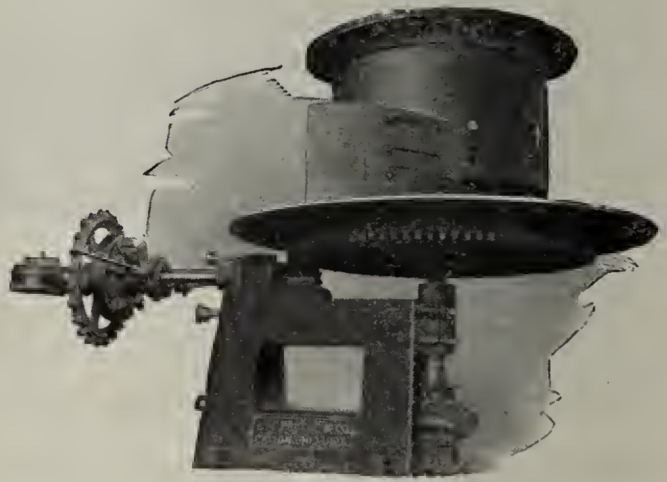
Every bearing is right before you—It is as accessible as a brick machine can be built.

These features, with its exceptional strength, give it the ability to produce—and continue to produce. That's the reason it is now being installed by three well-known and successful brickmakers.



STANDARD RATTLER

This rattler complies fully with the N. P. B. M. A. specifications. It will be found of great assistance to paving brick manufacturers and engineers.



E18 DISC FEEDER

This feeder will give a perfectly uniform feed into the pug chamber, which shows its effect in the moulding, drying and burning, and in the life of the machinery.

**E. M. FREESE & COMPANY, 140 South St., Galion, Ohio**

**Dependable Machinery of Proven Efficiency**

For
Sixty-Three
Years
The Name

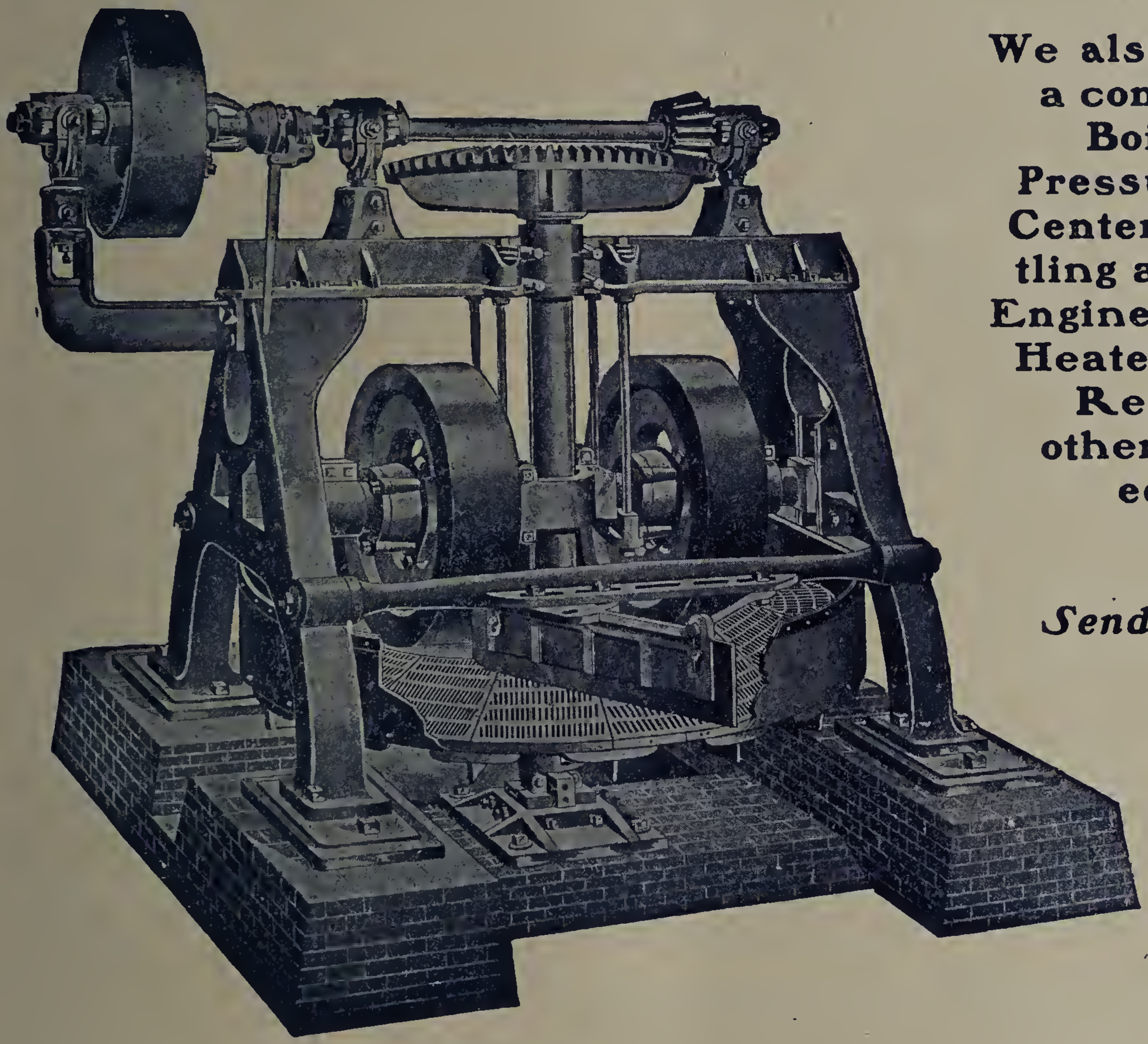
**Frost**

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.

**WHY!** Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.



We also manufacture
a complete line of
Boilers for all
Pressures, Side and
Center Crank Throttling and Automatic
Engines, Feed Water
Heaters, Tanks, Air
Receivers and
other power plant
equipment.

*Send for Bulletins.*

**The Frost Manufacturing Co.**

Works at
GALESBURG, ILL.

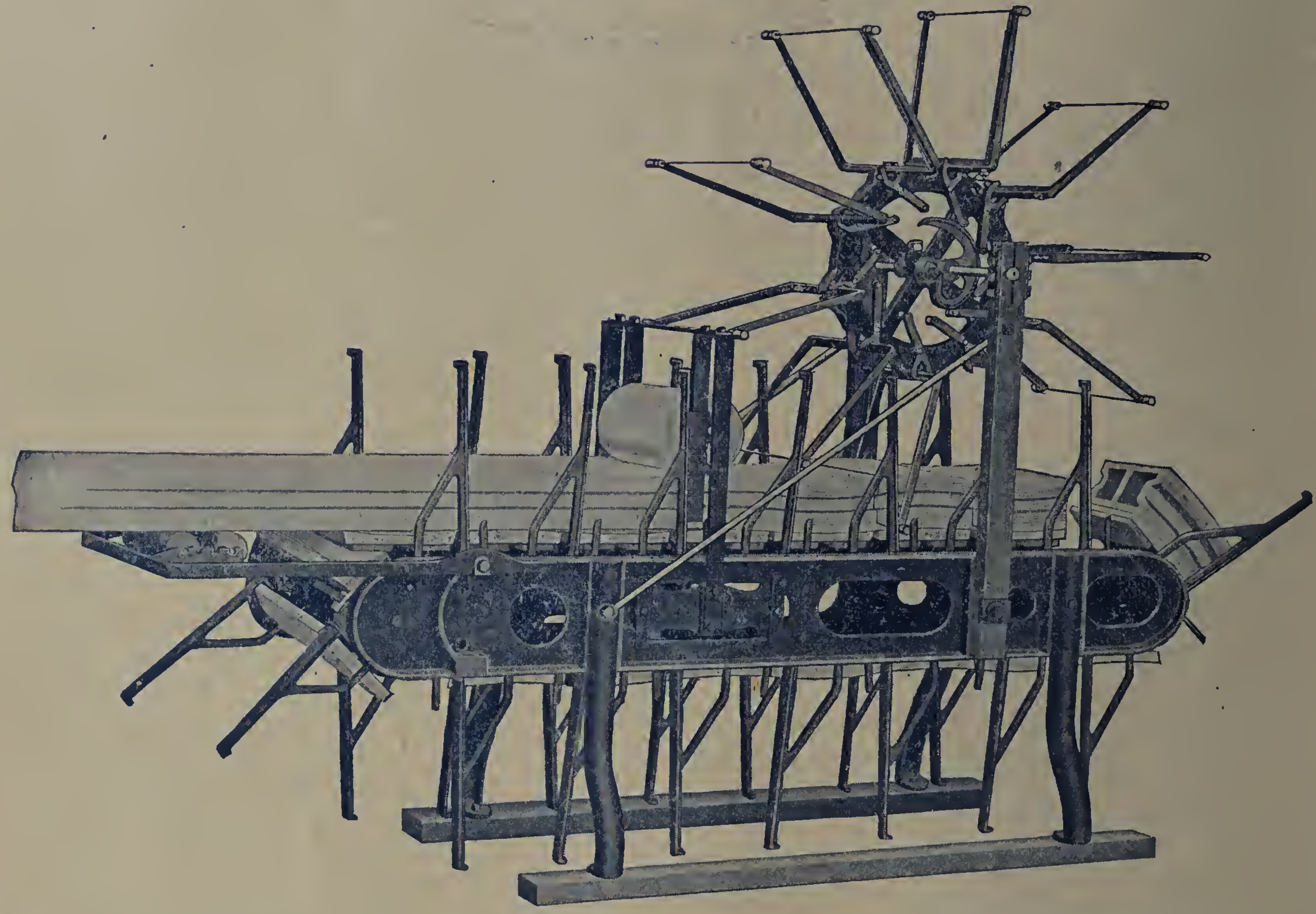
Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

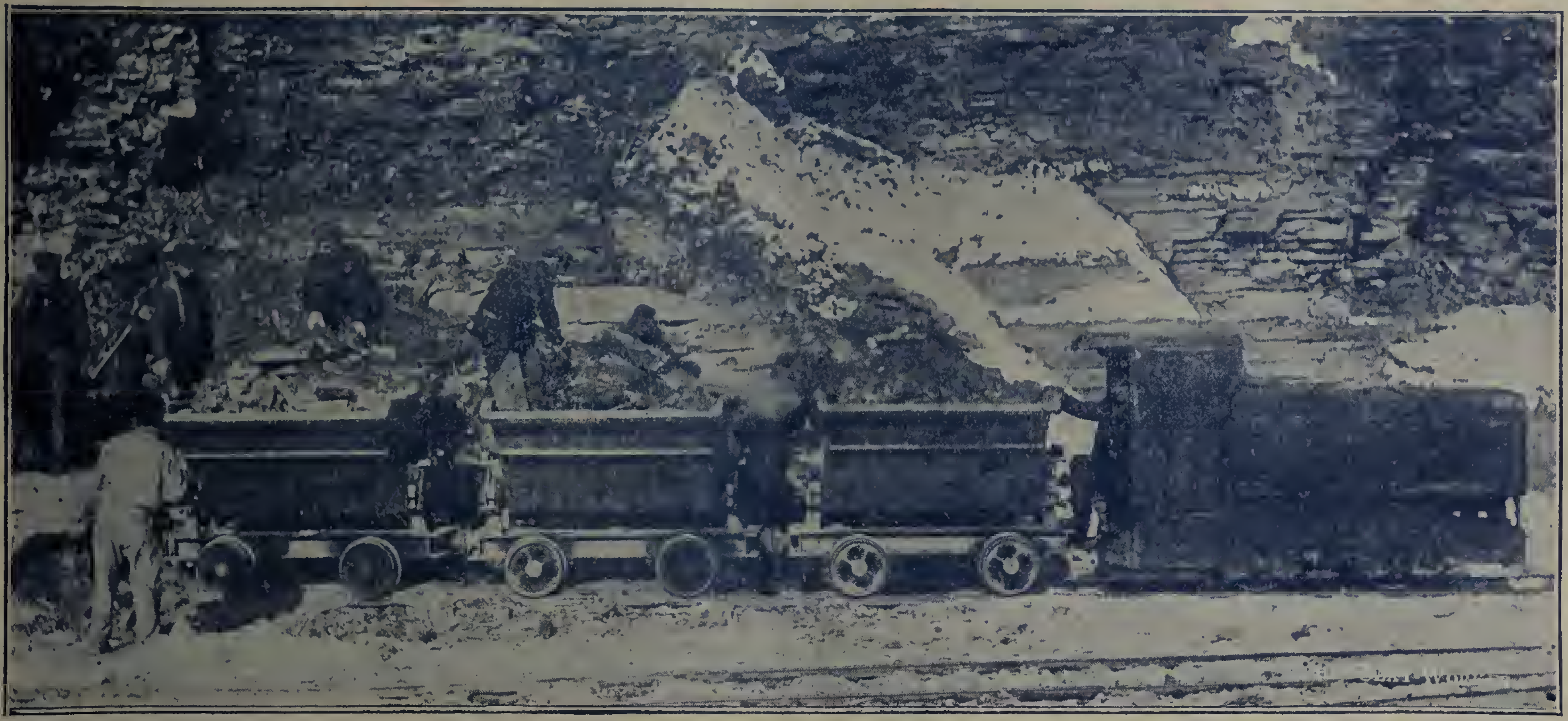
After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

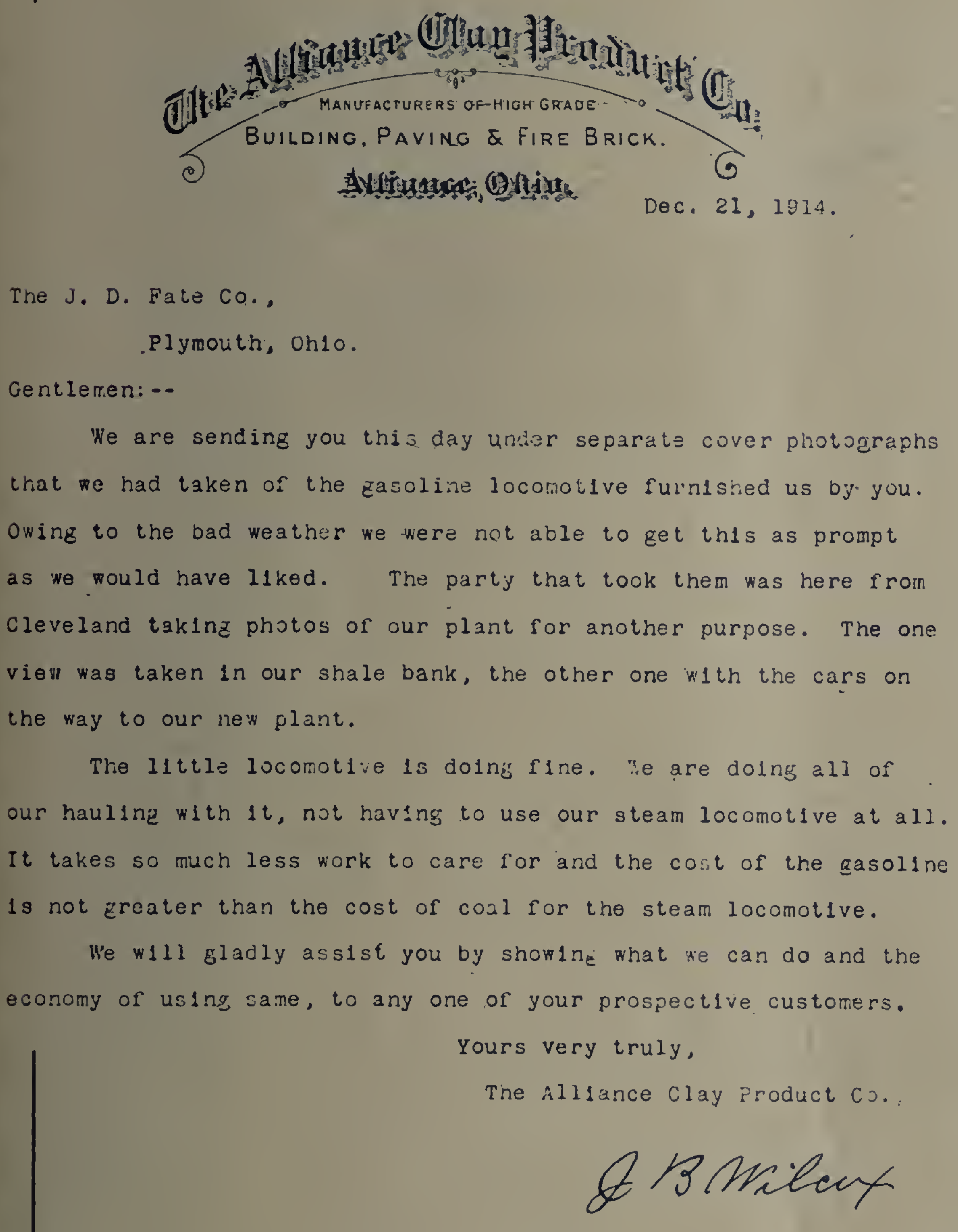
## The J. D. Fate Company

Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O



The Alliance Clay Product Co.
MANUFACTURERS OF HIGH GRADE
BUILDING, PAVING & FIRE BRICK.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
Plymouth, Ohio.

Gentlemen:--

We are sending you this day under separate cover photographs that we had taken of the gasoline locomotive furnished us by you. Owing to the bad weather we were not able to get this as prompt as we would have liked. The party that took them was here from Cleveland taking photos of our plant for another purpose. The one view was taken in our shale bank, the other one with the cars on the way to our new plant.

The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers.

Yours very truly,
The Alliance Clay Product Co.,

J B Wilcox

# The "PLYMOUTH"
## is the
## IDEAL HAULAGE for CLAY PLANTS.

Efficient, Economical to Operate, Low in Price and Low in Upkeep.

Any Speed—Forward or Backward—Power Equal in Both Directions.

No Licensed Engineer Required.

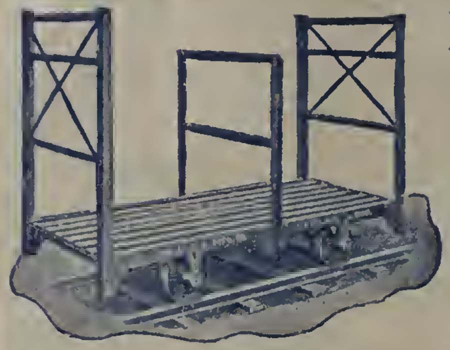
Eats Only When it Works.

Continental 4-Cylinder Motor, Bosch High Tension Magneto, Schebler Carburetor, Hyatt Roller and New Departure Ball Bearings—Power, Brakes and Sand on all 4 wheels, and all parts very accessible. Any Gauge, 20-inch to Standard.

Let us tell you more about them, and how an 8-year old boy operates one in a clay plant at Morrisonville, Ill.

## The J. D. FATE CO.

Eastern Office, Woolworth Bldg., New York City
Western Office, Blake-McFall Bldg., Portland, Ore.

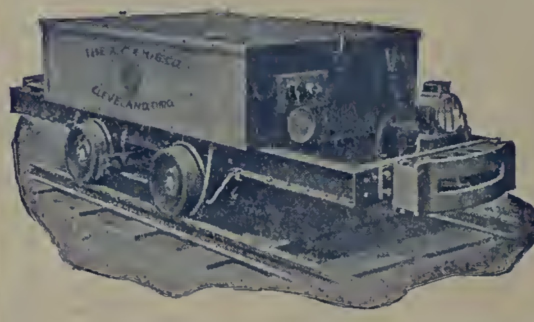


**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

## REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

ATLAS
High Efficiency
Cars and
Electric Locomotives

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.



Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

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# MOLDS MOLDS MOLDS

## Of Every Description

Machine and Hand Brick Molds
Built of Air Dried Stock.

You can't buy a better brick mold. The price is reasonably low.

I have made a lifetime study of the manufacture and sale of brick molds.

Write for catalog and detailed information.

**JAMES W. HENSLEY**
Successor to S. K. Fletcher
Indianapolis, Ind.

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With Chase Flexible and Reversible Bearing and Folding Deck.

**Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.**

**The Chase Foundry & Mfg. Co., Columbus, O.**

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# "LAKEWOOD LINE CARS"

LAKEWOOD NO. 166

**Dryer Cars**
**Rack Cars**
**Dump Cars**

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
**Cleveland, Ohio**

Chicago: 555 W. Quincy St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802

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APRIL, 1915

# THE
# CLAY-WORKER

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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BUYERS' READY REFERENCE LIST
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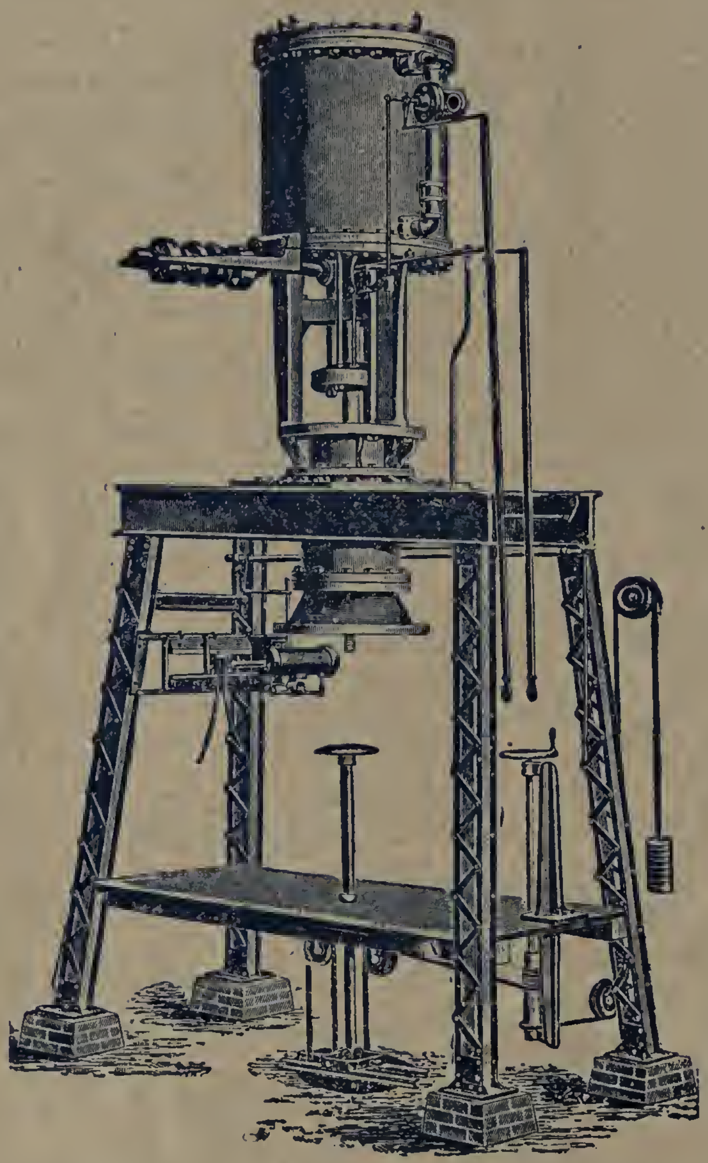
Ask for a Sewer Pipe Press, Dry or Wet Pan, or other Clayworking Machinery, and there is NO TELLING WHAT YOU WILL GET.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

THE TAPLIN, RICE-CLERKIN CO.

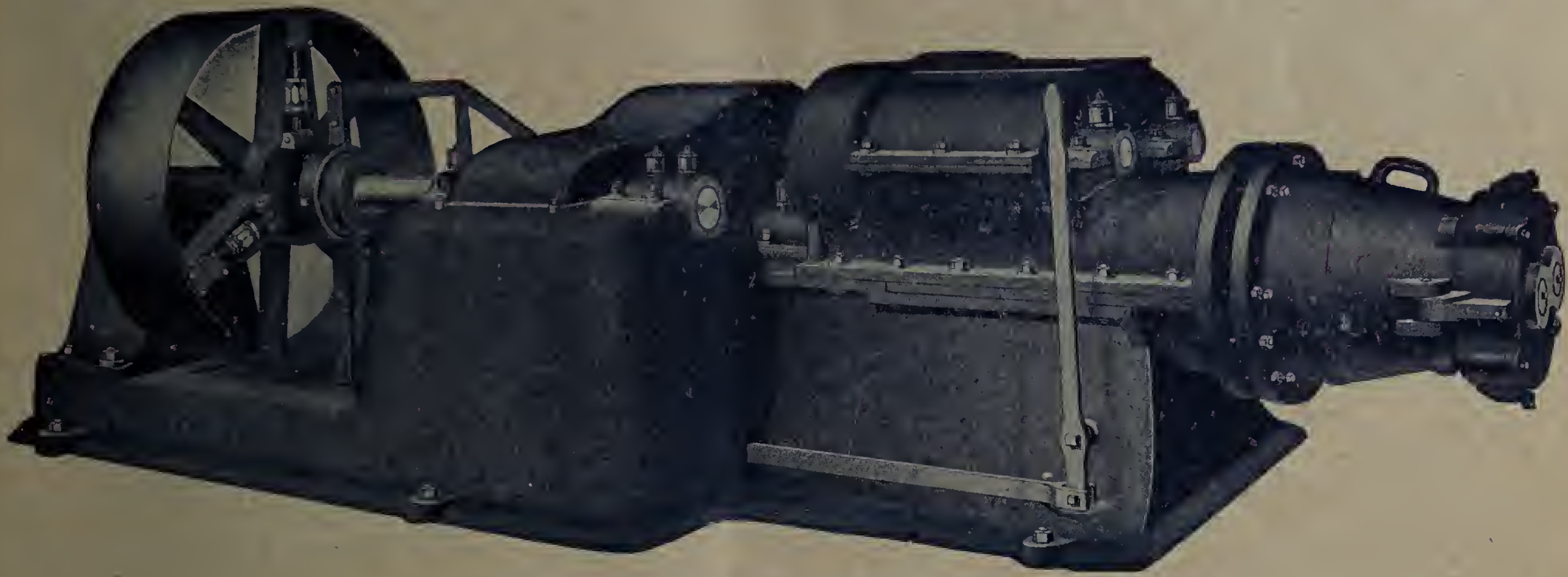
Akron, Ohio

The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

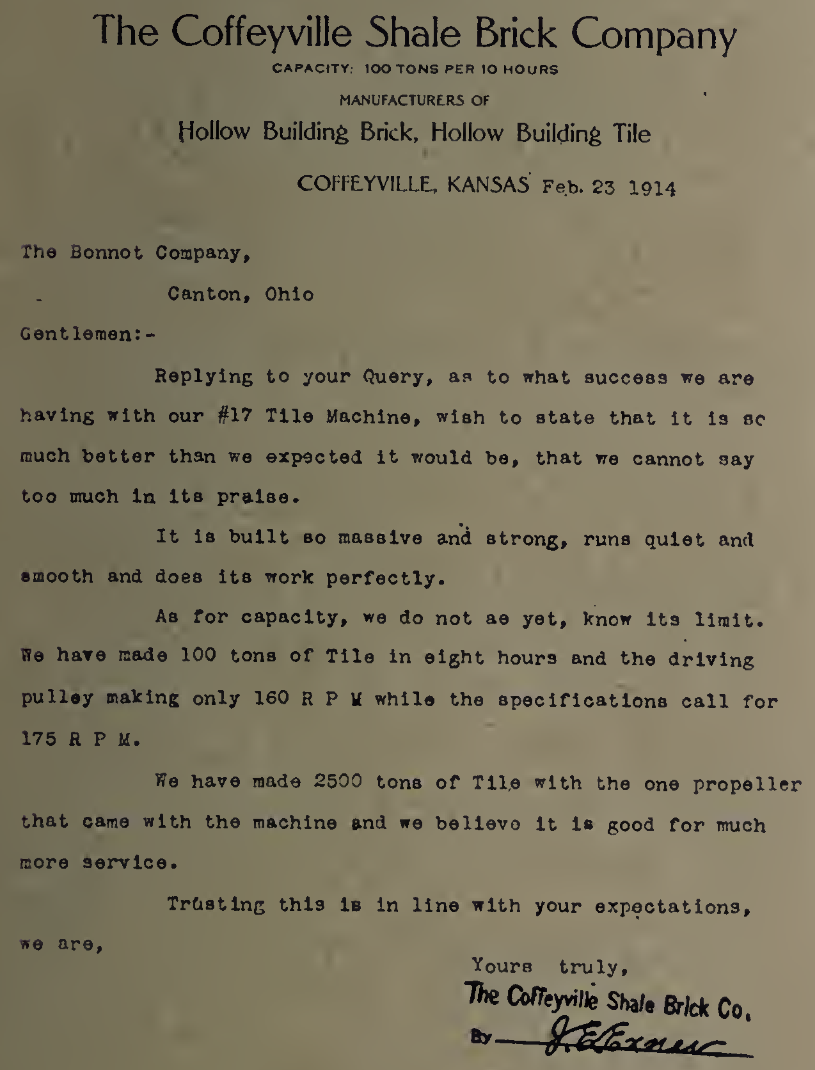
# MAKING HOLLOWWARE FOR PROFIT

CLAY WORKING QUALITY BONNOT SERVICE MACHINERY



**Bonnot No. 17 Hollowware Machine.**

Hollowware is made most successfully on a machine built especially for that purpose. The No. 17 is just such a special machine, and it combines also the very best in design and construction from the standpoint of durability and output.



The Coffeyville Shale Brick Company
CAPACITY: 100 TONS PER 10 HOURS
MANUFACTURERS OF
Hollow Building Brick, Hollow Building Tile
COFFEYVILLE, KANSAS Feb. 23 1914

The Bonnot Company,
Canton, Ohio

Gentlemen:-

Replying to your Query, as to what success we are having with our #17 Tile Machine, wish to state that it is so much better than we expected it would be, that we cannot say too much in its praise.

It is built so massive and strong, runs quiet and smooth and does its work perfectly.

As for capacity, we do not as yet, know its limit. We have made 100 tons of Tile in eight hours and the driving pulley making only 160 R P M while the specifications call for 175 R P M.

We have made 2500 tons of Tile with the one propeller that came with the machine and we believe it is good for much more service.

Trusting this is in line with your expectations, we are,

Yours truly,
The Coffeyville Shale Brick Co.
By

# THE BONNOT CO.

## Canton, Ohio

**Branches**

909 N. Y. Life Bldg. KANSAS CITY, MO.
211 Higgins Bldg. LOS ANGELES, CAL.

(Sign and mail this coupon)

................................1915

THE BONNOT CO.
Canton.

Please send me specifications and full information on No. 17 Hollowware machine.

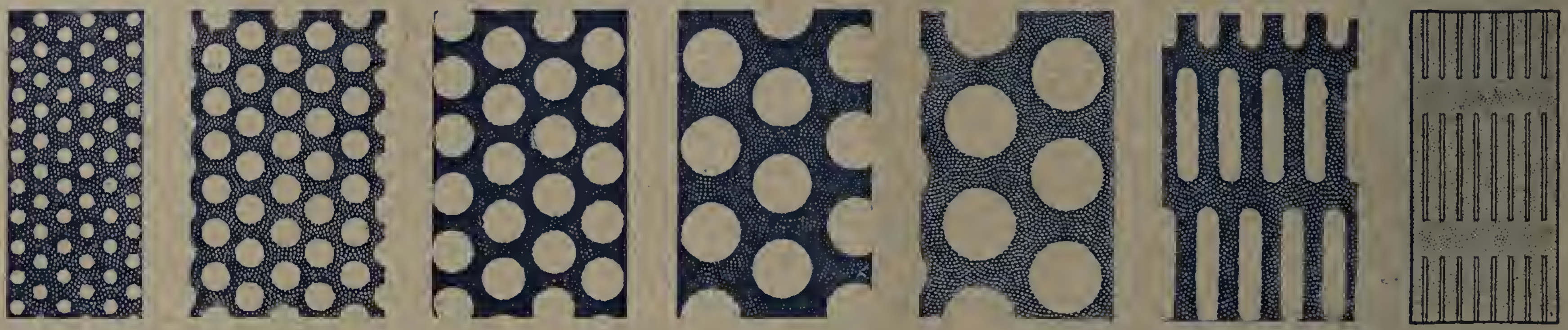
....................................
(Signed)

....................................

# PERFORATED STEEL SCREENS

## FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

### Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

# Put Half Your Wheeling Gang to Work on a Gravity Brick Conveyer

You won't need the other half.
Their salaries can be added to your profit.
You can save the cost of wheelbarrows also.

**Catalog on Request**

## It's very simple—

Just put the brick on the steel, ball-bearing rollers—two, three or four at a time and let them run quickly and gently down into the car. Just a slight slant will cause the brick to run over the easy-running rollers for long or short distances, or turn corners, as desired. Made up in connecting sections for easy moving.

SPEED
MATHEWS GRAVITY CARRIER COMPANY
The MATHEWS WAY
The SAVING WAY
ECONOMY

MAIN OFFICE AND FACTORY
ELLWOOD CITY, PENN.

BRANCH FACTORIES:
TORONTO, ONT.
LONDON, ENG.

RODGERS

# ARE YOU STILL "MARKING TIME"?

It's time NOW to equip to march. The 1915 Brick War is at hand and the fighting will soon be fast and furious.

As you will fight to win, look well to your equipment, for poorly equipped you will wage a losing fight.

If you realize the need of better equipment, investigate the implements of modern brick warfare of our design and manufacture.

NOW is the time to get in readiness---BEFORE the battle cry is sounded.

**EQUIP NOW.**

---

**L. E. RODGERS ENGINEERING CO.**

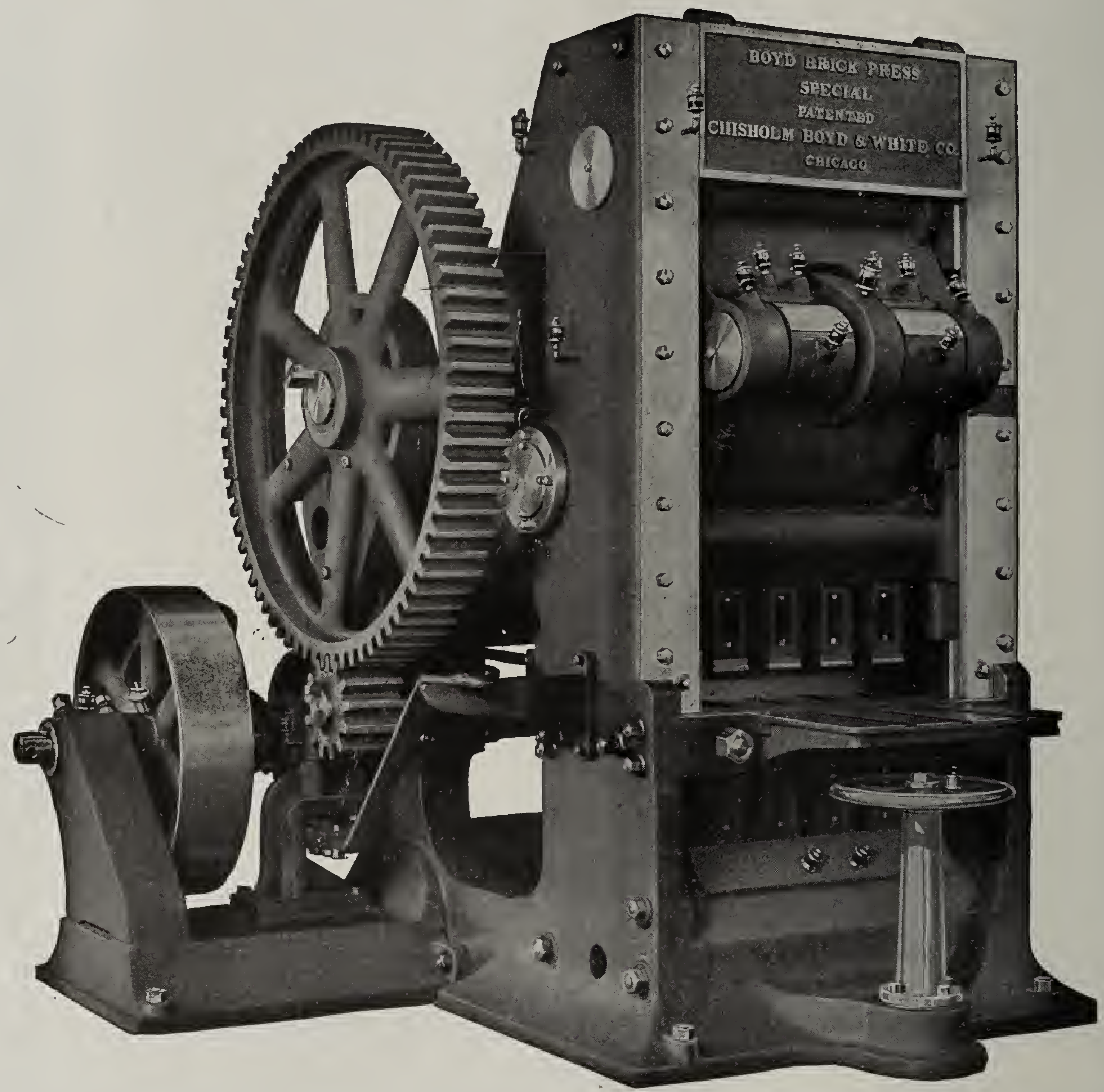
Waste Heat Dryer Specialists
Brick Works Engineers

Largest Manufacturers of Brick Drying Equipment in the United States
30 North LaSalle St. .:. .:. CHICAGO

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED-PRESSURE—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

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Hensley, J. W.
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Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
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Wallace Mfg. Co.
Wellington Machine Co.

### Barytes, Carbonate of
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### Bearings, Roller.
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Sawyer Belting Co.

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Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

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Raymond Co., The C. W.
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Trautwein Dryer & Engr. Co.

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Hydraulic Press Brick Co.
Kushequa Brick Co.
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Parker-Russell M. & M. Co.

### Brick (Paving).
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Bessemer Limestone Co.
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Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
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### Brick Conveyors.
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Mathews Gravity Carrier Co.

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Chisholm, Boyd & White Co.
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Fernholtz Brick Machy. Co.
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Frost Mfg. Co.
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Mueller Bros.
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Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

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Potts & Co., The C. A.
Raymond Co., The C. W.
Wellington Machine Co.

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Brewer & Co., The.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
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Wellington Machine Co.

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Chisholm, Boyd & White Co.
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Fernholtz Brick Machinery Co.
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### Brick Setting Machinery.
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### Buffing Machinery.
American Clay Machinery Co.

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Buhrer, Jacob.
Dennis, F. W.
Illinois Supply & Con. Co.
Koch, J. J.
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National Dry Kiln Co.
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Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
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Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

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Frost Mfg. Co.
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Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
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Phillips & McLaren Co.
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Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
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Wellington Machine Co.

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### Clay Dryers.
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Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
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Fate Co., The J. D.
Freese & Co., E. M.
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Stevenson Co., The.

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(See Scrapers.)

### Clay Steamers.
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### Clay Technologists.
Fate Co., The J. D.
Koch, J. J.
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Ricketson Mineral Paint Co.
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### Cones.
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Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.
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Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick and Tile.)
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Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

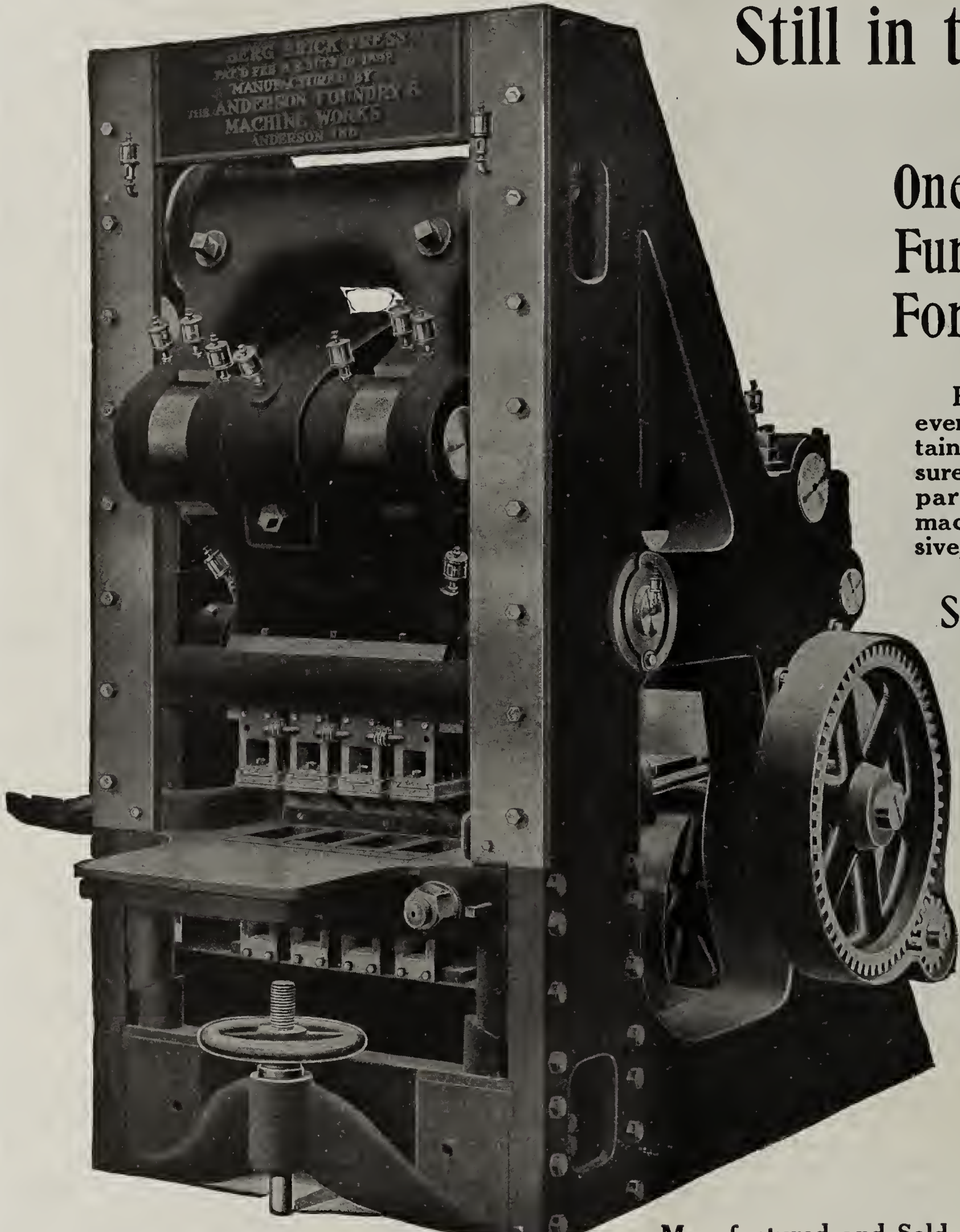
### Dryers.
American Blower Company.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co., H.
National Dryer Company.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
National Dryer Company.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.

(Continued on page 497.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

SHIPPED IN ONE PIECE.

All Machines Are Equipped With

CUT GEARING.

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Standard Dry Kiln Co., The.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

**Dry and Wet Pans.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Dump and Clay Cars.**

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wellington Machine Co.

**Electric Instruments.**

Brown Instrument Co., The.
Thwing Instrument Co.

**Electric Shovels.**

Thew Automatic Shovel Co.

**Electrical Furnaces.**

Brown Instrument Co., The.
Richardson-Lovejoy Engr. Co.

**Electrical Locomotives.**

Atlas Car & Mfg. Co.

**Electrical Supplies.**

American Clay Machinery Co.
Raymond Co., The C. W.

**Elevating Equipment.**

(See Conveyors.)

**Engines.**

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

**Engineers.**

Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

**Fans.**

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Feed Water Heaters.**

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

**Filler (Paving).**

Barrett Mfg. Co.

**Filter Presses.**

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Fire Brick and Fire Clay.**

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

**Fire Clay.**

Bloomfield Clay Co.

**Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Flower Pot Machinery.**

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The.
Taplin-Rice-Clerkin Co.

**Friction Clutch Pulleys.**

(See Supplies.)

**Furnaces.**

Brown Instrument Co., The.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

**Gas Fire Continuous Kilns.**

Raymond Co., The C. W.

**Gears.**

(See Supplies.)

**Granulators.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Gravity Carriers.**

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

**Gravity Haulage.**

American Clay Machinery Co.

**Grouter.**

Marsh-Capron Mfg. Co.

**Hand-Power Presses.**

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

**Hand Winch.**

(See Supplies.)

**Hangers.**

(See Supplies.)

**Hoists.**

(See Supplies.)

**Hollow Block Machinery.**

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Illustrators.**

Lamb, J. & R.

**Insurance.**

Mantel, Tile & Grate Monthly.

**Jacks.**

(See Supplies.)

(Continued on page 499.)

MUELLER'S NEW AUGER BRICK MACHINERY

Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

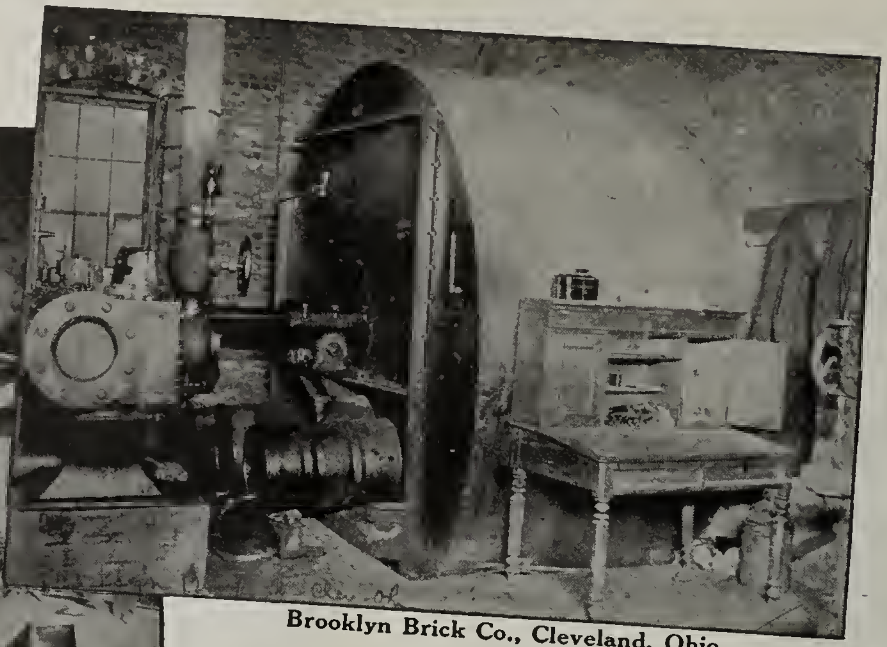
Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

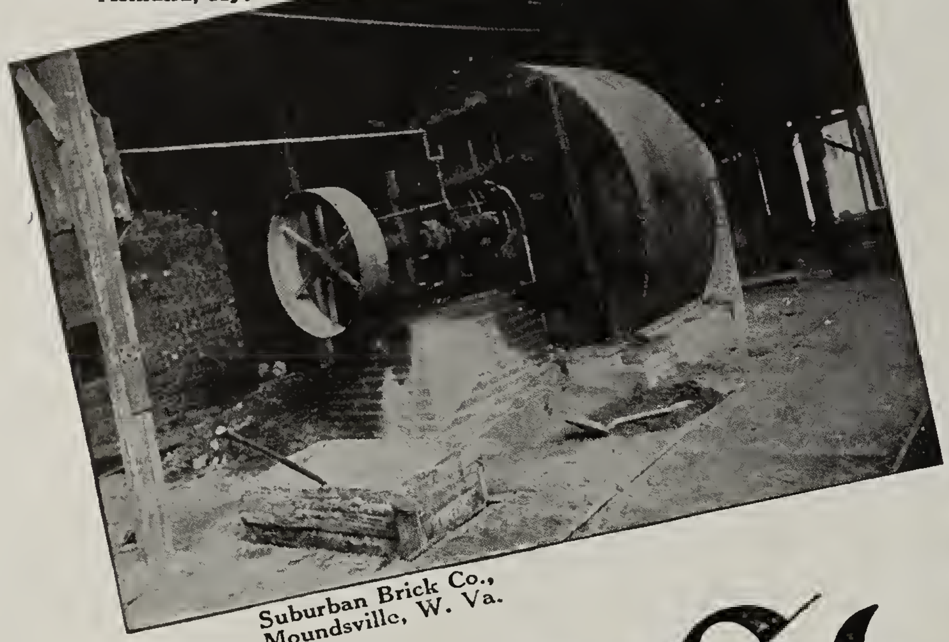
MUELLER BROS.

1436 Macklind Ave. (on Friso Tracks) ST. LOUIS, MO.



Brooklyn Brick Co., Cleveland, Ohio

Ashland Fire Brick Co.,
Ashland, Ky.



Suburban Brick Co.,
Moundsville, W. Va.

# Economy in Drying Clay Products

**Sirocco**

TRADE MARK.

Fan Systems use the heat from the cooling kilns to dry the bricks—that's one form of economy—**The other** is in the efficient way in which the Sirocco Fan handles this heat—the **low power requirements** for the amount of air handled—the low cost of upkeep of the Sirocco Fans due to its good mechanical construction.

Any fan will handle some air but the one that handles the **most** air for the **least** expense is the one **you** want and that's **"Sirocco."**

Our Brick Engineering Department will submit a lay-out applicable to your particular requirements—**just drop us a line** and we'll give you all details.

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
Dallas, Texas, Southwestern Life Insurance Bldg.
San Francisco, Cal., 667 Mission St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lemcke Annex.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

### Kilns.

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Illinois Supply & Con. Co.
Klose, A.
Klose, K. W.
Smith Co., Claude.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Yates, Alfred.

### Kilns, Doors, Castings and Frames.

(See Supplies.)

### Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.

### Kiln Furnaces.

Illinois Supply & Con. Co.

### Knives.

(See Supplies.)

### Locomotives.

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

### Manganese.

(See Coloring Materials.)

### Mechanical Draft.

Boss, J. C.
Rodgers Engr. Co., The L. E.

### Mineral Paint.

(See Coloring Materials.)

### Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

### Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

### Mortar Colors.

(See Coloring Materials.)

### Motor Trucks.

Fate, Co., The J. D.

### Oil Burners.

Illinois Supply & Con. Co.

### Paints.

(See Coloring Materials.)

### Pallets.

Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

### Pans (Dry and Wet).

(See Dry and Wet Pans.)

### Paving Brick or Block.

(See Brick.)

### Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

### Pitch (Paving).

Barrett Mfg. Co.

### Plows.

(See Scrapers.)

### Poidometers.

Schaffer Eng. & Equip. Co.

### Portable Track.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### Pottery Machinery.

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

### Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

### Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Pulleys.

(See Supplies.)

### Pulverizers.

American Pulverizer Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Taplin-Rice-Clerkin Co.

### Pumps.

Dean Bros. Steam Pump Wks.

### Pyrometers.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

### Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

### Rattlers (Paving Brick).

Ceramic Supply and Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

### Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

### Represses.

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson & Co.

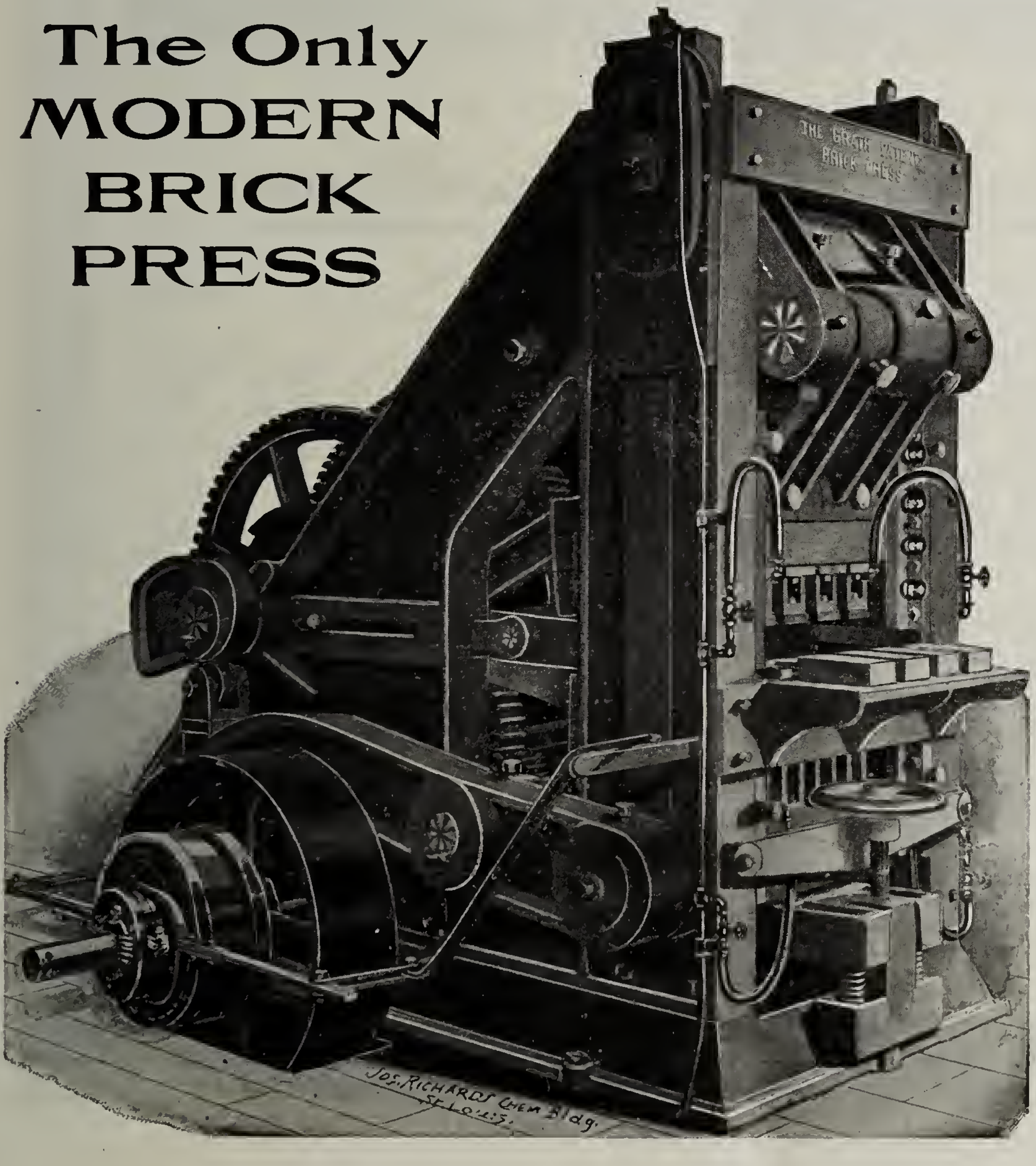
### Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

### Revolving Steam Shovels.

Thew Automatic Shovel Co.

(Continued on page 501.)


THE GRATH PATENT BRICK PRESS
Jos. Richards Chem Bldg. St. Louis.

The Only
MODERN
BRICK
PRESS

THE GRATH
PEERLESS PRESS

Simplest, Strongest and Most Easily and Quickly Regulated Press ever built.

Thickness of brick changed in one minute's time.

Guaranteed capacity—40% more than any other press.

Capacity on surface clays, 30,000 in ten hours. On shale and fire clay in proportion.

The Jersey Clay Products Co., Newbern, Ill., are turning out over 30,000 per day on this Press.

Ill. Supply & Const. Co.
722 Century Bldg., St. Louis, Mo.

TRADE B MARK

# Barrett's PAVING PITCH

Hennepin Ave., at 26th St., Minneapolis, Minn. Creosoted Wood Plock Pavement, filled with Barrett's Paving Pitch.

## Waterproof under All Conditions

WATER and frost will ruin any road if they get into the foundation Because this is so, the filler is as important a consideration as the brick or block of which the pavement is made. For a filler that is not waterproof under all conditions occasions endless repairs, expense and annoyance.

Paving Pitch is the only filler that forms an absolute waterproof bond, winter and summer.

In cold weather asphalt loses its adhesive quality, the brick shrinks away from the brick or block, and cracks result, letting the water in.

In hot weather cement, being absolutely rigid, leads to cracks and "blow-outs", due to expansion. Again the water gets in.

Paving Pitch follows the block and clings to it in all weathers. It will outlast the pavement. Nor has it any defects as a filler. There is, however, a big difference in pitch.

To be sure of permanent results insist on "Barrett's".

*Illustrated booklet free on request.*

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle
The Patterson Mfg. Co., Limited: Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Wellington Machine Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Constr. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Central Iron Works.
Eagle Iron Works.
Illinois Supply & Con. Co.

### Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

Thew Automatic Shovel Co.

### Steam Specialties.

Dean Bros., Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

### Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply and Com. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Steele & Sons.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Switches.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., H.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Com. Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

POTTERY ADVERTISING NOVELTIES

Majolica and Terra Cotta Work
for Sculptors a Specialty.

DUANE F. ALBERY
421 Sherman Ave., Evanston, Ill.
Correspondence solicited.

THEW

# Material for 66,000 Brick at Cost of $6.37

## Including Engineer, Helper, Coal and Water

*300 Thews in the Brick-making Industry*

*Write for Names in Your Locality*

Detroit, Mich.

Thew Automatic Shovel Co., Lorain, Ohio:

Gentlemen---The following test of our Type 0 Thew shovel was made August 17, 1914, and represents a regular day's run:

Amount of clay handled, approxtmately 160 cubic yards.
Actual time of day's run, 8 hours 10 minutes.
Number of cars loaded, 86.
Capacity of cars in cubic yards, 2.
Approximate height of clay bank, 14 feet.
Shovel crew---1 man on the shovel and 1 on the ground.
Average time to load per car, 3 minutes,
Daily output, 66,000 brick.

DAILY EXPENSE

| | |
|---|---|
| Wages of engineer | $2.75 |
| Wages of helper | 2.00 |
| Coal---800 lbs. at $3.00 per ton at shovel | 1.20 |
| Water---480 gallons at 4½ cents per gallon | .22 |
| Total | $6.37 |

The shovel is certainly giving us splendid service as you will readily see from this report. We consider it a remarkable showing, and are pleased to be able to testify to the great satisfaction your type 0 is giving. Very truly yours,

WALKER & FRANK BRICK CO.

*YOU'LL FIND BOOKLET A INTERESTING*

FULL CIRCLE SWING
THEW
HORIZONTAL CROWDING MOTION
STEAM SHOVELS

**THE THEW AUTOMATIC SHOVEL CO.** LORAIN, OHIO

POWER SHOVELS FOR RAILROADS, MINES AND CONTRACTORS
SMELTERS, BRICKYARDS AND CEMENT WORKS

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**

The above is a miniature of a sheet steel sign with blue background and embossed white letters. These signs are 20 inches long and 7 inches high. Price, $5.00 per hundred, F. O. B. factory. With firm name in place of "The Everlasting Material," $6.00 per hundred. A "PAVE WITH BRICK" sign similar to above supplied at same price.

# BUILD WITH BRICK

A Nation-Wide Movement for Boosting the Brick Business.

THE CLAY-WORKER'S BUILD WITH BRICK campaign has taken on nation-wide importance. We have shipped thousands of posters to enterprising brickmakers, from New England to California.

Have you received specimen posters? If not, you can have them for the asking. We have nine different designs, adapted to various uses, from street cars and brick wagons to barns and fences. If you are doing any local advertising, you will find these posters useful in that connection. The Standard Brick Company, Evansville, Ind., has used some of them in its local papers with telling effect.

There is no doubt about it, you can boost the brick business in your own locality by using these posters, and the expense is but a trifle. Poster No. 7 has proven very popular, and No. 1 makes a nice envelope cut. We will be glad to print you a supply of envelopes, or will furnish you an electrotype of this cut at cost for your local printer. In the language of the street, "Get in the game," and help us boost the brick business.

We can supply you with any sort of a poster you want. If you prefer a tin sign or a sheet steel sign, we will furnish same at cost. A two-color sheet steel sign in white and blue, the words "BUILD WITH BRICK," embossed in white letters on a rich blue background, makes an unusually attractive poster. If you want something even better, an enameled steel sign, good for all time, we can get it for you. Write us what you want, and we will do our utmost to supply it.

T. A. RANDALL & CO.,
Publishers The Clay-Worker,
Indianapolis, Ind.

T. A. Randall & Co., Publishers,
Indianapolis, Ind.

Gentlemen:

You may send me........metal signs, also tack card "BUILD WITH BRICK" posters as follows:

...........Poster No......, size 11x11, cost $5.00 per 1000

...........Poster No......, size 11x14, cost $6.50 per 1000
(With Firm Name)

...........Poster No......, size 12x22, cost $8.00 per 1000

...........Poster No......, size 14x22, cost $9.50 per 1000
(With Firm Name)

Posters Nos. 1, 2, 3, 4, 5 and 6 are made 11x11 or 11x14 inches. Posters Nos. 7, 8 and 9, size 14x22 inches. These are printed on substantial 5-ply card.

Print on same my card, as follows:

..................................................................
..................................................................
..................................................................

Very respectfully,

..........................................

Address ..................................................

..................................................................

Tear off this coupon and mail us your order today.

**BUILD WITH BRICK**
**THE EVERLASTING MATERIAL**

MAKES THE STRUCTURE BEAUTIFUL.
NO PAINTING. NO COST FOR REPAIRS.
FIRE PROOF. TIME PROOF. WEATHER PROOF.
COOL IN SUMMER. WARM IN WINTER.

Miniature of Poster No. 7.

**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country,"
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

---

**SHAWMUT VITRIFIED PAVING BRICK WORKS**

Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

---

**ALTON BRICK COMPANY**

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

---

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

**The Barr Clay Co.**

C. C. Barr, Pres. • Streator, Ill.

---

**McAVOY VITRIFIED BRICK COMPANY**

PHILADELPHIA, PA.
*"McAVOY BLOCK"*

---

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

**KUSHEQUA**

Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

---

**VITRIFIED PAVING BRICK.**

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of $2.00.

T. A. RANDALL & CO., Publishers, Indianapolis.

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**PROMENADE TILE**

Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

---

**C. P. MAYER BRICK CO.**

The MAYER BLOCK is Unequaled in Abrasion Test.

---

**Tile Underdrainage.**

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

---

**THE DECKMAN-DUTY BRICK CO.**

CLEVELAND, OHIO.

THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

---

**"Best Paving Block Made"**

Daily Capacity
500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

## SERVICE FIRST!

## IRONSTONE BLOCK

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF ◇ THE IRONSTONE QUALITY ◇ IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

**Terre Haute Vitrified Brick Co.**
TERRE HAUTE, IND.

---

## Murphysboro Paving Brick Company

Manufacturers of

The Celebrated

## EGYPTIAN PAVING BLOCK

The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

---

## Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

**Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.**

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

**The BLOOMFIELD CLAY CO.,**
(C. A. Bloomfield, Treas. and Manager)
P O. Box 413. METUCHEN, N. J.

---

## CLINTON PAVING BRICK CO.

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

**Clinton Paving Brick Company**
Clinton, Indiana

---

## Milton Brick Co.

Manufacturers of

PAVERS, BUILDERS and
ROUGH TEX BRICK

Milton, Pa.

---

## Bessemer Limestone Company

Youngstown, Ohio.

Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

---

## PURINGTON PAVERS

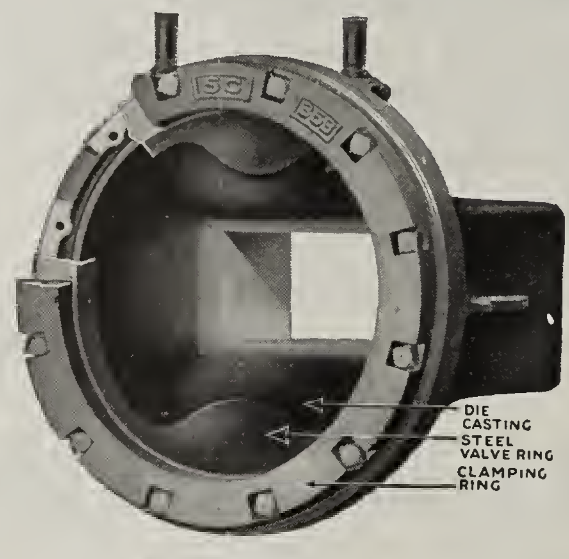
ARE MADE OF

GALESBURG
SHALE

**PURINGTON PAVING BRICK CO.**
GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

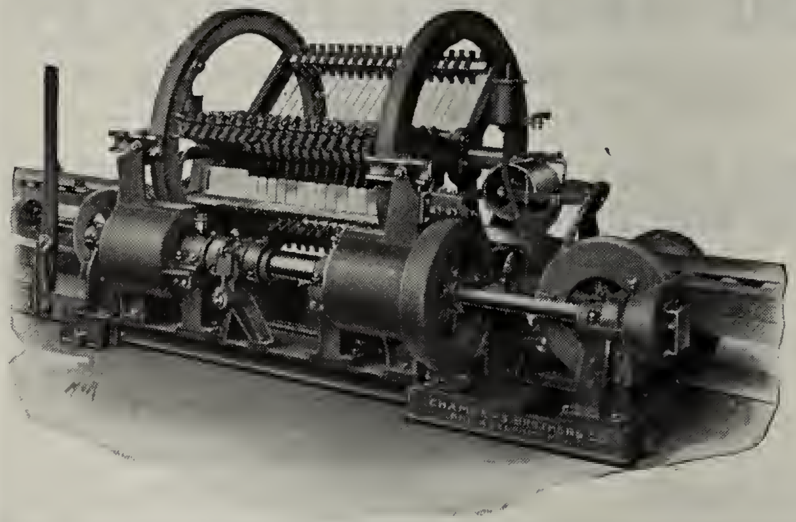
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

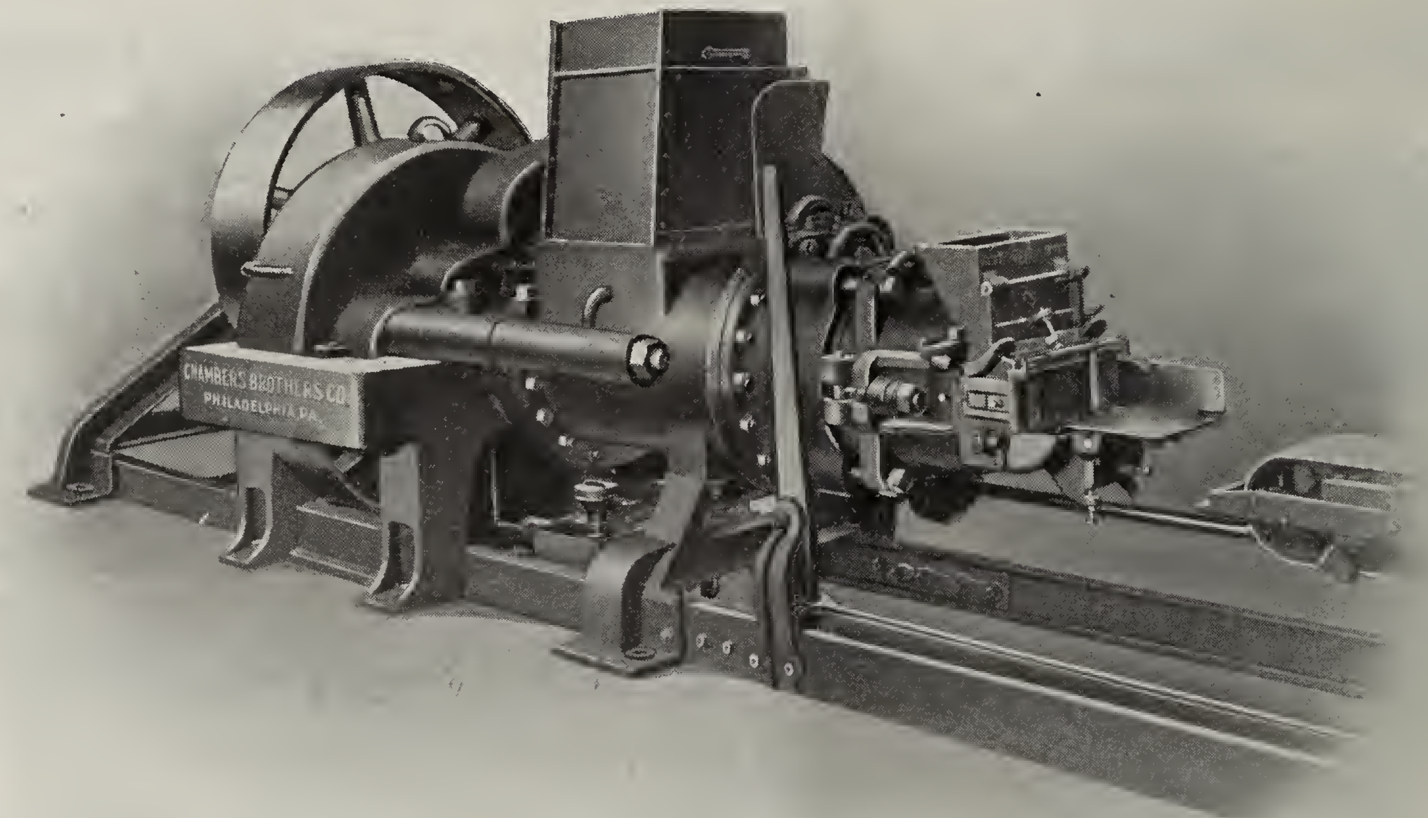
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine—For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

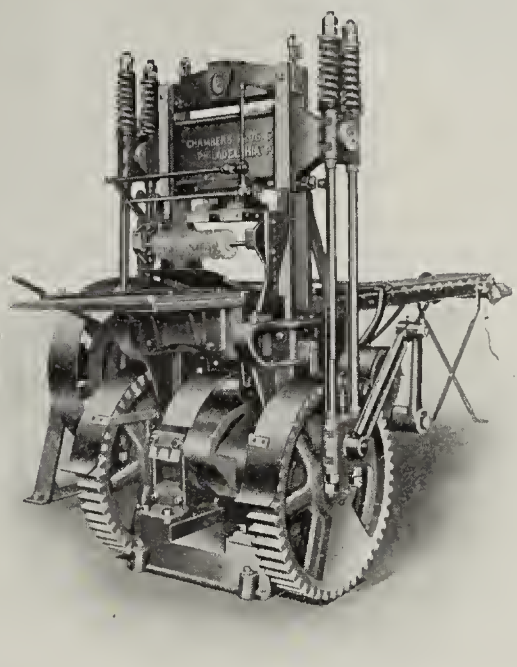
# Chambers Brothers Co., Philadelphia, Pa.

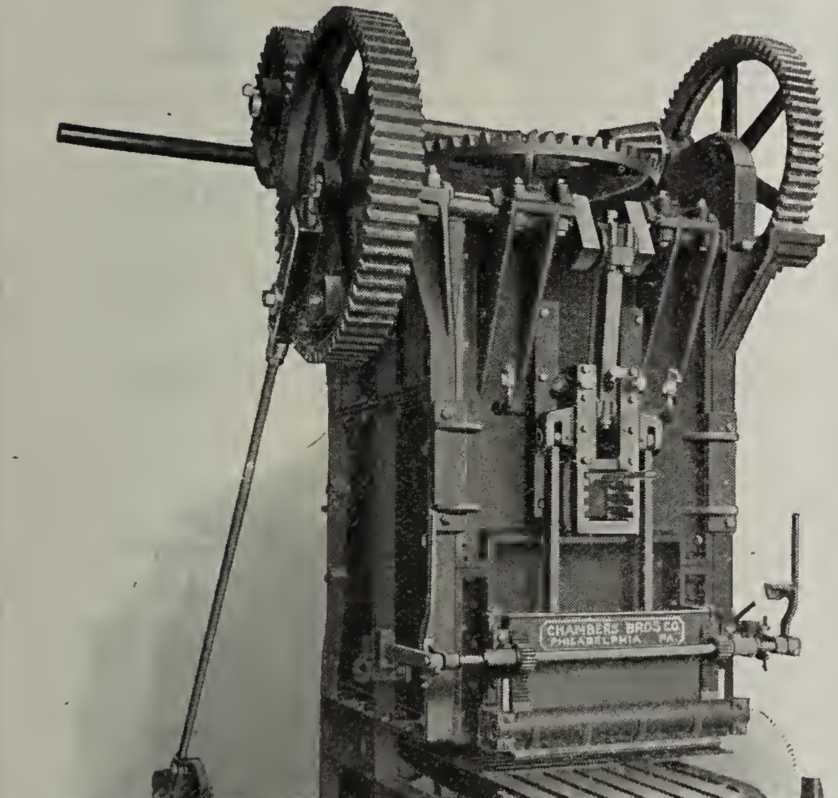
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.




CHAMBERS BROS CO.
PHILADELPHIA PA.

THE BELMONT
SOFT MUD BRICK MACHINE

## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

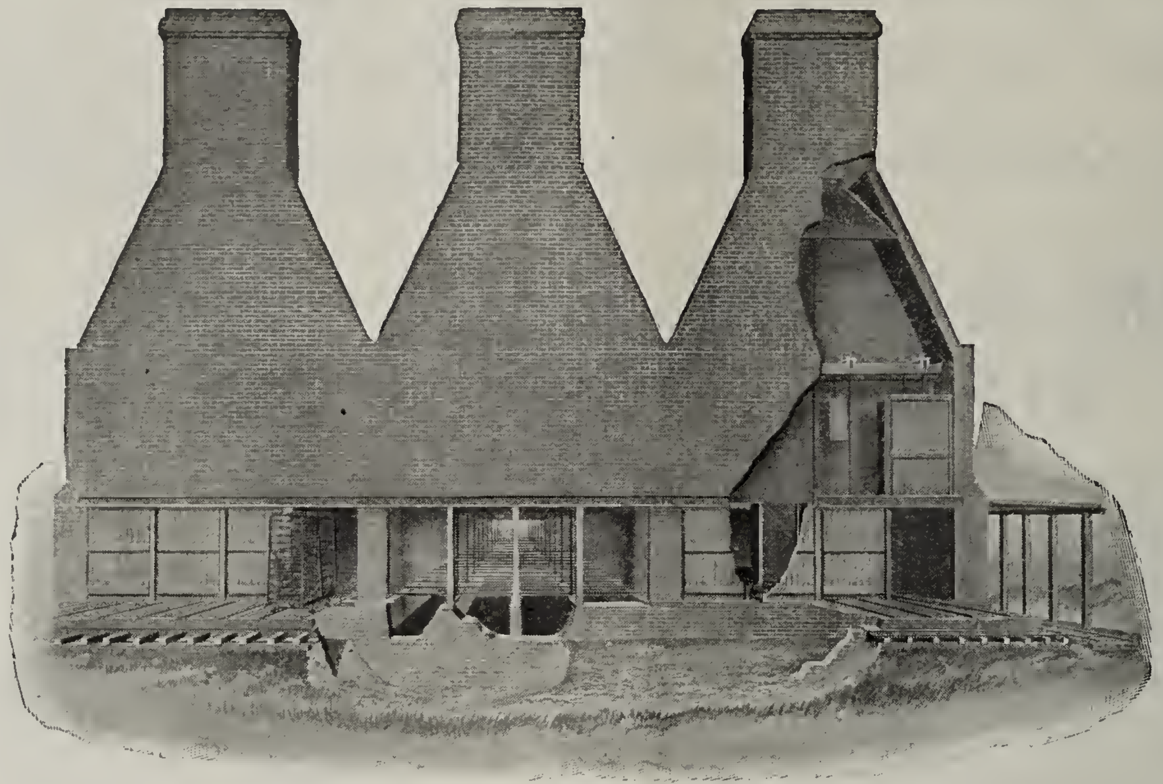
Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

Molds sharp clean edge brick as stiff as can be dumped from the molds.



Twelve-track Standard Drier of the most up-to-date type of fireproof construction. Timber almost entirely eliminated. Walls and stacks of brick. Roof of tile, concrete or brick.

# THE GUARANTY

of a responsible manufacturer is the truest index to the quality of his product. For over 25 years we have been selling The Standard Drier to brickmakers under a plain guaranty of satisfaction.

Users of our drying equipment are everywhere. Ask *them* to tell you about it.

Our catalog contains a list of users. Gives a complete description of The Standard Natural Draft Steam Drying System. Explains how easily the drying conditions are adapted to suit *any and every variety* of clay. Write for this catalog. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.

SEAL

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXIII. INDIANAPOLIS, IND., APRIL, 1915. No. 4

# A $10,000 BRICK DISPLAY.

### What Most Clayworkers Would Consider an Extravagant Advertisement Has Proven a Wonderful Boost to Farr Brick Co.

COMMON-BRICK manufacturers the country over will be interested in learning that a new mixture has been discovered that enables the maker to get a higher price for his product and at the same time extend its field of usefulness. They are putting something besides clay in the bricks in one Ohio plant and the addition of the new ingredient is working wonders.

Just think, Mr. Brickmaker, of taking an $8.00 common brick, mixing in a sprinkling of gray matter and selling it for $10.00.

"Whisper," you say, "or the public will get next."

That's all right. The public likes it. There is no secret about it, at all.

It is all a matter of viewpoint. It depends upon whether you are satisfied with the belief that a brick is a brick. Somebody was certain to wake up in time and, turning the radium rays on the common red article, read in its hard-baked soul the romance of its lifetime.

Down in Cleveland, which is the metropolis of the great brick-producing state of Ohio, three men have applied some well-known principles to the common brick business.

The fortunes of their business will be taken up in their chronological order later. The climax of the experiment came a few weeks ago, when one of the trio suggested that $10,000 be spent in a single publicity enterprise.

"Would the manufacture and sale of common brick warrant such an outlay?"

The originator of the plan believed it would. He quite astounded the others when he told them that he was going to put the plant's product on the market as a **face brick,** at an increased price.

H. J. and E. W. Farr, Cleveland, Ohio.

"Is there any demand for common brick for facing?" was asked.

"Not yet—but there will be. We will create the demand."

This surely was something new in the common brick business. Usually the architect has been the delineator of styles in such matters. The producers of the materials merely try to meet the demand.

Here is where the introduction of the gray matter took place.

"Let's trace the history of face bricks," said the proposer of the revolutionary step. "Following the use of common brick without regard for art, but simply on account of its safety and permanence, came the pressed brick, usually in red. Then the light-colored bricks had their day, and later the change to rough surfaces came. The country is ripe for another change. Why not go back to the colonial days and give them the common brick, with art added?"

This would have been the end of it with less enterprising manufacturers. The task of making the architect accept the new idea and specifying it in their jobs would have appeared too herculean a task to justify the effort and the big expenditure. Many brick manufacturers, right now, will doubt the ability of a salesman to take a common red brick to the architect and put over the suggestion that it be specified for facing in the next residence or school or club building calling for brick walls.

It was not proposed to go about it that way.

The salesman would not take a "common" brick to the architect or the prospective builder. He would select a hard, even-colored and well-moulded brick from the kiln and give it a name. In the name there must be conjured up all the sentiment revealed in the reaching of its goal and its history.

Of all the dwellings you ever have known which awakens the fondest memories?

"The Old Homestead," you will say. "The place, back home, where the folks still live, perhaps, or at least the place where every brick, every tree and every blossoming shrub reminds you of the happiest days of your life. The old brick homestead—the unchanging home that looks today just as it did a half century ago, except for the mellowing of its color and the spreading of the vines that cling to it."

The brick man with the new idea reasoned it out that way. He called the old product by the new name of "Homestead" brick.

Homestead—it is a name you like to repeat. It means something to every man who fosters the desire to own a home. It suggests not only a home but a haven—a safe shelter and comfort. You think of the homestead as a place always open to you; always the same; never changing; never moving.

The city man calls his flat his home. Next spring he moves to another apartment and that for the time being is home. The home of the homesteader means something more than just a place to live. It is THE place to live.

All that the word homestead means was incorporated in the new face brick. It was the general manager of the concern that evolved the new idea and he was talking to the two principal owners of the business. His argument was something like this:

"It is time for a change in the style of facing brick and we will set the style. But you can't tell a man just how a wall of our Homestead brick is going to look. We must build a wall as an example. Old and tried and true as the brick is, there are still many people who are not convinced that they should use it in the face of their building. We will make our wall an argument for brick generally and particularly a proof of the beauty and worth of our product."

Robert C. Mitchell, Cleveland, Ohio.

"All right," said one of the proprietors; "where will we build the wall—out at the plant?"

"By no means," the general manager replied. "I have the location right on the new boulevard, where thousands of automobiles pass every day. It will be seen from several prominent streets, either by night or by day. It will cost $10,000 to do this thing the way I want it done, but it will all come back, and some more dollars with it."

The word "go ahead" was no sooner spoken by the men behind the finances than the general manager had his hat on and was on his way to close a lease of the location and engage an architect to design the wall. For the first time in brick history, so far as the writer knows, big money was put into the promotion of common brick.

Today there stands between Detroit avenue and Burkley boulevard, in Cleveland, an ornamental wall of common brick—in this case Homestead brick, if you please—that is the most talked of piece of publicity ever executed in the Sixth City. The wall, facing twenty feet on Detroit avenue, has its long side, sixty feet by thirty-five feet high, facing the city park way and boulevard and adjoining city property. Atop of the wall is an animated electric sign in which 800 incandescent lights flash the ingenious trade-mark of the Farr Brick Company—the brick and wings with lettering, "Buy Farr—The Best." Worked into the masonry of the wall, in relief, is the good advice, "Build with Brick," and the name of the brick company in full.

It is the most pretentious "Build with Brick" sign that ever has been erected and its influence is not in the interest of the Farr Brick Company alone, but it is an especially potent advertisement for brick generally.

The wall is truly a thing of beauty. Architects and builders who have seen it marvel at the softness and velvety effect of these common bricks. The designing of the wall is a masterly piece of architecture and it brings out the best that is in the material. For the effect produced credit must be given to George W. Ritchie, of Cleveland. Mr. Ritchie did the drawing of the wall and superintending and his skill comes out of intimate knowledge of the old "Down East" homes of the colonial period. He is a Boston man and an enthusiast in the use of the common variety of bricks. For the execution of the mauve work credit goes to the J. C. Campbell Company, contractors. A. L. Triggs, of the A. & W. Sign Company, designed the electrical effects.

Other Cleveland architects have heartily endorsed the experiment and it is the belief of the building trades that the Farr wall and the introduction of Homestead brick will give new impetus to the "Build with Brick" movement in Cleveland, and perhaps throughout the country. Since the use of common brick cuts down the difference in first cost between permanent construction and the too prevalent frame work, it is heralded as a blow to burnable construction and a significant advantage to the burned clay interests generally.

Even with a concern as enterprising as the Farr Brick Company this extensive advertising plan would not have been entered into except in the line of development that the company has been going through for the past two years. In other words, the manufacturers would not have considered an expenditure of $10,000 for a single advertising stunt until it has demonstrated to its satisfaction that judicious advertising actually pays.

The name Farr has been burned into bricks entering into Cleveland buildings for about thirty years. Warren Farr was the founder of the business. Upon his death eight years ago, two sons, E. W. and H. J. Farr, and one daughter, Mrs. Ida Williams, inherited the business and with it the traits of integrity and progressiveness that had characterized their father's business activities. The business has been conducted as a partnership under the name of the Farr Brick Company until about a year ago, when it was incorporated under the laws of Ohio with a capital stock of $3,000,000.

From just one of many brick concerns in the city it has grown to a position of prominence and influence. It was decided about two years ago to extend the business and establish a downtown office. The company selected a second-floor suite in the most conspicuous corner of the new Leader-News building, at Superior and East Sixth streets, and it maintains there one of the largest and most completely equipped offices in the country handling the sales end of a common brick business. The Farr brothers are both practical brick men and that they might give their time entirely to the production they annexed the services of Robert C. Mitchell as general manager, in charge of the company's downtown office, sales and advertising.

With his entrance into the business a year ago Mr. Mitchell began a consistent campaign of advertising. He had been for years in the builders' supply business and left the position of sales manager with the Cleveland Builders Supply Company to devote his efforts to the single product. He would not confine himself, however, to the usual prosaic methods of handling common brick. His advertising copy, specimens of which are reproduced in connection with this article, prove that he found something in common brick to talk about. He first set about the task of convincing the building public that a brick is not a brick—always. He made the consumer recognize and pay for quality in bricks. He created the clever trade-mark, "Buy Farr—The Best," that is now a household phrase, in the building trades, at least.

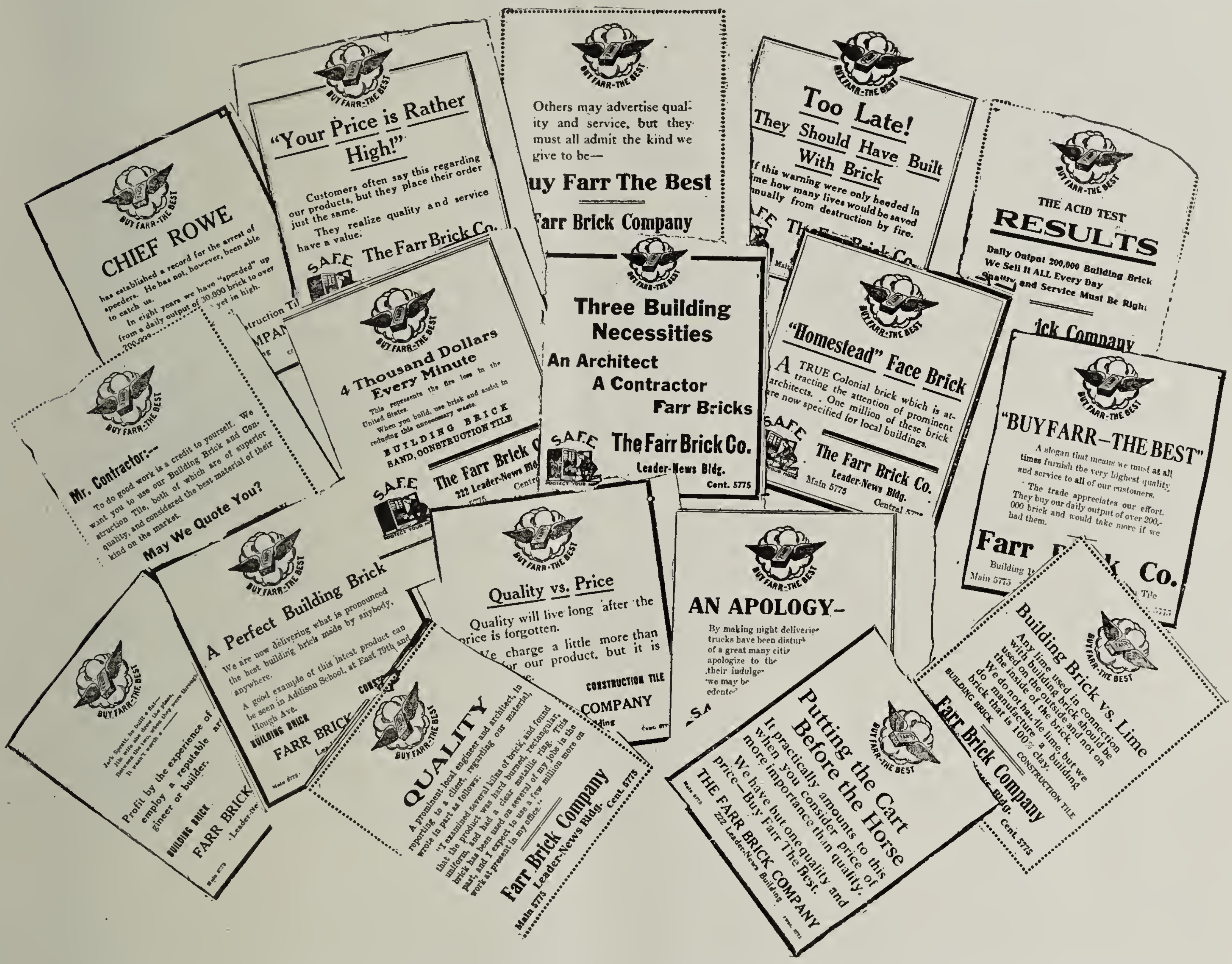
When Mitchell began using newspaper space and giving away souvenirs, of the kind people keep and remember the giver thereof, the Farr plants were turning out 190,000 brick a day. At the present time the daily output is 290,000 a day and other extensions are under way. All through the height of the building season it required the service of eight auto trucks and 172 horses to satisfy the contractor's appetite for brick of the "Buy Farr—The Best" brand. Not only has Mitchell's campaign for quality and service resulted in the sale of every brick the two plants of the company have been able to turn out, but the prices have been better than ever before in the history of the concern. In short the bird, Prosperity, has perched on the Farr banner and appears to have established its permanent home there.

During the past season the company has been drilling for natural gas at its two plants, and one large supply has been located and is being used in burning the bricks. Other wells are being drilled and the company expects, within a few months, to supply all its kilns from its own wells and wipe out the big item of gas bills.

Having seen the results of previous publicity enterprises, the Farr brothers were prepared to consider General Manager Mitchell's latest stunt, and were not staggered by his little budget of $10,000 for a wall and electric sign—especially since it was the card that is to carry the trick of putting Homestead face brick on the market.

The illustration on the cover gives only a meager impression of the beauty of the demonstration wall. Brickmakers from other cities visiting Cleveland will find it worth while to visit the Farr sign when in the Sixth City. Many of the objections and criticisms that will arise from first consideration of the enterprise are removed by the wall itself. The work was well planned by the Farrs, Mitchell and Architect Ritchie.

There was the element of the neighbors to consider. That it might be free from vandalism it was designed to be of public service. Besides there being an ornament to the street and hiding a row of none too presentable buildings, it embraces a sanitary drinking fountain which, through the warm months will be supplied with ice. There also are benches where the weary may rest and a small fountain for the dogs. Those who live in the neighborhood already evidence their pride in the structure and are enjoying its convenience.



CHIEF ROWE

has established a record for the arrest of speeders. He has not, however, been able to catch us.

In eight years we have "speeded" up from a daily output of 30,000 brick to over 200,000 yet in high.

"Your Price is Rather High!"

Customers often say this regarding our products, but they place their order just the same.

They realize quality and service have a value.

S.A.F.E. The Farr Brick Co.

struction Til

MPAN

Others may advertise quality and service, but they must all admit the kind we give to be—

uy Farr The Best

arr Brick Company

Too Late!

They Should Have Built With Brick

f this warning were only heeded in me how many lives would be saved nually from destruction by fire.

FE The Farr Brick Co.

THE ACID TEST

RESULTS

Daily Output 200,000 Building Brick

We Sell It ALL Every Day

Quality and Service Must Be Right

ick Company

Mr. Contractor:—

To do good work is a credit to yourself. We want you to use our Building Brick and Construction Tile, both of which are of superior quality, and considered the best material of their kind on the market.

May We Quote You?

4 Thousand Dollars Every Minute

This represents the fire loss in the United States.

When you build, use brick and assist in reducing this unnecessary waste.

BUILDING BRICK

SAND, CONSTRUCTION TILE

S.A.F.E. The Farr Brick C

222 Leader-News Bld

Centr

5775

Three Building Necessities

An Architect

A Contractor

Farr Bricks

S.A.F.E. The Farr Brick Co.

Leader-News Bldg.

Cent. 5775

"Homestead" Face Brick

A TRUE Colonial brick which is attracting the attention of prominent architects. One million of these brick are now specified for local buildings.

S.A.F.E. The Farr Brick Co.

Leader-News Bldg.

Main 5775 Central 57

"BUYFARR—THE BEST"

A slogan that means we must at all times furnish the very highest quality and service to all of our customers.

The trade appreciates our effort. They buy our daily output of over 200,000 brick and would take more if we had them.

Farr k Co.

Building

Main 5775 Tile 5775

Jack Spratt, he built a flat—
His wife she drew the plans,
Between the two, when they were through,
It wasn't worth a —

Profit by the experience of employ a reputable ar gineer or builder.

BUILDING BRICK

FARR BRICK

Leader-Ne

Main 5775

A Perfect Building Brick

We are now delivering what is pronounced the best building brick made by anybody, anywhere.

A good example of this latest product can be seen in Addison School, at East 79th and Hough Ave.

BUILDING BRICK CONS

FARR BRICK

Lea

Main 5775

Quality vs. Price

Quality will live long after the price is forgotten.

We charge a little more than for our product, but it is

CONSTRUCTION TILE

COMPANY

ding Cent. 5775

QUALITY

A prominent local engineer and architect, in reporting to a client, regarding our material, wrote in part as follows:

"I examined several kilns of brick, and found that the product was hard burned, rectangular, uniform, and had a clear metallic ring. This brick has been used on several of my jobs in the past, and I expect to use a few million more on work at present in my office."

Farr Brick Company

Leader-News Bldg. Cent. 5775

Main 5775

AN APOLOGY—

By making night deliverie trucks have been distur of a great many citi apologize to th their indulge we may be edente

S.A

Putting the Cart Before the Horse

It practically amounts to this when you consider price of more importance than quality.

We have but one quality and price—Buy Farr The Best.

THE FARR BRICK COMPANY

222 Leader-News Building

Main 5775 Cent. 5775

Building Brick vs. Lime

Any lime used in connection with building brick should be used on the outside and not on the inside of the brick.

We do not handle lime, but we do manufacture a building brick that is 100% clay.

BUILDING BRICK CONSTRUCTION TILE

Farr Brick Company

g. Cent. 5775

Some of the Clever Newspaper Advertisements Used by the Farr Brick Co. in Their Publicity Campaign.

### Merely Tangoing.

Crawford—What's the matter with that fellow who is holding onto the lamp-post and shuffling his feet?

Crabshaw—There was a time when I'd have said he was drunk, but now perhaps he's practicing a new dance.

# THE BUILD WITH BRICK MOVEMENT.

## A Little of Its History, Its Purpose and Success and Suggestions for the Perpetuity of Same.

### A BIT OF HISTORY.

THE campaign for the "Build with Brick" poster and slogan waged so persistently and successfully by the Clay-Worker has developed into a bit of interesting history in connection with the clayworking industry in this country, and since, at this writing, it gives every promise of making still more history by the new impetus that has been given it through the organizing of a central bureau of the N. B. M. A. to promote the work of exploitation systematically, it is in order therefore to review briefly the history of this idea, its origin and development.

The first gun in the big campaign for the "Build with Brick" posters was fired by the Clay-Worker in the issue of May, 1914, in which the general idea of what might be accomplished in the way of nation-wide advertising by universal local effort, was set forth.

The idea of course centered around the use of the three words, "Build with Brick," conspicuously displayed on posters, in advertising in local papers, and in every way suggesting itself that there might be a display to attract public attention, the object of it all being to drive home by the persistent and conspicuous repetition of these three words the fact that brick should be considered in all building operations. With these words staring the people in the face from all sides and in all manner of ways naturally any man contemplating anything in the way of building would, from the persistent observation of these three words, make inquiry of some local brick man, and this would give the brick man his opportunity.

It took several months of broadside effort on the part of the Clay-Worker, with conspicuously featured articles on the subject, to arouse the widespread interest of the clayworking industry, but it was finally accomplished and what has happened as a result is a matter of history recent enough that it is fairly clear in the minds of the clay-working fraternity.

* * *

### The Story of a Vision.

Back of it all, however, back of the actual featuring of the campaign which started in the Clay-Worker, there is a story of a dream, of a vision seen, which is now in a fair way to be made into a reality.

A year, more or less, previous to the launching of this campaign the writer mentioned in a short editorial paragraph that a good catch-line for local advertising could be made with the three words, "Build with Brick," for they had both euphony and directness of purpose to make an effective impression when conspicuously displayed.

Down at Evansville, John Andreas, of the Standard Brick & Manufacturing Co., who is one of the most wide-awake advertisers of brick this country has produced and is always looking for something new along this line, caught the idea of using the words "Build with Brick," and immediately commenced to display it in their advertising.

This fact and the appeal of the catch line was discussed with the writer during a visit down there subsequently, following which the writer, who is given to dreaming day dreams upon occasion, fell to meditating upon this subject, to day-dreaming, if you will, and finally saw a vision. In this vision there were these three words, "Build with Brick" staring the people in the face in all manner of ways and in all parts of the country, from Canada to Mexico and from Maine to California, tacked up in the form of posters not only along the roadways of the country but also along the railway lines, so that, during the year 1915, one going from New York to the Panama-Pacific Exposition would see these three words staring him in the face all the way along the line from every state in the Union. In this vision they were also seen in street car signs, moving picture shows and flaring out in big cities in electric lights, flashing by in car signs on railway trains, and somewhere, some way, there was in sight all the time, in big, conspicuous letters, the injunction to "Build with Brick." In this vision not only were there the visible signs, but there was a suggestion of music—of bands playing a tune called "Build with Brick," and an enthusiastic vocal rendering of it at future N. B. M. A. banquets.

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### Making a Dream Come True.

It was this vision, which can be but dimly pictured in words now, that led to the campaign for the "Build with Brick" posters. It is one thing, however, to have a dream and see a vision, and quite another and different thing to make it come true, to make it real. Dreams are made to come true at times, but often when one begins the task of making a vision into a reality it is much like trying to kindle a fire among the dead ashes in the cold gray dawn of the morning. People do manage to kindle fires among the dead ashes in the gray dawn, however, and warm things up. Moreover, enthusiasm can be aroused by persistent effort even when the first fires of inspiration have died down.

It took some hard plugging and persistent work, in which all the force of the Clay-Worker figuratively rolled up its sleeves and went after it, to get the fires kindled under this "Build with Brick" idea, but by and by we got it started and it kept growing and spreading, and while all the vision in all of its many aspects has not been made real yet, wonderful things have been accomplished, and those who have followed the work are unanimous in the opinion that it is the biggest thing that has ever happened in the history of the clayworking industry in this country. It has not only put enthusiasm into the brickmaking fraternity and aroused the spirit of exploitation, but it has made the general public sit up and take notice. Incidentally, it has bestirred those interested in rival building materials to strenuous action to hold their ground, and out of it all has come a wonderful lot of benefit to the clayworking industry. And the best and biggest part is yet to come.

* * *

### The Big Things of the Future.

The public is already becoming impressed with the idea, and is gradually shaking off the old impression that only the rich could build with brick. Moreover, the more the subject is agitated the more impressive becomes the fact that brick is the greatest building material in the world. Even those interested in rival materials are helping the cause along, because the more the matter is agitated the more effective and abundant becomes the proof that brick furnishes the greatest opportunity for the home builder.

Now that we have gotten this far it is no time to stop and let the fire die out. We are just to the point where more effort along the same line will bring bigger and better results. It is simply a matter of keeping it up, whooping it up and persistently putting up the sign "Build with Brick," in every conceivable way, until it is staring people in the face all the time. Let us have it so that no man can drive a mile along any roadway without seeing signs with these on it and so that he cannot walk a block in any city without being confronted with it in the form of poster signs and by electric lights at night, and let every brick man not only post the signs in the territory tributary to his plant, but put some monster signs on the plant itself and make it a catch line in the local newspapers. Never mind making the individual or firm name conspicuous; keep pounding away with that "Build with Brick" sign. That will bring the builders to you, and then you can easily do the rest.

* * *

### How the New Bureau Will Help.

The new Building Brick Bureau of the N. B. M. A. will help make it easy to follow up the good work of the "Build with Brick" slogan by supplying the necessary data and talking points that will be required to close the deal and sell the brick after the prospective customer once comes in to inquire about it. Every man, of course, to get the full benefit of this campaign, must be prepared to tell his prospective customer what it will cost to build with brick as compared with other building materials and also to speak intelligently of the advantages offered by proper brick construction, and if the occasion requires to supply suggestions for attractive plans, color schemes in outer walls, etc.

The supplying of information of this kind will be an important part of the work of the central bureau and it will complete and round out in a logical manner the "Build with Brick" campaign. Every man who is interested in the matter should join in the work of this bureau that he may get the full measure of benefit and keep the trade in clay products expanding as it should.

AN IDEAL BRICK HOME

**BUILD RIGHT**

**When You**

**BUILD WITH BRICK**

**It Means**

**BEAUTY——DURABILITY——NO PAINTING——NO REPAIRS**

*COOL IN SUMMER---WARM IN WINTER---LOW INSURANCE*

**HILL & KARNES BRICK CO.**

INCORPORATED

900 N. SIXTH ST. PADUCAH, KENTUCKY HOME PHONE 1233

The Above is a Reproduction of the Printed Matter on a Blotter Used Effectively by the Hill & Karnes Brick Co.

Meantime let us not neglect the poster and the catch line idea. Let us not only keep alive and awake to it individually, but it is to be hoped that the central bureau itself will encourage this work as a sort of central feature of its efforts.

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## LIFE SAVERS OF THE MINES.

Usually when the life saving service is mentioned our thoughts turn to that organization of the government which devotes itself to the saving of life in the case of trouble along the sea coast, that it saves life from drowning.

We have, however, an entirely different life saving service which is fully as important. This is the life savers of the U. S. Bureau of Mines.

According to the statement of Dr. Joseph A. Holmes, director, these have rescued more than 102 miners. More than this, the volunteer rescuers in the employ of mining companies who have been trained to rescue work have saved many others.

The Bureau of Mines has done such good work along this line that the miners themselves have taken it up and there has been established more than 1,200 sets of rescue apparatus by mine owners. The bureau itself maintains six rescue stations, eight mine rescue cars and one rescue motor truck located in the mining districts of the country. The cars visit the various mining camps and train the men in rescue work and in the administering of first aid to the injured.

Good work is being accomplished with this equipment but Dr. Holmes feels that there should be fifteen rescue cars instead of eight to take care of the millions of miners of the United States.

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## THE LATEST STYLE IN MORTAR.

One of the interesting changes that has been going on the past few years in brick construction work is the change in mortar from the old lime mortar to one made of cement. Perhaps there was a day in the dim past where sun-baked brick practically made its own mortar. Then came a period of using some resinous binder, and finally that period in the life of the brick and the brick industry in which lime and sand constituted the mortar generally used the world around in laying up brick work. The lime mortar is still used, but it seems to be steadily giving way to cement mortar. Some use a mixed mortar made of half lime mortar and half cement, but the strong tendency of the day is toward the use of a purely cement mortar. In fact, the tendency is so strong that some architects specify it and will not have any other kind, and here and there are city ordinances which show favor toward the cement mortar. The common specifications for cement mortar is one part of portland cement to three parts of clean sand. Seemingly the ingredients may cost a little more, but it is made up just as it is used and is ready to use instantly, whereas lime mortar properly should be made up a week or two in advance. So the cement mortar is meeting with pretty general favor and it is claimed by some that it really does not add materially to the cost of construction as compared to lime.

# CREATING DEMAND.*

By Warren Ittner, Belleville, Ill.

Mr. President and Gentlemen of the Convention:

This subject is certainly a "timely topic" and one to which the brickmaker must devote more time and thought in the future than he has ever done in the past.

Almost up to the present writing, it has been the policy of brickmakers to fight among themselves for existing trade, with not a single thought as to the possibility of creating demand and thus broadening the use of their product to that point where there would be business for all.

The subject may be broadly considered under two divisions: First, by a study of the common everyday uses to which brick are put, in order to determine whether they are getting the treatment they deserve so they will impress the beholder in their favor instead of turning him against them. Again, to study methods of brick construction and details of operation in handling, so they will have the benefit of economical and up-to-date methods of having around their necks the incubus of world-old practice.

Warren Ittner, Belleville, Ill.

Second—we can go on pilgrimages of discovery to find out to what new uses brick can be put, and in following up this side of the question we can almost let our imaginations run riot without getting very far from the actual, since, though I have never traveled abroad, I have seen excellent photographs depicting a variety of uses to which brick—and common brick at that—have been put in foreign lands, that would astound our American brickmaker.

Taking up the first division of our subject—the possibility of inaugurating more efficient and economical methods of handling brick after they leave our plants and likewise the investigation as to their treatment for best effects, etc., we would seem to be butting in on the prerogative of contractor and architect. As a matter of fact, the prerogatives of these two gentlemen need considerable butting into.

With regard to the latter, he must be led to curb his desire for the bizarre, the freak, in brick work effect, and unless his structure is a Chinese pagoda or a Buddhist temple, to strive for that dignity and stability of expression that is brick work's most ancient and valuable heritage.

Years ago, at one of these conventions, I listened to a lecture by Dean White, of the University of Illinois, on the "Aesthetic Use of Brick in Architecture." It was a most excellent paper, profusely illustrated, and it would be well for the association to dig it up, have it printed and put into the hands of every architect in the state.

As to the matter of the strength of brick work—this was pretty thoroughly discussed at the National Brick Manufacturers' Association at Chicago two years ago and steps taken to supply some of this defficiency in knowledge through the government testing station at Pittsburg.

Just why an architect will show a pier 12x12 inches in reinforced concrete and then one 4x4 feet to carry the same load if brick construction is to be used, I do not know. Of course, he doesn't know the strength of brick work and wants to be sure, whereas he can get the size of beam or pier out of books furnished him in convenient form by the cement or steel manufacturers. This fact alone is, I firmly believe, the cause for the popular impression of the high cost of brick work.

And now as to the contractor. We brickmakers have come to regard him as a demon incarnate. We know him only as the man who pits us against one another in our mad efforts to sell him brick.

Let's switch. Let's get next to him by studying his methods of construction and showing him cheaper and better methods of putting our material in the wall.

This is the one idea that animates the concrete men—to perfect and cheapen methods in the use of their material. For instance, we brickmakers have used pug mills for decades in the preparation of our clay, and yet we leave it to the cement manufacturer to show how to mix mortar better and cheaper with this device. We are all familiar with the hoisting elevators used in the construction of skyscrapers, and yet we have given no thought to the use of this means in lighter and less expensive form for saving labor in the building of a two or three-story dwelling.

Hodcarriers are easy to get when working in the cellar and on the first floor, but the trouble starts when there are one, two or three ladders to climb. It strikes me that there would be no particular difficulty in setting up a light, long reach boom derrick to handle both mortar and brick, and, indeed, window sills, frames, joists, etc., from ground to scaffold. Few buildings go up where electricity cannot be tapped in with short lines of wire and the power could thus be had at very nominal cost.

We brickmakers are kicking about the high wages bricklayers receive. The high cost of laying brick was made the first matter of investigation by one of the first, if not the first man to conceive the "Motion Study" idea. How many of us have read about and understood Gilbreath's Method of laying brick. Bricklaying is hard work, and before we kick about the wages bricklayers receive and about their restrictions on the number of brick they will lay in a day we should do all we can to make the work so easy that they will be ashamed of themselves and do an adequate day's work.

The derrick hoist idea cuts out the hard work of the hodcarrier and would reduce the number necessary on a certain job. If the Gilbreath adjustable scaffold were being used the brick and mortar could be gotten to it better with this hoist than by hodcarriers, and then, say, in unloading the brick at the job, we would have our teamsters place the brick in stacks so they could be picked up by a clamp, in some such manner

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Paper read before the Illinois Clay Manufacturers' Association, February 10, Springfield, Ill.

as the brick-setting machines used by the Chicago brickmakers. Doesn't it seem certain that the cost of getting our material in the wall would be materially lessened?

At our plants, in rebuilding a kiln wall, I set lines giving the batter of the wall, starting with the proper thickness below and running out at the thickness I want the wall at a certain height. The corners are thus all located and this is all done before the bricklayers arrive on the job. When they come, it only remains for them to go to work—no corners need be raised excepting the few brick necessary on the corners to hold the line for each course, and thus all the time they would use in plumbing corners is saved. Couldn't this method be used on a building as well?

If these vertical corner lines were of non-stretchable tape they could be laid off in colors to show each course of brick and thickness of joint. In this way all joints would be uniform and the courses kept absolutely level and corners straight, besides saving a great deal of time.

Brick contractors and journeymen bricklayers are coming to realize the necessity of helping in the fight to bring brick construction into its own and it is along some such lines as I have outlined above that his assistance can best be secured and the most good accomplished. Improve methods, discard ancient and obsolete practice, simplify, and I believe the cost of putting our material in the wall can be greatly reduced—so much so, in fact, that the 10 per cent or 15 per cent difference between the cost of brick and frame construction can be wiped out. To my mind, systematic investigation and procedure in all of the above ways I have outlined would prove the most fruitful in creating demand.

We come now to the second part of our subject—applying brick to new uses. You can end the discussion right here in the most summary manner by saying "You can't." That there is nothing new under the sun was never truer than when applied to burned clay in all its forms and in all of its uses. The secrets of manufacturers of some of the ancient porcelains and potteries were buried with the artificers and we cannot reproduce them today. We have brick stairs, ballustrades and parapets, brick piers, roofs and domes unsupported by piers and, in their ingenuity of engineering, seemingly hanging in space. Brick stoves, tables, benches, garden walls, nooks, fountains, sun dials.

We have all of these and more of brick, satisfyingly artistic and soothing in their mellow tones of quiet dignity—and we set quietly by and read pamphlets telling us these things can only be made with cement. Well, that's all right—we need good cement to hold our brick together—we'll not knock cement. We'll just show people how much more beautiful these things are when made of brick. Everything that can be done with concrete likewise can be done with brick—it only remains to perfect methods and appliances so that the latter be not too much more expensive.

Looking into some of the more common uses—there is much room for discussion as to the merits of the hollow wall of brick vs. the hollow tile wall. Of course, brickmaker fashion, such a statement will make us want to fly at one another's throats, but I maintain that the common-brick maker has done himself an injustice by submitting without argument to the entire list of contentions advanced by the hollow tile man. We are not disputing the evident excellencies of hollow tile, but there is no doubt that the hollow wall of brick is a mighty good wall and one to which the common-brick maker can well afford to give some study and publicity.

For dwellings up to two stories in height, the 10-inch wall (4-inch face brick, 2-inch air space and 4-inch inside brick) is ample. Wall ties, to my notion, are not the best means of bonding. I'd use headers and of the ordinary length of brick. To make a special 10-inch length brick for headers would lose most if not all of the economy of this form of construction. Use the ordinary brick for headers and put them in oftener if necessary, putting the little piece or filler on the outside of the wall one time and the inside the next.

Take the farmer's new friend, the silo—must they be built of either tank lumber or of hollow radial silo block? Why is building them of common brick unthinkable? We know that the pressure exerted on a silo, unlike that exerted on a well or cistern, is outward instead of inward, but are methods of adequate reinforcement so difficult?

I am told that silos have been recently constructed of brick here in Illinois with reinforcing bonds of steel or heavy wire laid in every five or six courses. Let us get information on this from the parties who have built these silos. Their experience in the matter will be valuable.

Here is an idea that occurs to me. Make a brick of ordinary size with a ½-inch wide semi-circular or V-shaped groove lengthwise, in the center, along both flat sides. Brick with these grooves can easily be run from an end cut die by the stiff mud process and the dry press brick maker can press them into the flat sides of his brick without any extra expense or trouble.

Now, the old idea is to lay brick in courses each to itself. The mason that inadvertently gets away from this and runs a "hog in the wall" is disgraced for life. My plan would be to start the silo wall on an adequate foundation, with the "hog" right from the jump, or, to explain more fully, start the courses of brick in a continuous spiral and feed steel wire of about 3/16-inch or ¼-inch diameter in the groove between the courses for reinforcement as you went along.

With this method you would get all the necessary reinforcement by reason of having the wire between every course of brick, to say nothing of the better bond for the cement that the groove in the brick would afford, and with the groove to take the wire the mortar joints could be made of usual thickness, or even thinner if preferred.

Laying the brick spirally would avoid having to cut the wire to specified lengths, besides being stronger. I can see no difficulty in securing the ends of the wire with thread and nut in the frames of the openings or windows, where the wire would have to be cut to leave the openings unobstructed.

Another important matter is the use of brick for interiors. The brick mantel and fireplace is about as far as we have gone in the past. Is there anything that spells "Home" more alluringly than a brick fireplace aglow with snapping logs? Is there any other kind of heating apparatus that retains its beauty when not in use and that you wished was not in the attic or down in the cellar out of the way? We have retained it for its beauty, both of ornamentation and association, although its necessity as a heating apparatus has long since vanished. If you want to get rid of the fireplace as an American institution, build it of some other material than brick.

From fireplaces we have gone to sun parlors and conservatories, but there is no good reason why interior brick decoration should not be carried on into bath, den, reception hall, dining room, kitchen and pantry, and even living room. For the present we will be content with these, leaving boudoir and parlor or salon to forms that lend themselves a little more to the ornate.

This thing of brick interiors is coming, and coming fast, for the moderate priced house as well as the mansion. Sanitation and genuine economy are, of course, large factors in its adoption, but the permanent beauty and warmth of color obtainable are, I think, the greatest reasons.

And now for the keynote—the spark to vitalize—the magician's wand, to bring forth real fruit from all these phantom trees. Our efforts to gather information along the lines I have indicated—to disseminate it, not among ourselves, through the medium of our trade journals, but to the man who might be influenced to use brick, through the medium of the publication he reads—to advertise—all will prove abortive without the proper spirit of co-operation, the spirit that says, "Brick are best for these purposes; use brick; my brick if I have something that will suit—but use brick."

Co-operation, rising above petty jealousies, pulling together and working for the good of the entire industry—this alone is worth all else in the creation of demand.

## BUTTON=HOLE TALKS.

### JOGGLING AND JIGGLING—No. 3.

W. D. Gates.

"THE Man with the Lavender Spats" was there indeed. Was there all spread out over his chair, as though he had been hung up there. Sprawled, with his arms fairly hung over the arms and back of the chair, and with his long legs spraddled far out, thus emphasizing and exposing the lavender abominations, aggravatingly, before our eyes. We looked, each at the other, in despair. Were we never to be free from him? Was he to be with us all through life? Before we had recovered from our astonishment there drifted in, slowly but determinedly, another figure, large, wavering and weaving as it came, but coming steadily and resolutely. It was "The Man with the Jag." Really we could not determine whether it was the same old jag or a brand new one. We had no time to so determine and besides it made no difference, for if it were indeed a new one, it was a twin to the one he had been wearing before; was identical in every respect; was off the same piece of goods. Weaving his way, determinedly to us he stared fixedly for an interval and said, as before, "Do you know Bill Johnson?" Before I could gather my wits for any answer my friend of the "Square Toed Shoes" answered, "That's him, right over there," pointing to the man of the lavender display. I was filled with admiration at his quickness in thus solving the problem of the disposal of both these objectionables. The Man with the Jag turned, jag and all, and gazed fixedly for an interval, then navigated, steadily and determinedly, toward the sprawled figure, while we, each nudged the other and waited, expectantly. Fixing himself squarely in front of the sprawled out man, he called, "Are you Bill Johnson?" There was no response, so after waiting a moment, he leaned forward and poked the recumbent figure and repeated his question. The sprawling figure gathered together, assembled itself as it were, the hazy eyes looked up at the determined figure before him and he answered, "Not Bill Johnson but William Montmorency Johnston, if you please."

There happened to be a chair standing empty, right beside the one holding the sprawled out lavender man, and into this the man with the jag dumped himself, turned toward the other and, poking him with his finger, said, "Well, Bill Johnson, you'r no good," whereat the other, gathering himself more together, said, "Sir! William Montmorency Johnston, I am good and don't forget the t in the Johnston." He said it, with a certain difficulty of enunciation that bore into our comprehension the, hitherto unmistrusted but now evident fact, that he too was drunk.

I shuddered. Of course, I was up on this kind of a situation. Had read such stories. Where the big brute of a man comes up to the slight, dudish, effeminate one and insults him, and how then the slight, effeminate one rises up and does him up into a twisted package and then reads a moral lecture to the remnant he has left. Therefore (after I had shuddered) I waited for the inevitable result, but it did not occur as per the usual program.

Again poking him, the big one said, "Bill, you'r no good." Thickly the answer came back, "Sir! not Bill but William, sir! and all to the good." Then it rapidly settled into a chaos of "Bill, no goods" and "William, am goods," until we fled in disgust.

Out on the street there were a good many people stirring, as it was not the tea hour. Pointing at the moving crowd, the "Man of the Square Toed Shoes" observed, "I spoke, a while ago, somewhat harshly about these Canadians. They are really not very different from other people. Their men are out hunting the money and their women are spending it, just as they are, among all races the world over. It was the same with the people who came before them and that have now passed from sight and given their place to these. It was the same too, with the ones before them, and the ones before them too. The cave man did the same thing, he hunted for sustenance for himself and his family and he didn't let anything stand in the way of his getting it either. He wasn't over nice or over particular about his methods either and succeeding generations haven't improved so very much on him in this respect. After you and I, and these people here, have passed on there will be others on these streets who will be doing as we are doing, worrying as we are worrying, joying as we are joying, and as unmindful of us as we are now of those who preceded us. We indeed have little to the good of the cave man, when you stop to think of it. We think we have but when it comes right down to cases, we take it away politely if we can, but brutally if we must. The fellow who, today, expects some one else will look out for him and take care of him is in for an experience and a pretty empty one, too. It's really just as Dooley so tersely puts it, that the man of the house is out after the needful, has to have it, must get it, and really just has to go out and take it from the other fellow with a file. The brood at home must be cared for and it's up to him to provide. The spoils must be taken back, peacefully, if possible, but forcefully, if necessary. The animals must be fed."

"You have, undoubtedly, remarked that a large proportion of the people we see on the streets here are ordinary looking people. That is the case wherever you go. It's like the scenery when you travel, much of it commonplace. Some strikingly beautiful spots stand out vidivly but most of it is flat, dull and uninteresting. Faces of individuals are much the same. They have character engraved on them to be sure. The history of their lives is written on them. Their manner of life is there written, their habits, their way of living. Their environment, too, has had to do with the shaping of their faces and forms. We are all strongly and powerfully formed and shaped by our surroundings. The cannibal babe and the baby heir of an Astor have different forces at work moulding them and they are not 'Born free and equal,' the constitution of the United States notwithstanding. However, I don't worry that the most people are commonplace, it's proper and right that they should be. Our great Lincoln was a commonplace appearing man and, referring to this subject, said, 'God likes commonplace looking people, that's why He makes so many of them.' This can be taken as a summing up of the subject by one of them and regarding all of them. Face and form mean a great deal. They show a great deal, are very easily seen, are in fact strikingly conspicuous. There is, however, back of them, not so showy, not so conspicuous, harder to find out and hunt out but more valuable when found, the inner value, the true value, the true, real personality of the individual. There were handsomer men than Lincoln living in his time. There were better dressers, men more polished in manner, but they are now forgotten while he, rough in appearance, awkward and ungainly in form but all true and good inside, is enshrined in the love and memory of the Nation and the world as well."

Thus we walked along, and thus he talked along. Really, I hadn't made any mistake in picking out and keeping close to the "Man with the Square Toed Shoes." Nothing escaped his observant eyes and his active mind kept close company with those eyes of his. He himself was a living testimony regarding the real merits of commonplace looking people. How much more there was to a walk with him, and listening to him, than there would have been to have remained with the stuck up, well dressed, aristocratic feeling crowd in the hotel.

But evening was approaching so we retraced our steps to the hotel. After my clean up, passing through the big lounging room on my way to the dining room, I noticed with satisfaction that neither the "Man with the Lavender Spats" nor the "Man with the Jag" were there. In the dining room I was ushered to a seat at the extreme end of the room. When I had settled myself in my chair, and as I reached for my napkin, I glanced across the table and my eyes fixed in a stare for, comfortably settled in the seat opposite me, sat the "Man with the Plastered Hair." GATES.

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Written for The Clay-Worker.

# THE VALUE OF EXPERIMENTS.

### By W. W. Phillips.

Herbert Spencer's brilliant success as a philosopher was largely due to the fact that he always, in explaining a proposition, went back to the beginning and built up his arguments in a manner that was clear and convincing. In the same manner Henry George wrote the most widely read book on political economy ever written by an American writer.

It is to be regretted that the clayworking world has not produced a student who has studied, worked out and explained the endless puzzling problems that constantly walk on parade before the brickmaker, like Banquo's ghost.

It isn't surprising that the smaller craftsmen do not make a careful, scientific study of their troubles, but that the large ones do not is really astonishing, in view of the greater efficiency and economy possible when difficulties are thoroughly studied and understood.

To acquire information, valuable and reliable, a great deal of experimenting may be required, and would be more or less expensive. It is quite natural that the smaller concerns would, as far as possible, avoid experiments, on account of this expense, but the larger ones should find it less expensive than mistakes that could be avoided if a scientific study of difficulties were made.

No doubt there are dotards connected with the brickmaking industry, but it isn't an ideal business for a simpleton.

In its last analysis, brickmaking is a study of applied physics and applied chemistry. The whole process up to the time firing begins is a problem in practical physics; after firing begins, it is largely a chemical action, or reaction.

The design of the machine probably deserves more attention than it receives at the hands of brickmakers. Commencing at the beginning, presuming that all machines are built of good, durable material, etc., and presuming there are no unnecessary gears, as few wearing parts as possible, and all wearing parts renewable, the next thing in order to be considered is the pugging knives. Of course, some material requires more pugging than others. If the knife is given a great deal of pitch, the material will be worked forward rapidly and may not be thoroughly pugged, but with little or no pitch it will be moved more slowly and the pugging consequently be more thorough. A wide knife will move the material more rapidly, but may not pug the material as thoroughly as a narrow one. Also, lamination may in some cases be lessened by a change in pug mill knives.

The auger is made with a varying taper, and it would appear that the more the auger is tapered the more the clay or shale would be wedged—that is, the density of the column would apparently increase with the taper, and, as the density increased, the power required would also increase. A careful study of the effect of the auger might possibly show that the auger has more to do with lamination than is commonly admitted. Certainly, the density of the column would have an important effect and no doubt varying greatly with the material.

The distance between the propeller and die has also an important bearing on the ultimate results. It may assist in reducing lamination and it may not, according to the material used, but certainly it will increase the power required to drive the machinery. It is also true that the capacity usually, if not always, is reduced.

Brick dies are made in great variety, but no die has ever been made that would be suitable for all varieties of clay or shale, and possibly never will be. The best die for the clayworker is a die that will reduce lamination to the lowest degree and mold a perfect column. It may be a lubricating or non-lubricating die. If it is a lubricating die it may be lubricated with water, steam or oil, or a combination of these, or it may be lubricated with soapy water and possibly other lubricants. The die may be long or short; the taper may be much or little—possibly none in some cases. Any of them will be found to be satisfactory in some cases, and in others very unsatisfactory. The die must be designed to meet the requirements.

I have of course, pointed out only a few of the important things entering into the design of an auger machine, with the purpose of stimulating thought rather than exposing any secrets.

Dryers, like brick machines, must be varied according to the nature of the material to be dried. No man knows everything about a dryer, and no man has been able to design a dryer that could not be changed to advantage when the nature of the material to be dried suddenly changes. No doubt a better dryer than any existing dryer may be built at some time, and there is no reason why any brickmaker should not try to improve his own dryer.

Burning brick is largely a matter of chemistry. That is, the applied heat causes a chemical change in the material. When that change is complete it is a waste of time and money to continue the process. If the chemical change could be induced without the aid of heat, it would be unnecessary to burn brick at all; that is, the heat applied is not an end in itself, but merely a means to an end. At the present time there is no known addition of chemicals that would induce the necessary change in raw material without the aid of heat, and such experiments would not only in all probability fail, but such experiments should be conducted by a chemical engineer, if conducted at all. However, there is not any good reason why a small test kiln should not be provided and experimental work of some value be carried on. Such a test kiln should be provided with a recording pyrometer, peep holes and any other instruments wanted. An exact record of all experiments could and should be kept. New methods could be tried out without any fear of loss, because there would be very little loss in a test kiln. Every burner must have wondered if it would not be a good idea to do this or that thing, but was afraid to try it on account of the cost of a failure. In experimenting with such a kiln due allowance would, of course, have to be made for the difference that would ordinarily occur in a test kiln and a full-size kiln. This difference should not be very great.

In conducting experiments it would in all cases be more economical to go back to first principles—not only be more economical, but the truth can be brought out with much greater force.

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Sometimes 25 cents' worth of horse sense is more beneficial for the time being than a hundred dollars' worth of scientific theory, and always a fair amount of both horse sense and theory make the best working balance.

# FREE PUBLICTY SERVICE FOR OUR READERS.

A Department Inauguarated in The Clay-Worker to Assist the Busy Manufacturers in Their Local Newspaper Publicity Work and for Other Advertising Methods. The Advertisements Together With Articles Published in This Department Should Bring Splendid Results if Placed in the Proper Mediums.

## EXTENDING THE TRADE LINES.

THERE IS AN urgent call for the clayworkers of the country to mobilize their resources this spring and concentrate with enthusiastic energy upon ways and means for greater trade expansion in the next building season. We are entering into a new era, an era of possibilities for clay products far beyond anything dreamed of heretofore, and the spirit of progress calls for the clayworkers to be prepared, to map out definite lines for expansion in advance, form connections and prepare the ground for big doings. The purpose of The Clay-Worker is to suggest some lines of expansion that need attention, and to set the readers to thinking, so that others may suggest themselves. Read and reflect—and then get busy.

## ROOM FOR GROWTH.

Occasionally the question comes up of possible room for growth or expansion of the trade in the use of brick for

ADAPTABILITY—For BUNGALOW or MANSION.

ECONOMY—CHEAPEST in the END.

PERMANENCE—"IT IMPROVES WITH AGE."

COLORS—SUPERIOR DECORATIVE possibilities.

CHARACTER—Adds INDIVIDUALITY to STRUCTURE.

VARIETY—To suit INDIVIDUAL TASTE.

SECURITY—REDUCES FIRE HAZARD.

PERFECTION—"MOST PERFECT OF BUILDING MATERIALS."

FOR ALL these REASONS the SUPREMACY of BRICK for all phases of BUILDING CONSTRUCTION is indisputably PRE-EMINENT.

(Firm Name)

(City) (State)

Remember
the
**DAYTON
FLOOD**

Houses built of inferior materials were like houses built of cards.

Not so were the houses built of brick.

THEY STOOD
THE TEST.

Moral:

**BUILD WITH BRICK**

Durable
Sanitary
Beautiful
Cool in summer
Warm in winter
Cheapest in the end

Ask us the reasons why you should

**BUILD WITH BRICK**

(Firm Name)

(City) (State)

structural purposes. No man can tell exactly or give the full measure of the possibilities of trade enlargement in the brick business by persistent exploitation until brick is used wherever it is best adapted in structural work. Occasionally, however, we get some rather striking ideas on this point. At a meeting of lumber people, called to discuss plans for the systematic exploitation of lumber, the statement was made that there are six times more lumber used, in value, for structural purposes than of brick.

It would, perhaps, be impossible to either prove or disprove the correctness of this statement, and there are some complexities enter, like the fact that often lumber and brick are both used in the same building, even though it is known as a brick building. In other words, we may assume that in the ordinary brick wall home there is a value of lumber amounting at times, perhaps, to as much as the value of brick, and at other times amounting to twice as much.

Even considering this, and assuming that there is a continued use of lumber in a great percentage of brick buildings, there is apparently room for trebling the value of brick used for structural purposes. Now, if we can even double the quantity of brick used for structural purposes in the course of a year or two, by enthusiastic and persistent exploitation, it will mean the biggest thing that ever happened in the brick industry, and will entirely eliminate the necessity for ruinous competition and prices which leave no room for profit.

Then there is the matter of increased population and wealth and the building of new, bigger and better homes, as well as more business buildings, which adds to the possible field of expansion. It is easy enough to see from this that there is

# April Showers

BRING

# May Flowers

AND

SOMETIMES

# FLOODS

BRICK HOMES
ARE SAFE
FROM ALL THE
ELEMENTS.

REMEMBER—

Homes Built With Brick Are Durable, Sanitary, Frost Proof, Fire Proof, Flood Proof, Time Proof, Vermin Proof, Element Proof and are cheaper in the end. They last for ages.

(Firm Name)

(City) (State)

# Brick Variety

ONE OF THE TRULY WONDERFUL PHASES OF MODERN BRICK-MAKING ART is the field opened for VARIETY IN ARCHITECTURAL EFFECTS.

NOT ONLY is the SELECTION of BRICK for COLOR AND TEXTURE extremely BROAD, but ADDED CHARACTER may be introduced by the MORTAR JOINTS and BOND PATTERNS.

CERTAINLY BRICK is a REMARKABLY ADAPTIVE MATERIAL of which GREAT INDIVIDUALITY OF TREATMENT is possible, and, withal, is BEAUTIFUL, ENDURING and of INFINITE VARIETY!

(Firm Name)

(City) (State)

plenty of room for a wonderful extension of the use of brick in building operations. It is simply a matter of exploitation to get brick used everywhere, and it should be used to make the brick business boom as it never has before.

## A FORCEFUL CIRCULAR WORTH REPEATED USAGE.

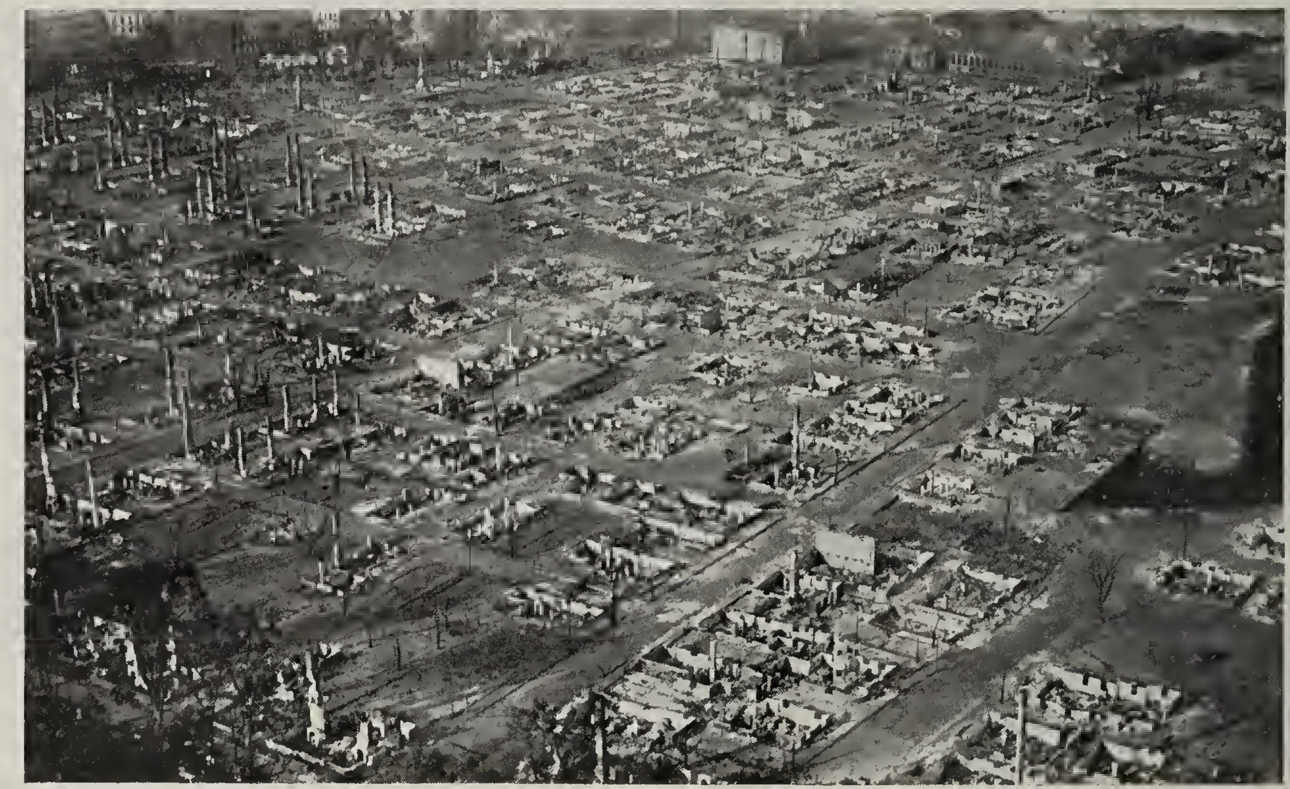
The following article and illustration appeared in a circular sent broadcast by the Society Advocating Fire Elimination. So forceful and emphatic is this bit of publicity matter that we deem it advisable to publish it in this form and suggest that the individual clayworker give it as much publicity as possible in their territory:

### ONE OF THOUSANDS.

AS AN ARGUMENT for the wearing quality of lumber you are asked to consider the Washington home at Mt. Vernon and the Hale homestead at Newburyport, Mass. For sentimental reasons these two wooden houses have been preserved by constant repair and vigilance.

But where are the tens of thousands of other wooden houses built at the same time as these two?

Either they have gone the way of nearly all temporary construction and have burned down or decayed into useless wrecks. The Hale house is 250 years old. If it has been repainted as often as once in five years there has been spent in this one item of upkeep enough to build a house of masonry.



Salem, Mass.—An Appalling Result of the Wasteful Habit of "Building to Burn."

The performance of a frame building erected 250 years ago is no criterion of what a present-day frame building will do. The Hale house, for instance, was built of selected native wood, hand-hewn. Such timber to-day would be prohibitive in price. Stone, brick, tile or cement and steel would be cheap in comparison.

Do you believe that any of the frame houses being erected to-day will be held up as examples 250 years from now? They haven't as much chance as "a bow-legged girl in the town where she was raised." When twenty-five years old they will cost so much for upkeep that only a rich man could afford to own one. Lumber has steadily advanced in price and poorer qualities are accepted for general use.

During the same period the permanent materials have grown better and cheaper. When the Hale and Washington homes were built the only brick used in America was brought over from Europe. The first local product was hand-made and sun-dried, and usually was laid up with mud, instead of cement, as to-day.

The various fire resistive materials available for home building to-day make it possible to build a SAFE and beautiful house as cheaply as you can build with good grades of lumber. Don't compare permanent construction with the flimsy frame—the "ready-made," can't-heat-in-winter "jerry builder" specimens. There is no comparison.

By building your house to resist fire you make it enduring against all other elements as well. It will be easy to warm in winter; always cool in hot weather; more beautiful and substantial in appearance and more comfortable to live in.

The permanent house is a good investment because it does not require repainting and repairs every few years. The flimsy house calls for bigger repair bills every year; is always in danger of catching fire and is a difficult thing to sell after it has been built a few years.

It is real economy to build with materials that will not burn or decay.

## AN ARGUMENT FOR THE CLAY PRODUCTS SILO.

Some of the farm papers are incidentally creating a good line of talk in favor of brick and hollow clay tile for silo construction. Under the subject of fire protection for farms it is pointed out that when one builds a thick wall silo, the silo being usually the tallest building around the place, furnishes a good, logical place for the installation of a water tank on top, and will not only supply water, but may be connected up with a hose for fire protection. Some wood silos may stand for the same service, but many of them are constructed of staves and become rickety and hard to keep standing during the summer months, whereas a properly constructed brick or hollow block silo will stand firmly, and, if required, furnish a support for water tank on top. In this work well-burned clay has an advantage over concrete, in that concrete, because of the moisture or something, will not keep the silage as well as other structural material. All this ought to make some good talking points in the exploitation of brick and hollow tile for silo construction.

## WAYS OF WOMEN.

"Wimmen certainly ain't go no consistency."

"What's the matter, Mike?"

"Me wife chased me out with a rolling-pin this morning and then cried because I left home without kissing her good-bye."

Written for The Clay-Worker.

## A NEW PENNSYLVANIA FACE BRICK PLANT.

THE KITTANNING BUFF and Gray Brick Company, of Kittanning, Pa., is putting the finishing touches on a new factory at West Mossgrove, Pa., a station on the Pittsburgh & Shawmut Railroad, about five miles north of the town of Kittanning, and on the west side of the Allegheny River.

The site on which the plant is being built is a very excellent one, very little grading being necessary to provide space for a large factory, arranged for economical operation. The plans for this plant were prepared by Messrs. E. M. Freese & Company, of Galion, Ohio, which concern is furnishing all the machinery, the transaction having been handled through the company's New York City office.

The buildings, of which there are three, are constructed of steel throughout, and are therefore absolutely fireproof. The building intended to house the brickmaking machinery is 48 feet by 100 feet. The grinding room is 38 feet by 48 feet, and the power house is 38 feet by 50 feet.

The material, which will be used in the manufacture of brick, is a fire clay, which will be taken from a drift mine, the opening of which is located within 100 feet of the factory, and about on a level with the latter. A short inclined plane will be provided up which the loaded cars of clay will be drawn by means of a belt driven winding drum, located on a trestle sufficiently high to provide good storage space.

The fire clay will, of course, be deposited in the grinding room at a point convenient to the dry pans. Outside the grinding room there is an abundance of additional storage space for weathering the clay if it seems best to do that.

It is the intention to operate the entire plant by means of gas engines, one of which will be installed at the start, but space in the engine room is provided for an additional engine, which will be installed when the capacity is increased, The first engine will have a capacity of 200 h. p. and will be connected by belt to a 5-inch line shaft, carried on steel supports entirely independent of the building. From this line shaft all the principal machines in the plant will be operated.

The plant is designed for two dry grinding pans, but it is the intention to install one at the start and this will be of a heavy duty type, 9 feet in diameter. A belt and bucket elevator, of a large size, will be employed to carry the ground material from the pan to a large gravity screen.

The pug mill is an E. M. Freese & Company, Model "P 13," and is of a simple and substantial type, built with heavy single bevel gears, and with a mixing chamber 14 feet long. It is also so arranged that the mixed material will be discharged at the gear end of the mill which rests immediately over the receiving end of the E. M. Freese & Company Model "KC" auger machine. This machine is equipped with a short mixing chamber, so that there is in all about 20 feet of continuous pugging.

An E. M. Freese & Company size 40 rotating automatic cutter is to be used and this will be equipped with an off bearing table 24 feet long. This cutter is of a type which is used in the majority of the brick factories in the Kittanning district, and is capable of cutting not only standard size building brick, but also Norman and Roman sizes.

One repress will be installed at the start, but space is allowed for an additional machine of this kind. A very good arrangement is provided for conveying the waste material from the cutter and the repress, to the pug mill. This consists of a combined conveyor and elevator, the latter being at the discharge end of the apparatus, and is driven by means of bevel gears from the line shaft.

The dryer is of the waste heat type and this also was designed by Messrs. E. M. Freese & Company. The complete dryer will have ten double track tunnels one-half of which will be erected at the start.

This dryer will be constructed entirely of brick. The heat will be drawn from the cooling kilns and forced through the tunnels by means of a size 220 bottom horizontal discharge steel plate fan, operated by means of a gas engine, which will be connected to the fan by belt and a friction clutch pulley.

The gas engine which will be used for this purpose, is to have sufficient capacity to operate, in addition to the fan, an electric generator to supply lights for the factory and mine. The cars will be of the double deck steel type.

The burning department of this plant consists of twelve round down draft kilns, each 28 feet inside diameter, and each kiln will have individual chimneys resting on the walls.

The furnaces will be arranged to use natural gas for fuel, which can be secured in great abundance at a very moderate cost. These kilns are of the same general type as most of those used in that vicinity, in fact S. W. Gillam who is in charge of the construction work has probably built more kilns in the Kittanning district than any other mason.

The shed for storing the finished product will be about 400 feet long and 40 feet wide, and will be of wood construction with open sides. This building is located between the kilns and siding.

The product of this plant will be high grade face building brick, in gray and buff colors, and the fire clay has been thoroughly tested so that there should be no question concerning the results. It is fully expected that the brick made here will be the same in quality and color as those produced at other factories in the vicinity and the Kittanning district has the reputation of producing face brick in light colors which are without a superior in this country.

The president of the Kittanning Buff & Gray Brick Company is John H. Rebold, a wealthy oil operator of Oklahoma, who spends most of his summers near Kittanning where he lived for many years. R. A. Mc. Cullough, a prominent attorney with offices in Kittanning, is the general manager, and H. B. Yingling and Robert L. Gibson, both of whom are members of the company, have charge of the construction of the factory, and will also have control of its operation.

Messrs. Yingling and Gibson are well qualified to handle an operation of this character, having had the benefit of possibly twelve years experience in one of the leading brick factories in that vicinity. This should mean, that the success of the new enterprise is practically assured, as far as producing the right kind of brick is concerned, and the market under normal conditions will very readily absorb the output of this additional plant.

The construction work is going forward as rapidly as weather conditions will permit, and it is hoped that the plant will be ready for operation by May 1.

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**Wood or Coal as Fuel**—Most brickyards use coal for burning their kilns. In a round downdraft kiln with step fire boxes 270 pounds of good coal will be used for every 1,000 brick by a burning temperature of cone 07. In the burning with wood several things should be taken into account. The fireboxes have to be larger, which takes more room from the kiln for burning of the bricks. The wood is harder to handle and, while with coal the burner has it all in his hand to use little or more coal, in using wood he cannot always regulate his fires so close as with coal. It is always figured out that it takes 1 cubic meter (1.3 cubic yard) of wood for every 1,000 brick to be burnt, and if the prices of coal and wood are taken into consideration according to the local market prices, it will be found that it is cheaper to burn with coal than with wood, except in such localities where the wood is very cheap. —Tonind. Z. No. 62, 1914.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

BUILDING OPERATIONS are showing more activity all over Wisconsin and brick manufacturers are preparing for a busy season. Figures prepared by W. D. Harper, Milwaukee building inspector, show a decided gain in this city during the month of March. There were 420 permits issued for structures to cost $942,921, as compared with 363 permits and an investment of $696,183 during the corresponding month a year ago. Inspector Harper says that he is confident that the building investment during the present year will climb to a new high mark and his view seems to be shared by most contractors and building supply men.

Mr. Harper, after a careful investigation, has made a conservative estimate that building operations in this city during 1915 will amount to at least $12,463,000.

"Conditions are propitious for a big gain in building operations this year," said Inspector Harper, "and if general conditions are satisfactory and projects now pending are carried out, this year's total will rival 1912 and 1913. The amount of building carried over from last fall must also be taken into consideration."

Among the extensive building projects planned for the next few months are the erection of school buildings at an aggregate cost of $650,000; a theater to be erected by the Uihleins at Grand avenue and Sixth street at a cost of $350,000, and the proposed Miller Theater at Third and Grand avenue, costing $200,000. H. C. Koch & Sons, architects, will soon call for bids on the new $250,000 sales room of the Waldheim Furniture Company, to be erected this summer on West Water street. The new structure will be ten stories high and will be of brick, steel and concrete, faced with white enamel brick.

Most of the brick manufacturing plants about Wisconsin are being overhauled in readiness for an early spring opening. It is said that finished stocks on hand at most yards are rather light and so a busy season is anticipated. Wisconsin brick manufacturers say they will see to it that no shortage of brick arises in any section of the state, as was the case last year, when contractors and builders in some of the southern Wisconsin cities had to buy their brick in Chicago and other points. Jobbers and dealers in Milwaukee and about the state are beginning to place their orders for stocks.

It is expected that the Manitowoc Clay Company of Manitowoc, Wis., recently incorporated with a capital of $200,000 by A. S. Green, Elmer Leach and H. M. Clark, will soon begin remodeling its plant, in order to enlarge its output. The company will turn out brick, tile and other clay products.

It is expected that the committee of the Wisconsin Clay Manufacturers' Association, appointed at the recent annual convention in Milwaukee to consider the new Wisconsin building code, will soon confer with the Wisconsin Industrial Commission to amend the code in several instances. The committee, made up of A. W. Hilker, Racine, chairman; Prof. Samuel Weidman, Madison, and Oscar Zimbal, Sheboygan, will co-operate with a committee of the union bricklayers, and it is expected that one of the first things to be asked of the Industrial Commission will be a ruling that concrete walls be surrounded with brick to prevent dampness.

The yards of the Star Brick Company, at Kewaunee, Wis., are the busiest place in that city at the present time. A full force is kept busy working overtime in the effort to fill orders. Several carload orders from outside points were received recently.

Henry Albinger has severed his connection with the Acme Brick Company at Barton, Wis., and will engage in farming.

The Ringle Brick Company, of Wausau, Wis., of which John Ringle, former president of the Wisconsin Clay Manufacturers' Association, is the head, has purchased 3,000 cords of hard wood for use in its kilns and plans are under way for placing the plant in operation early in April. At least 3,000,000 brick will be turned out this year. The company has made several improvements at its plant during the winter, including the installation of a new engine of larger and more improved type. The company's machine shed has also been rebuilt. The active management of the plant will again be in charge of Leander Ringle.

Stockholders of the Barron Red Pressed Brick Company elected the following officers and directors at their recent annual meeting: President, J. P. Kohl; vice-president, Otto Berg; secretary and treasurer, M. I. Berg; sales manager, G. A. Koerner; directors, J. P. Kohl, Otto Berg, J. R. Ferris, N. O. Strand and L. K. Sather.

The use of clay brick as sanitary and fireproof in building construction work and the various steps in its manufacture were shown in moving pictures in Milwaukee during the latter part of March. The films were manufactured at the order of the American Clay Manufacturing Company and were shown at the Violet Theater under the auspices of Branch No. 8 of the Bricklayers and Masons' Union. Besides being educational in nature, they ought to go a long way in pushing the "Build with Brick" campaign which is being waged here.

The Wisconsin Clay Manufacturers' Association has petitioned the regents of the University of Wisconsin, asking that a course in ceramics be added to the university curriculum. The association will ask the legislature to appropriate $500 to extend facilities for instruction in this subject. The Wisconsin organization has had this project in hand for several years, and the officials are now anxious to have the legislature and board of regents take some action in the matter.

The Whitewater Brick & Tile Company, organized some months ago at Whitewater, Wis., and which is now erecting a plant in that city, has secured as superintendent Charles Finley, who has had twenty-three years of experience in handling clay. For the past eight years, Mr. Finley has been superintendent of a plant at Lehigh, Ia. The new superintendent is well pleased with the character of the clay available at Whitewater and is confident that the new company will meet with success.

A deposit of kaolin, the clay from which the highest grade of china is made, has been discovered on the farm of F. C. Suiter, at North Bend, twenty miles north of La Crosse, Wis. Tests of the clay are now being made at Ames, Ia., by a government geologist. According to Dr. F. C. Suiter, owner of the farm, the deposit is one of three in Wisconsin. One of the other two fields is nearly exhausted. The other deposit is at Hersey, Wis. The field on the Suiter farm is approximately twenty acres in extent and has an average depth, it is thought of about thirty feet. One bore revealed a depth of forty-seven feet. It is said that the American supply of kaolin is extremely limited, most of the world's supply being in Germany and Austria. On account of the war, the manufacture of china in Europe and the exportation of clay to potteries in this country has been stopped. Since the outbreak of the war, government geologists have been combing the country for kaolin. Firms in Chicago have offered $15 a ton for the kaolin at the Suiter farm in Wisconsin.

Milwaukee's new building code, acknowledged to be one of the most complete in the country, is now ready for distribution and will be of decided interest to brick manufacturers and dealers. The building commission has worked for more than five years preparing it, but it will cost Milwaukee only $2,400, as compared with the code of Cleveland, which is said to have cost that city $40,000. The code covers every phase of building construction and maintenance. It establishes the rules for excavations, the building of the foundations and the erection of the structure proper. It regulates the height of buildings, the loads which can be carried by different materials, and the installation of elevators and other equipment.

George Willard Crampton, connected with the Hydraulic-Press Brick Company of Menominie, Wis., for many years, died suddenly of heart failure on March 22, at the age of 63 years. Mr. Crampton had evidently passed away in his sleep, as his lifeless body was found the following morning. Mr. Crampton was born in Chateaugay N. Y., December 12, 1853. He was associated with the old Menomonie Pressed Brick Company for five years and with the Hydraulic-Press Brick Company, the concern which succeeded it, for seventeen years, making twenty-two years of continuous service with the brick manufacturing industry at Menomonie. The widow and two sons survive.

A. BADGER.

# RESEARCH IN BRICK CONSTRUCTION.

*This is the second installment of a series of articles boosting a campaign which goes hand in hand with that of the "Build with Brick" movement and will prove of vital interest and importance to the clay trade in general. We ask the co-operation of the clay product manufacturers in compiling data and statistics for publication, in order that every angle of the subject may be treated in a thorough, comprehensive manner.*

ONE of the interesting and important questions in connection with brick construction right now is that of whether we should rely upon wall ties extensively for bonding purposes in wall construction, or whether we should adhere more closely to the old type of construction and do the bonding with the brick work itself.

The most noticeable tendency of the day in brick construction, especially in bungalow work and home building, as well as in brick veneer work, is in the general tendency to lay face brick altogether in stretchers or straight courses and to rely on wall ties for the cross bonding. We find this method followed even where solid brick walls are built, probably for the sake of economy in face brick; we find it also the common practice where an outer face of brick is backed up with an inner wall of hollow tile, as well as where a veneer facing of brick is put up on a frame building.

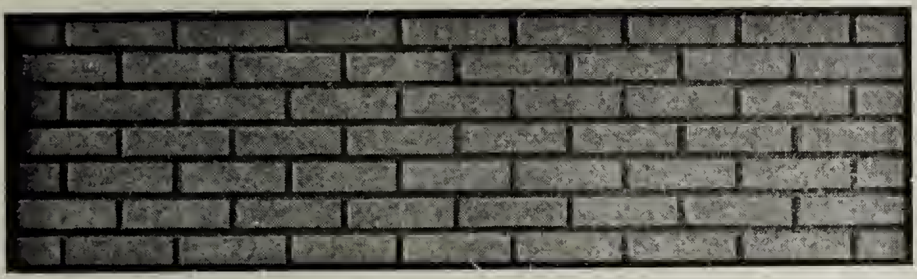

Diagram 1—Running or Stretcher Bond in Brick Work More Generally Used Today Than Anything Else.

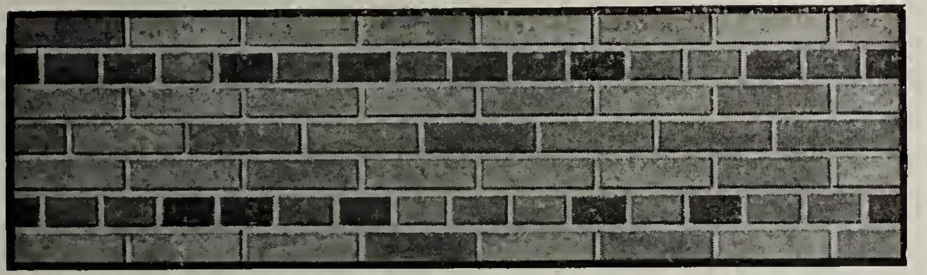

Diagram 3—Common Bond In Brick Wall Construction.

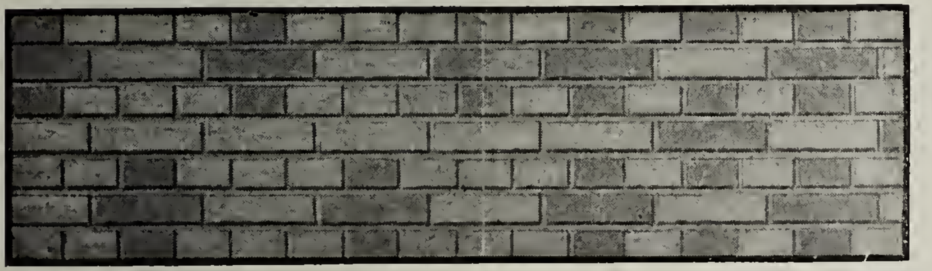

Diagram 4—English Bond Alternate Courses of Headers and Stretchers.

One of the questions that come up in connection with the building of a hollow brick wall in a residence mentioned incidentally in a previous article was that of the reliability or dependability of the wall tie as a support or cross-bonding in the work. It was the fear of the wall tie and what might happen to it at some future time that prevented the following of the architect's idea of the building of a hollow brick wall.

Along this same line some of the architects talked to have expressed doubt as to the permanency and general stability of the thin wall tie in common use for bonding brick walls. Along the same line in that excellent work on Bonds and Mortars in walls of brick gotten out by the Hydraulic-Press Brick Company, St. Louis, to whom we are indebted for the accompanying illustrations the use of the metal wall tie is referred to as questionable, and a decided preference is indicated for cross bonding with the brick itself.

All this seems to throw a shadow of doubt and uncertainty about the wall tie commonly used in brick construction, yet it is being used and depended upon every day. Moreover, so far as the writer knows, there are no instances of failure in brick walls because of dependence upon the wall tie for cross bonding. Still the fact that there is an element of uncertainty enveloping this feature of brick construction naturally makes it necessary for us to have some experiments and some exchange of experiences on this very point. Right here, therefore, is one of the places where the Clay-Worker wishes to appeal to brick manufacturers throughout the country for assistance in the way of ideas, data and results of actual experiments in the use of wall ties, and what they think of them as compared to the older practice of cross binding with the brick itself.

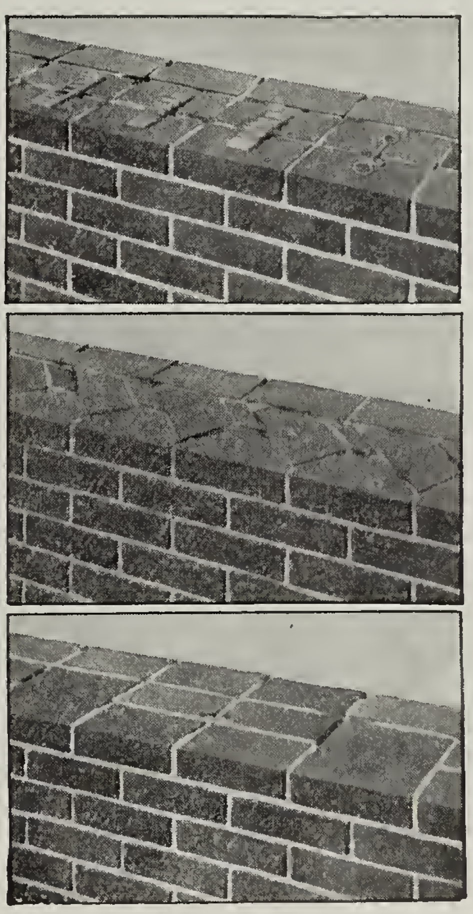

Diagram 2—Wall Tie Methods.

We may well turn here to a short discussion of the subject of bonding in brick walls. This is a subject that is so old that perhaps many of the new generation in the brick industry have neglected somewhat the study of it. In the architecture of Europe this cross bonding played an important part, not only in the structural element of the walls, but also in ornamental design. Here is a point, too, we get confused upon at times. There are some who turn to the ornamental design alone and entirely neglect the cross bonding or the structural feature.

Nothing better has been turned out of late upon this subject than the book on bonds and mortars of the Hydraulic-Press Brick Company referred to above, and from which it is the intention here to borrow a few illustrations to set off certain points of discussion.

The thing we see most of in the face brick work of this country today is the straight running or stretcher bond, which consists entirely of brick laid lengthwise of the wall and overlapping each other a half a brick, that is, breaking the joint evenly with the vertical joints in alternate courses forming perpendicular lines. This type of face brick work which we find all around us everywhere really has no bonding in itself ordinarily except the longitudinal bonding.

There are certain ways to cross bond a wall of this kind structurally which are portrayed in diagram No. 2 of the classification of bonds referred to. One is the well-known and commonly used wall tie of thin galvanized metal. Another is made by clipping the interior corners of the face brick to permit the insertion of diagonal headers into the backing, and a third method of cross bonding is to use a double width brick now and then in the building up of a three-course or a two-course wall.

It is plain enough to see from a study of these that the easiest way and the natural tendency is toward the use of metal wall ties.

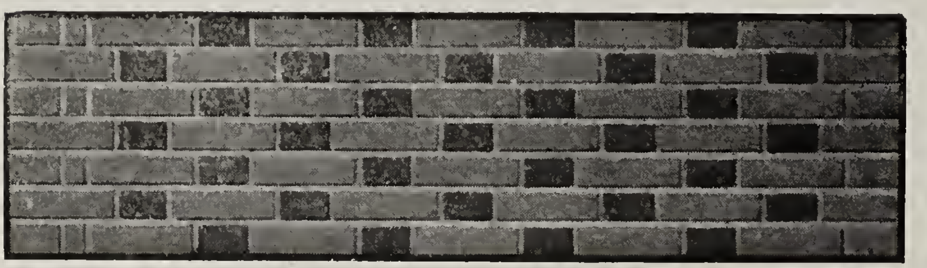

Diagram 5—Regular Flemish Bond.

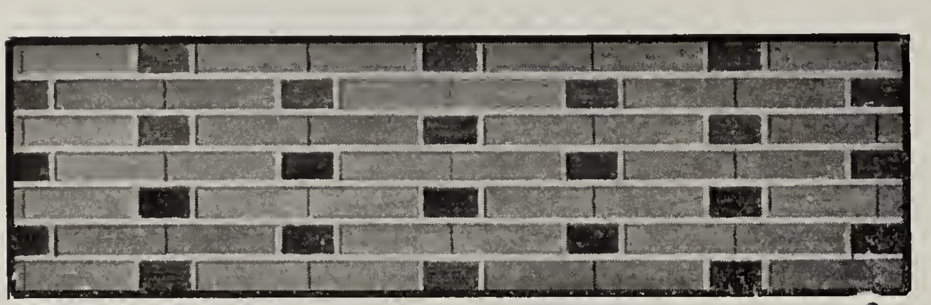

Diagram 6—Double Flemish Bond Two Stretchers to One Header.

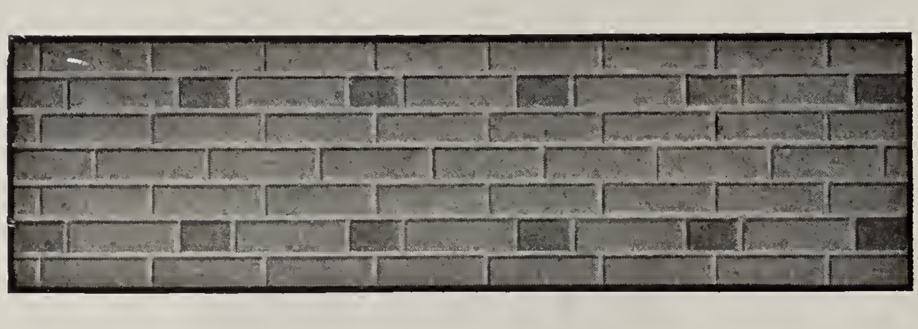

Diagram 7—Flemish in Each Fourth Course.

That tendency holds not only in the building of solid brick wall, but it seems to be the universal practice in the building of walls of face brick backed up by hollow clay tile.

There is a practice growing extensively in favor of building brick bungalow walls with one course of face brick and an inner course of 4-inch hollow tile. In work of this kind the regulation galvanized metal wall tie is used generally to hold the wall together. Observation of men at work putting up walls of this kind has shown no effort to bond the brick to the tile with mortar, the practice being to run the outer face brick course up so high, then back it in with the hollow tile blocks and tie across with the galvanized tie about every 18 inches, or, perhaps, one to every block.

Some snapshots of the interior of a bungalow wall of this type is shown in connection herewith. One shows the general method of building up and working around the window openings, with a little filling and patching here and there with brick. The other shows the patching up and finishing out with brick to get the straight solid brick face for the door opening. Here at the door opening there may enter a little of the natural cross bonding with brick where it is necessary to start a face course with a half brick length. In general, however, the appearance of the outer wall of face brick is that of a running or stretcher bond as shown in diagram No. 1, and this quite commonly holds true just the same when the wall is of solid brick. In other words, most of the brick construction in modest homes, whether it be a solid brick wall, a wall of brick and hollow tile, or a brick veneer outside with a frame structure, the same kind of a face is presented and cross bonding structurally depends upon wall ties.

It is easy to see from all this that the wall tie is an item that needs more attention, and perhaps we may deduce from it all eventually that we need to give more attention to the older forms of construction in brick, where cross bonding was an essential factor.

Of cross bonds there are a few general types derived from Europe and a number of modifications which are elaborated upon considerably in the book of the Hydraulic-Press Brick Company referred to above, and may well be studied by anyone interested in the subject of brick construction. Many of them tend to the ornamental, and as we are concerned right now with the structural side of this bonding business, it is only necessary to show a few types, for they will suggest their own modifications.

Bungalow Wall—Interior Backing of Hollow Tile With Brick Outer Face.

What is known as the common bond shown in diagram 3 consists in a cross layer of brick presenting the ends or heads to the face, which may be inserted every three or four or five or six courses, as judgment and inclination may dictate.

What is known as the English bond (Diagram 4) consists of alternating courses of headers and stretchers with the headers centered up on the stretchers. There is a modification of this in the English cross bond.

The Flemish bond consists primarily of the alternate use of headers and stretchers in the same course; that is, one brick lengthwise and the next crosswise and so on.

There are several modifications of this, such as the double Flemish bond, which calls for two stretchers to one header, and the garden wall bond, which calls for three stretchers to one header. Another modification is to use a Flemish header and stretcher course once in every three or four courses of brick.

Cross bonding in brick construction with the brick itself is admittedly one of the best forms of construction, and it offers so many opportunities for artistic effects in design that it should appeal and should perhaps be turned to more than it is in the present day boosting of brick in building operations.

There is before the writer now a picture from the war zone in Europe, a battle-scarred house of Scarborough, England, which demonstrates some of the qualities of proper cross bonding construction. It is a two-story house that has been bombarded and parts of the wall knocked out, the scars showing that it was but a two-course wall in a two-story house with furring and plastering attached on the inside, yet it stands as a battle-scarred testimony of strength in properly bonded brick construction.

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Written for The Clay-Worker.

## AMONG PHILADELPHIA BRICKYARDS.

GENERALLY the local building brick manufacturer and representatives have been the recipients of a comparatively satisfactory volume of business during the past few weeks. Some improvement in the current demand has been noted, while inquiries are reported as being far more numerous. With the manufacturers of vitrified paving brick conditions have been equally as satisfactory and in a majority of instances operations at the various plants are progressing to a good capacity. Contracts to be let by the various municipalities and boroughs throughout this section of the country for this type pavement within the present season are said to be of a materially increased volume and the present indications are that this year with the paving brick interests of the East will prove comparatively good.

Bungalow Interior, Showing Method of Facing Door Opening.

Such optimistic reports from the local members of the industry are substantiated by the report of Statistician Wm. Gamble, of the Bureau of Building Inspection. In the report of the bureau on building operations for March an increase of $2,813,515 is shown over the total expended during February; while an increase of $202,725 is shown over the corresponding month of 1914.

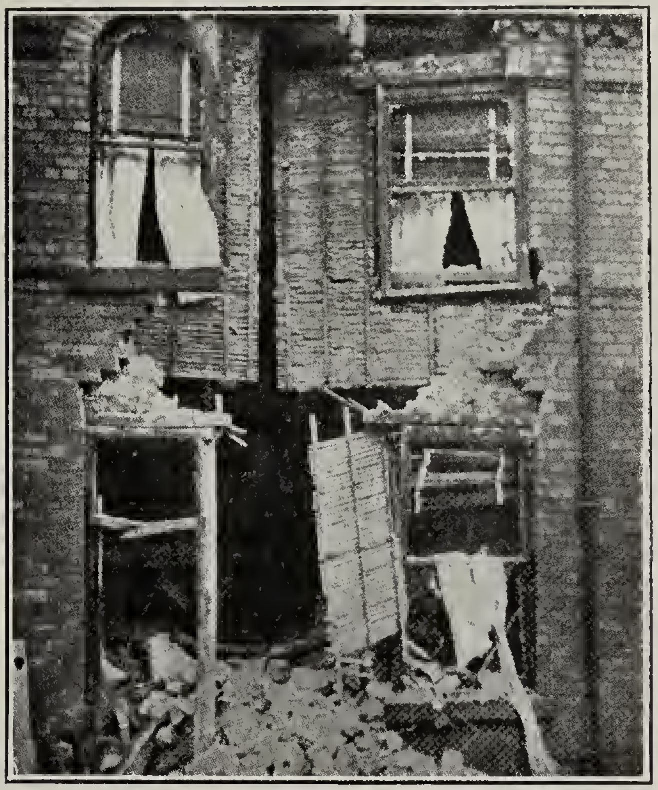
The total estimated cost, of all building work for which permits were issued during March, is $5,388,265. One hundred and ninety-six permits were issued for two-story dwellings and 1,501 operations were begun during the month at an expenditure of $2,971,500; while 43 permits were issued for three-story dwellings and 171 operations begun at an expenditure of $745,150, which means that more dwellings were started than in any previous March for four years.

The brick manufacturing business of the late James B. Spahr, conducted at Chambersburg, Pa., for a number of years past, is to be continued under the direction and supervision of his widow, Mrs. James B. Spahr. Mrs. Spahr is thoroughly familiar and conversant with the inner workings of the business, and it is believed will make quite a success of her new venture.

The brick yards, clay beds and plant known as the Hand Brick Works, situated on Mountain avenue, North Plainfield, N. J., will be sold at public sale by Sheriff Charles Sebring, in Somerville, on a foreclosure of a mortgage held by Charles Dodd, of Elizabeth, against the brick plant and property, which is owned by William Garrabrant, of New Providence, N. J.

The Pinegrove Vitrified Brick Manufacturing Company, of Pinegrove, Pa., with headquarters in the Fidelity Trust Building, this city, was recently awarded a verdict against O. D. Miller & Co., of Mahanoy City, for bricks which the Miller company, contractors, had ordered for the paving of Mahanoy avenue, in Girardville, Pa., for $3,308.61. The Pinegrove Company brought suit for $3,400, which was contested by the defense on the grounds that the brick had not been used and that an allowance had been arranged for on bad brick and loss of time by shipment.

The famous old Independence Square, in which sets Independence Hall, at Sixth and Chestnut streets, is to be made more like itself of the Colonial days by the erection of a brick wall, four feet in height, completely around the entire city block. The contract for the work has been awarded to J. J. Hurley, and calls for a red rough brick to be used, at a contract price of $11,000, through Director Cooke, of the Department of Public Works.



A Nine-Inch Bonded Brick Wall in Scarborough, England, After the Bombardment.

Wilton Lawhead, who for some time had been employed at the mines of the Clearfield Clay Company, of Clearfield, Pa., in an executive capacity, died in the Clearfield Hospital, on January 15th, from embolism. Mr. Lawhead was 55 years old and unmarried. The interment was made in the Hillcrest Cemetery, that place.

Negotiations have been completed by which the Pennsylvania Vitrified Brick Company procures the Cottman property at New Hope, Pa. It is expected that the work of erecting a new brick plant on the new site will be rushed and Samuel G. Davis, manager for the firm, states that although the work will be started at an early date and rushed to completion, it will take about a year's time to complete the new enterprise to a stage where operations can be begun. A QUAKER.

# THE ANNUAL BANQUET.

## A Joyous Combination of Music, Mirth, Wit and Wisdom Enjoyed by Those in Attendance at the 1915 Detroit Convention.

As has always been the case, the Annual Banquet, or Association Dinner, as it was formerly called, proved the most delightful social entertainment of the Detroit convention. The setting was beautiful, the immense banquet hall of the new Statler Hotel, with its brilliant lighting and its simple yet elegant decorations, affording exceptional facilities for the occasion. It was a most charming combination of music and oratory, with a sufficient spice of wit and rhyme intermingled to hold the immense throng enthralled from the brief but appropriate introductory of Chairman Clippert to the final word of dismissal by Toastmaster Groesbeck. The singing of Harold Jarvis was in itself a rare treat and the readings by Miss Mary Lyon were unusually entertaining, which with the toasts followed an excellent menu, well served to over three hundred participants.

CANAPE N. B. M. A.
Olives Celery Radishes
CREAM OF SPINACH
TIMBALE OF SALMON CARDINAL
ROAST LONG ISLAND DUCKLING
Compote of Apples
Bermuda Potatoes Parsley Butter
CHIFFONADE SALAD
FANCY ICE CREAM
Assorted Cakes
COFFEE
Cigars Cigarettes
Furnished with the compliments of the Detroit Committee.

On reaching their places, the guests were surprised to find a brick laying at each plate, just a common red building brick, on which appeared the letters "L A Y S." A second glance showed that it was not a real brick, but just a good imitation, a printed brick, and that within its covers were a number of popular songs and parodies, or "Brick Lays," which had been written especially for the occasion by local talent. It was an unusual and interesting souvenir.

George H. Clippert: Ladies and gentlemen, we have looked forward with a great deal of pleasure to your visit to our city, and it is very gratifying indeed to the Detroit people to see so large a gathering at this convention. First, I want to speak of the smoker. I cannot forget some of the things I saw there last evening (laughter), and one of them was the great pleasure to me to see the ladies enjoying their cigars so nicely. That shows, of course, that they are right up to the times. In other words, you are twentieth century women. I want to take this opportunity also of thanking both the ladies and the gentlemen on the local committees for the splendid work they have done in connection with this convention. I am going to ask you to keep up this good work until the very last visitor leaves our city. They have been putting up several surprises on me this week, and one of them I found when I opened up my program and saw my name at the top of the list with a verse under it. "Go into the Clay, tread the Mortar, make strong the Brick Kiln." I don't know what that means, and I am not going to pay any attention to it. (Laughter.) I think you have enough to hold you for the balance of the evening. But I have a very pleasant duty to perform this evening, and that is to present to you a dear friend of mine and a great many in this room, a gentleman who came near being Governor of the State of Michigan, and will be shortly. (Applause.) I take great pleasure in introducing and presenting my friend, Mr. Alexander J. Groesbeck, as your toastmaster. (Applause.)

Toastmaster Groesbeck: I trust that everyone in the room will make himself or herself as comfortable as possible. The program has been changed somewhat this evening, and it will be necessary to call upon the different speakers somewhat out of the order in which they appear upon the regular program. It is not the duty of the toastmaster, as I understand it, to monopolize the time of a gathering such as this, or to trespass upon the time allotted to the different speakers.

I simply am going to pause long enough to say that Detroit and Detroit's citizens heartily appreciate the visit that you are now paying to this city, and at the request of the Honorable O. B. Marx, the Mayor of the City of Detroit, who is unable to be with us tonight, owing to a visit to another town, I bespeak for him the kindliest welcome to you on this occasion, and I express the regrets that are necessary and proper at this time because of his unavoidable absence.

We wish to say to those who have come in our midst and who belong to the National Brick Manufacturers' Association, that we appreciate the honor that you have paid one of our most esteemed citizens, Mr. George H. Clippert, in placing him in a position where we believe he will soon be the President of this great Association, and I want to assure you who have come here at this time that unless you come back very soon and pay us another visit, the Clippert family will in a few years be holding a brick convention of their own. (Laughter.)

The Souvenir "Build with Brick" Cigarettes Placed at Each Plate.

Perhaps most of our visitors do not know it; but it is a fact that the Clipperts all belong to a brick trust. (Laughter.) Once in a while they have something to do with politics. When the youngest member of the family engaged in the brick business a short time ago, he found that three or four of his brothers and relatives were then engaged in the brick business and had in lucrative fields many customers. He made up his mind that there were different ways to acquire a brick business, so he looked over the charter of the city of Detroit, and found there that any contractor who happened to be on a board could not sell any of his product

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*A part of the copyrighted proceedings of the twenty-ninth annual N. B. M. A. Convention.

THE BANQUET AT THE TWENTY-NINTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION, DETROIT, FEB. 18, 1915.

to the city, so he started out to relieve some of his competitors of their business, and in a very short time he had succeeded in getting Charles H. Bryan appointed as a member of the Lighting Commission. The next thing he did was to get rid of an old friend of his, John Haggerty, and he put him on the Building Commission, and then he thought he would cap the climax by having his own brother Charles appointed a member of the Fire Commission, so all these men, who had been supplying the City of Detroit with brick have been forced to quit, and now William Clippert enjoys a very lively monopoly. (Laughter and applause.)

Now, ladies and gentlemen, as I said a few minutes ago, I will assist in shortening this program, and, because it has been necessary to rearrange the order of same, I think it would be fitting at this time, when every American should feel proud of the fact that he lives in a free country under a free constitution, a land where the liberties of the individual are sacredly held, to open this program by requesting Mr. Harold Jarvis to sing that beautiful song, "My Own United States."

Toastmaster Groesbeck: Mr. Jarvis seems to have struck a very popular chord, and we will try to hurry along so that those who wish to dance after this program is finished may have an opportunity. The first toast that will be responded to I find reads like this, "Is a Minister a Brick?" and the Reverend Dr. Sayre will have the opportunity of answering that question in just a moment. This toast reminds me of a discussion that took place between a Unitarian minister and an African M. E. minister. The question they were discussing was, "Is There a Hell?" The Unitarian minister proclaimed that there was no such thing, and the argument was prolonged for some time, until finally the colored minister turned to the Unitarian and said, "Well, if there is no hell, will you please tell me where all the business has gone to?" (Laughter and applause.) I have the pleasure of introducing to you at this time the Reverend Dr. Sayre of Detroit. (Applause.)

Toastmaster Alexander J. Groesbeck, Detroit, Mich.

## IS A MINISTER A BRICK?

"And they said one unto another, Go to, let us make brick and burn them thoroughly."

REV. WILLIAM S. SAYRE.

*Mr. Toastmaster and Friends:*

I have been called entirely out of order. I was waiting until I heard from everyone else. My position was down at the foot of the class, and I feel as though I had been struck by some submarine, which has carried off my thoughts in many directions. I am introduced, as is proper perhaps, by a scriptural quotation. Those who selected that quotation, perhaps, would like to know what it means (Laughter). "And they said to one another, 'Go to, let us make brick and burn them thoroughly.'" It is taken from an old history written on bricks a great many hundreds or thousands of years ago, and it is one of the first brick products we have, and it was written upon the plains of Shinar, wherever that may be. It is there yet, but we don't know where. If you don't believe it, go and find out for yourselves. (Laughter.)

Well, they said, "Go to, let us build a town," and so they burned the brick and built the town, and that was the first great big brick convention we ever read of. (Applause.) And they got on a little while and got this tower up; perhaps all that and more, and then they fell into confusion, and they gave it up; that first great big meeting came to an end, and so they called the tower of confusion, Babel. They both mean the same thing, and that was the first brick convention. I think they have improved a great deal since then. I don't think the women had a voice in it, and they could not understand each other, and so they went where they could be understood, and so, after all, it was a great blessing. The world never would have been populated if it had not been for that. They all would have lived together and probably would have killed each other. But they moved apart and started the various nations of the world, so we are now getting to killing each other off; they put one nation against another, so it all amounts to the same thing.

But to come back to the topic which has been assigned me, "Is a Minister a Brick?" It depends upon what kind of a minister it is, and what kind of a brick you want. A brick is sometimes half-baked (Laughter) and don't stand anything very long; it breaks down. Sometimes a minister is not mixed right to get the right texture, best burn or grade, and he doesn't last long. He is good in spots. Where you have a minister made of very fine, nice clay, well mixed up and put through these various machines, and then comes through the mills and get stamped and marked "Clippert" or whatever it may be, it is a pretty good sign of a brick.

I suppose a minister is called a brick because he ought to fit in everywhere. (Laughter.) Some brick fit in big holes and some brick fit in little holes and some brick fit in square holes and some fit in round holes and some fit in triangular holes, and that is the way with some men, and that is why, today, some succeed in one place and would not succeed in another place, and that is why the woman you want for a wife is the one you want. There may be some other woman who may be just as nice and just as pretty, but, never mind, you don't want her at all, you want the one you want. That is why people sometimes pick out a minister. They want him because they want him. He may not be so clever as some others, but they want him, and he has to fit in everywhere. In other words, he has to be a good mixer—I mean with people (Laughter). He must have the right spirit in him (Laughter). I am speaking of people who have a little humanity in them; sometimes they have a little more and sometimes a little less. But at any rate, a minister, to be successful, and that is the kind I am trying to speak of—I know what they are, although I never got to be one myself yet—but a minister to be successful must be a good mixer; he must be able to fit in everywhere; he must be able to sympathize with and intelligently understand everybody; to be just as much at home with the tramp on the freight car as with the president of a brick association and his pals. (Laughter.) And he must know all of the human heart. It does not matter so much whether he knows Greek or Hebrew, which is supposed to be good for a minister. I don't know why they give it to us, except to keep us back, but he has got to know something about people. He has got to know different depths and the deepest depth of the human heart. He has got to be able to sympathize with those in trouble, and to say a word of cheer. Many a man has gone to suicide who would not have done so had he had some friend to say "What is the matter, my friend, cheer up?" More than all this, he wants a hearty handshake and a kindly interest. Many a time such things as that have saved a man's life. That is the kind of a brick a minister must be, and then he has got to be able to enjoy himself with those who are having a good time. I wish I had been here last night. (Laughter and applause.) I would like to have been here for the fun and then because I would like to know really whether they did what they said they did. I was told the most wonderful stories; one lady is said to have jumped with one foot on one table and one on the other and so on, all around the room (Laughter), singing, "Tipperary," wasn't it? Well, things like that, you know, a minister has got to fit in with—not that he has got to dance from one table to another (Laughter) but he has got to be able to laugh and be happy and gay when it is time to be gay.

A minister has got to be something more than a friend to every one. It is one of the grandest things in the world to be a friend. I tell you there are times in most every man's life when he is lonesome. It may be in a strange city or a strange land, and he would like to have someone to talk to, and that is where the minister comes in, if you will only go to them. You will have to hunt them out; they cannot come to you, though they would like to; they do not know where you are, and you can always find them. I have thought it would be better sometimes if instead of a minister wearing this dress, they would wear a red shirt if that would bring the people to them any better, but a minister, if he is the right sort, is a good, true friend, and he will help the people all he can.

Now, one or two other attributes of a minister. What is a brick? It is something so long and so wide and so high. You know how big it is, and it is hard and straight and square. In making a brick, so far as I know, you cannot leave holes in it; you cannot put poor stuff in it, because anything you put into it would show when it was burned. It has got to be square and honest and it has got to be burned to just the right color, and then when it is finished it stands for just what it is. You look at it and you say:

"That is a brick." A minister has got to be just like that, and if you know if he is a brick, just how long he is going to preach. I could go on and speak longer, but I recognize the fact that I am heading the procession, and I never do speak more than ten minutes, except in the country, when I speak an hour.

In reading the report of last year's convention at New Orleans—what a fine time you did have there—the toastmaster took pleasure in reading a little poem written by his daughter, and I read it twice in my home, and my wife has read it, and while a minister must be a brick, his wife must be something better than a brick. I don't know if it ever occurred to you, but a minister's wife is the better half of a hard brick, so I asked her to write something in the way of a poem to help me out this evening. She got busy and she was interrupted a time or two, and then she wrote this off. It is called "The Poetry of a Brick." I want to say it is with great diffidence I read any poetry here in front of this man who writes all the poetry for this city and state if not of this territory, so, by the permission of Mr. Eddie Guest, I will read this and hope that will enthuse him to something else when it comes his turn.

### THE POETRY OF A BRICK.

A plain and homely object is a brick.
Its making seems a simple little trick.
But to make, thro' all the ages,
All the bricks, for all the wages
Wealth e'er gave to ancient slave or modern artisan
Is the work that tells Earth's story,
Built in palaces of glory,
Or in path or home adorning humbler walks of man.
Writ on bricks are history's pages,
Records of kings, warriors, sages—
Ruling, fighting, overawing, each, a weaker one—
Toiling serfs in anguish weeping,
Conquerors in grandeur sweeping,
First uplifting, then destroying, brick-built Babylon.
In a brick—perhaps the lowest—
Star-dust may exist. Thou knowest
All terrestrial matter may be from a heavenly source.
E'en the handiwork of making
Humble bricks, so prone to breaking,
Hath inspired the craftsman to become a great world-force.
Symbols of work persevering,
In their even form appearing,
Bricks, the primal cornerstones of structures raised by man.
Will to him a boon be ever,
And the need for them will never
Pass away while good, sound clay belongs to nature's plan.
(Applause.)

Toastmaster Groesbeck: We will now hear from Miss Mary Lyon, and I specially request the audience to remain as quiet as possible during Miss Lyon's appearance. (Miss Lyon rendered several selections and concluded with the poem "King.")

### KING.

Giuseppe Tomassi ees stylishe chap,
He ees wear da white collar an' cuff;
He say for expanse I no giva da rap,
Da basta ees not good enough.
When out weeth hees Rosa he wear de seelk hat,
An' carry da cane lik' da lord;
He spanda hees money lik' dees an' lik' dat,
For Giuseppe, he work at da Ford!

He smok' da cigar weeth da beega da band,
Da "three-for-da-quart'" ees da kind;
Da diamond dat flash from da back of hees hand,
Ees da beegest Giuseppe could find.
He dress up hees Rosa een satin an' lace,
She no longa scrub at da board,
But putta da paint on da leeps an' da face,
For Giuseppe, he work at da Ford.

Giuseppa ees strutta about li' da king
An' laugh at da hard-worka man
Dat grinda da org' a few neeckels to bring
Or sella da ripe banan'.
Each morning he waxa da black mustache,
Den walk up an' down through da ward;
You batta he gotta de playnta da cash,
For Giuseppe, he work at da Ford.
—Edgar A. Guest, in Detroit Free Press.

Toastmaster Groesbeck: Ladies and gentlemen, it is my pleasure to introduce to you one of Michigan's leading jurists. It is unnecessary for me to say to you that he is known throughout our State. I think you will enjoy listening to the Honorable A. J. Murphy, whom I consider one of the most brilliant and convincing speakers now before the public, and I take this opportunity of presenting him to you, the Honorable Albert J. Murphy. (Applause.)

### THE CONQUESTS OF COMMERCE.

Judge Alfred J. Murphy, Detroit, Mich.

Mr. Toastmaster, Ladies and Gentlemen:

I have been surprised tonight at the courage, not to say brazenness, with which your toastmaster has arisen to his feet. As for myself it is with a great deal of misgiving that I make bold to face a body of men who are as adept as you at handling missiles like brick. I have been expecting, I think I can say that I have been hoping, that a volley of your product might momentarily reach the toastmaster. I can confidentially tell you that he has been expecting it, too, for beneath that very calm and faultless exterior of his, he is wearing a brick-proof gubernatorial armor. You have just seen the very elaborate verbal bouquet he handed me. Let me say to those of you who are here from abroad and who cannot be expected to be familiar with conditions which obtain in gubernatorial campaigns in this state, that your ovens cannot change clay into ceramics as quickly as words can be transported into unrivalled bouquets by the magic of his hot air. (Laughter.)

I feel at liberty to reveal a phase of his character which I learned only tonight. When I looked over this galaxy of feminine loveliness I was moved to say, "Alex, don't you think, after all, that the best judge of a woman is woman herself?" He replied, "Why, certainly, she is not only her best judge, but her best executioner." (Laughter.) It is needless for me to say that such a shameless slander as that could only proceed from an incorrigible bachelor. His bachelorhood, however, can be explained by the fact that every eligible woman in Detroit has refused him.

Judge Alfred J. Murphy, Detroit, Mich.

But, my friends, let me ask you not to visit your wrath upon any of the poor, unoffending lawyers. Many of them were designed by nature to promote your interests by carrying the hod. (Laughter.) In thwarting nature both the hod and the law have suffered. But I find a great deal of consolation here tonight in that many a good hodcarrier has been spoiled to make a poor lawyer, for Mr. Randall has confided to us that many a clever green goods man has been spoiled to make a poor brick manufacturer. (Laughter.) He said open confession was good for his soul and he could no longer contain himself.

At such a gathering as this it seems fitting to recall to men of commerce some of the triumphs of their calling. The lawyer revels in the successes of his profession. The statesman exults in the achievements of diplomacy. The clergyman is imbued with new zeal by the recital of the influence of religion over the multitude. But all of these triumphs have been in some way served, some of them, indeed, have been inspired by commerce itself. Surely, then, the devotees of commerce may be pardoned for acclaiming its power, for chanting its anthem of victory.

He who would attempt to interpret truly the conquests of commerce must know that commerce, master of the things material which make for the progress and the prosperity and the beauty of the external life of a people, is not itself merely material. True, its field of action is with the material. It marshals and flings its armies upon the crude resources of nature. It sends its legions into shop and mill and mine. Its ships have charted and their keels have furrowed every sea. It crosses continents with its steel transports. Its couriers of trade enter every mart. Its messages, though wingless, make instant flight from hemisphere to hemisphere.

The myriad activities which result in trade and manufacture, in intercourse of city with city, state with state and nation with nation, reveal an inspiring panorama of material achievement, a picture of an ever-increasing development of wealth, of an ever-widening distribution of it among all the people, and of an ever-enlarging measure of the comforts of life to all the children of men.

But this is not all. These are its conquests over time and matter. And the influence of commerce is not confined to the temporal or the material. It has a soul-life. It has not only a material but an ethical structure. It has not only a materialistic but a spiritualistic side. Just as back of the physical structure of this splendid new edifice in which we are gathered tonight, is the mind which first conceived and built it in thought, so underlying the physical manifestations of the power of commerce is the humanizing power; its stimulus for a nobler and better plane of life and living is its pervading purpose to make all its efforts, its products, its triumphs minister to human needs, the needs of mind and spirit as well as body.

And so commerce has ever been the forerunner and the promoter of civilization. What has been the sequence of its conquest of nature? First comes the explorer; then the trading post; next the village, then the city, and finally the state. Each expansion comes in the wake of commercial development. And when the rigors of the pioneer are past and social life established, and civilization secured, then the higher things of life are cultivated, the arts made to flourish, science advanced and the ethical nature of man given atmosphere and scope and growth.

This pulsing city was here potentially 200 years and more ago when the Chevalier Cadillac and his hardy voyageurs planted his banner, emblazoned with the lilies of France, a few hundred yards from where you sit. This republic was here potentially when the Pilgrims disembarked from the Mayflower upon the strand which until then had known only the tread of the savage. Commerce has made the potential actual.

George H. Clippert, Detroit, Mich.

The forests were felled, the streams harnessed and bridged, the mountains tunneled, the waste places reclaimed, industries established, and a new social order created under the pressure and the impetus of commerce. It has now multiplied the schoolhouse and the church as well as the office and the shop. It has fostered free institutions. It has promoted the spread of culture. It has given to American business and to the American business man not merely the initiative and the enterprise which distinguish them above all others, but it has given them vision and a sense of social service which gives their calling an imperishable crown of glory.

These are the public trophies of commerce which all men prize, and which a grateful people may well acknowledge. Upon this solid foundation has been built an enduring superstructure. That superstructure is the temple of the nation. It stands dedicated to liberty. It stands the proof of the wisdom of insuring freedom of individual opportunity. It stands the pledge that material and social growth shall proceed, hand in hand, to bring a constant, unfolding program of human betterment to this republic and its people.

But what has commerce not done for you and by indirection for the whole community by inspiring the organization of such bodies as yours? I was told tonight by a former president of your body that, as a subordinate employe, he received his first incentive and inspiration, as he also achieved his business success, through your association. Such a body, furthermore, results in the study of improved methods, in the elimination of waste, in an increase of economy and efficiency, and in bringing your craft to that healthy economic basis which is essential to its own and to the community's welfare.

From such an association a spirit of good will flows out to its own members and on into the current of the business life of the community. You come to know one another better and thereby to understand one another better. A higher standard of integrity and and honor is created. A sense of pride of craft, of mutual duty, and of social responsibility grows. The craft and its members find themselves not upon the shifting sands of misunderstanding, of futile enmity, of purely selfish aims, but upon the solid rock of fair play and fair dealing for self, for competitor, for customer, and thus for society itself. In behalf of my city I pay tribute to your association for its devotion to this ideal. Your organization is itself one of the achievements of commerce.

In this hour of our rejoicing at the peaceful conquests which commerce has won there looms up, unbidden, the specter of the cataclysm into which the warring peoples of Europe are now cast. Commerce and civilization, twin handmaidens, are there smitten. In all recorded time there has been no such demonstration of the barbarism, the cruelty, the waste of war as that which is now afforded in the most costly and gigantic conflict in history. The expenditure of money baffles appreciation so enormous are the figures. Nations which at the outset of this conflict had a combined governmental debt of thirty thousand millions of dollars, an incomprehensible sum, are now daily spending $50,000,000 in the mere carrying on of the operations of the war. The suspension of industry and commerce is incalculable in its additional losses and wastes. The toll of life that is being taken by death and disease in the life blood of the most chivalrous and the best-fibred men of all the engaged races is a sacrifice that would shame the bloodiest page of the cave man's history. The achievements of art, those milestones along the path of mankind's progress, who shall measure the ethical and the artistic loss in these masterpieces, incapable of reproduction? The cry of the children and the anguish of the mothers, who will translate them into adequate terms of human misery and human suffering?

Nor is this all. There are among the present, palpable costs of the war, costs that are affecting the whole social and commercial structure here and now. But what of its biological cost, perhaps its most important cost? What is posterity being denied in ancestry when war seizes and destroys the best blood and the best brains of this generation? The unoffending children of the future are entitled from this generation to an ancestry which represents the best of its people, not to the weakened paternity of the men left over from the selection of war and its death-dealing agencies.

Universal world peace may be an Utopian dream. However that may be, though I am not prepared to admit it, commerce, in its own name and in the name of humanity, may rightly demand that before there be appeal to the bloody and barbaric arbitrament of the sword there shall first be humane appeal to the arbitrament of reason. The men of commerce should put the powerful emphasis of this united demand upon the side of reason as opposed to force. When comes the end of this war, as come it will soon or late, by bankruptcy, or siege, or subjugation, if the counsels of reason do not sooner intervene, the good offices of this nation will inevitably be invoked in the restoration of peace. Those in authority should be made conscious of the insistence of the commercial interests of this country that such a basis of peace be then established as will make the danger of future wars remote, if not impossible. May commerce add the trophy of a long reign of peace to its conquests.

The conquests of the past are omens of greater ones to come. The opportunities that await challenge the best in every man. To all who cherish our fundamental ideas of law and liberty; to every man who sees in our basic economic system the surest guarantee that civilization will continue to advance and serve mankind, there comes the challenge to keep our heritage intact, to transmit it improved, to imbue life with social vision.

Progress from good to better is the law of life. He who stands still is in effect receding, for the current of events will relentlessly pass him by. Progress to a larger, fuller life, safeguarded by the law and the liberty of our free institutions, that is the duty of the present, the promise of the morrow.

Who shall lead us to this better day? The call for leadership is clear. Is not the response to be equally clear? From the hosts of commerce should come, nay, will come, leaders whose clear brain, patriotic purpose and business foresight will marshal the people and keep secure our mission of peace and plenty and progress.

In fancy I see as night falls a mighty master weaver at work high above the marts of commerce. As the scurrying thousands leave the shop and office and the haunts of trade and turn homeward in the dusk of the day's close He gathers up the strands of their lives and weaves the threads into the web and woof of a vast fabric which portrays the city's life.

The black strands of sorrow, the purple threads of power, the snow-white lines of virtue, the read stains of passion, and all the hues that tell the story of struggle and success, of ambition and defeat, of sin and suffering, of mercy and misery, are there and wrought into the unfading colors of the texture.

What has been, what will be our contribution, yours and mine, to the fabric? May it be our fortune, as it is our opportunity, to hasten the day when from the loom shall be needed only the threads to weave the picture splendid of a time when thrift is rewarded, enterprise encouraged, labor honored, worth recognized and justice enthroned.

The strength of that day shall not be merely in the number of its people, but in their justice. Its wealth shall not be in mere treasure, but in its ministry to human need. Its contentment shall not lie in mere comfort, but in the joy of useful, wholesome living.

May commerce and its followers speed the winning of this, its finest conquest yet to be. (Applause.)

Toastmaster Groesbeck: I am quite sure, ladies and gentlemen, the toastmaster did not overstate the case when he introduced the last speaker. I am very sorry that Judge Murphy, at the inception of his remarks, injected politics into this session. I cannot imagine his reason, except that he is a Democrat, and was ashamed to tell you that himself, so I thought I had better tell you. (Laughter.) At the request of someone in the audience, Mr. Jarvis will sing that beautiful song known as "The Beautiful Island of Somewhere."

Toastmaster Groesbeck: Mr. Gordon C. Keith, of Toronto, Canada, who was to have responded to the next toast, is not able to be present, so Mr. Greaves-Walker of that city will respond in his stead. I take pleasure in introducing Mr. A. F. Greaves-Walker of Toronto, Ontario, Canada. (Applause.)

## ROSES AND THISTLES.

A. F. GREAVES-WALKER, Toronto, Ont.

"Is it Hard for Thee to Kick Against the Bricks?"

*Mr. Toastmaster, Ladies and Gentlemen:*

The toast which I am expected to respond to is "Roses and Thistles," and I should have felt more at home if it had been "Roses and Maple Leaves." Maple leaves, because I saw them upon the caps of 92,000 men, who, in the past six months, have embarked and are now engaged, or soon will be engaged, in battle on the other side of the ocean. Therefore, the maple leaf has a good deal of significance to us. This text which has been given me is rather a peculiar one. "Is it hard for them to kick against brick?" Gentlemen, being in the hollow tile game, I want to tell you it sure is. (Laughter.) Mr. Harris advises me that since he has been elected secretary of the Hollow Building Tile Association of America, it will hereafter be a "cinch." (Laughter and applause.) If I had the selection of a text, I should have selected the one given Mr. Gates, of Chicago,

"Building is a lottery,
Profits pretty watery,
Building Business Tottery.
Me for Teko Pottery."

Principally because we are naturally impressed on the other side of the line that this prosperity for the present time does not exist. The toastmaster did not tell you, but I will, that I have recently been elected first vice-president of the Canadian National Clay Products Association. They insisted when that position was wished on me that there was absolutely nothing for the vice-president to do. This is the second time within the month that they have put one over on me. It reminds me of a story I heard since coming to Detroit. There was a little chap of five who went out and earned a nickel. He immediately hunted up an older brother of ten and showed him the nickel. The older brother immediately suggested that they form a company, of which the older brother was to be president and the younger brother vice-president. They put the nickel into the company treasury as capital stock. With this capital stock they bought a cigar, at the suggestion of the president of the company. The little chap thought it was a pretty good game. They immediately went out back of the barn and retired to a log, the president sitting on one end and the vice-president on the other. The president naturally opened the session by lighting the cigar; he sat there smoking for some time, the little chap watching the total assets, the entire capital stock of the company rapidly disappearing. After a while, the little chap began to get nervous; he said: "Say, when do I get my turn? Don't I get to smoke any?" The older brother said: "No, you are only the vice-president; all you have to do is to sit there and spit." (Laughter.) Now, they gave me something else with this job of vice-president besides spitting.

Yesterday, I had a great deal of pleasure in listening to the various speeches from the representatives of the different cities that wished the brickmakers to hold their next convention in their different towns, putting forth the main points and reasons why they should go there. Atlantic City, with its broad board walks and ocean breezes; another city dwelt on its wide streets; another on the fact that its police force went off duty at 12 o'clock, and so on and so forth. There was nobody there to invite you to Canada. I am not going to invite you to Canada to hold a convention, because I don't believe you would come, but I have heard it remarked that the Face Brick Manufacturers' Association was talking about holding a convention in Niagara Falls, a summer convention. I have not heard whether it is to be Niagara Falls, N. Y., or Niagara Falls, Canada, but we have most of the Falls, so I would not wonder but what they will consider coming to the latter city, from which you can get the best view of the Falls. It only costs ten cents to get across the bridge, and I hope when it is decided, it will be Niagara Falls, Ontario, and that you will come over and give us a chance to show you what Canada can do, as you have shown us what you can do for Canadians. When you are in Niagara Falls, it is only a short way to Toronto and we hope you will see fit to come to a city that is built of brick—build with brick. They don't allow them to build with anything else, brick or terra cotta, or hollow tile. If you do come over there, I will guarantee those of you who have not seen that city, you will be wonderfully surprised to see such a fine city built with brick, and they will continue to build with brick, I expect so long as the city stays there, and it is going to stay for a long time. I certainly hope that the face brick manufacturers will come over and you will come with them, and give us a chance to show you what we can do for you. (Applause.)

Toastmaster Groesbeck: Some of the very best things of the program are still waiting for this magnificent audience. I hope we will all have a little patience, as we only have two or three more speakers. It gives me great pleasure at this time, in order to vary the program a little, to introduce to you Mr. J. U. Higinbothan of Detroit, well known in our own city, who will give us a little "Dinner Table Chatter." (Applause.)

## DINNER TABLE CHATTER.

J. U. HIGINBOTHAM, Detroit, Mich.

*Mr. Toastmaster, Ladies and Gentlemen:*

It is somewhat a tribute to my endurance and yours, that my speech, "Dinner Table Chatter," is to be followed by Mr. Guest's "Breakfast Table Chat." That gives me all the time I want, and I hope you will stick around for Mr. Guest. He is really worth hearing. He is really worth sitting through one of my talks for. It has been said that a man becomes what he eats or drinks. Thus, a man who consumes large quantities of beef becomes beefy; one who drinks large quantities of beer, becomes beery. I have a friend who voted for Bryan for president of the United States three times and said he would like to do it again, who, for years, has eaten nothing for breakfast but grapenuts. (Laughter and applause.) Be this as it may, I am sure a man does take on the nature of the material in which he works, and as sure as the lust for gold is manifest in the yellow skin of the miser, just so certain am I that working in clay has made bricks of most of the members of this association. But bricks alone would make a very poor structure without something to hold them together and to hold them up. I am very glad to see around me tonight the real binding force of this organization in the wives, sweethearts and daughters of the members. They are the ones who hold us together, and which occasionally hold us up.

J. S. Haggerty, Detroit, Mich.

I would like to propose a toast: "Here's to the young girl, but not too young, for the good die young, and who wants a dead one? Here's to the old girl, but not too old, for the old dye, too, and who wants a dyed one?" (Laughter.)

You gentlemen represent one of the oldest of arts. This has not been said yet, and it is usual to say it at these brick conventions. When some of the stories told here tonight were being circulated for the first time, thousands of years before the Christian era, brick were being made in Babylon. Graft on the part of the material men caused the first walk-out in history, led by Moses, which was the beginning, I believe, of the longest strike on record, For, so far as I know, no Hebrew has laid a brick since.

You will excuse this general and abstract reference to our history. I have been warned that anything in the nature of a concrete example will not be tolerated, and that any allusion to Mr. T. A. Edison, the man who put the con into concrete, will be decidedly out of order. But when I reflect on the great age of your industry and its present magnitude, when I consider some of the buildings even in this country, the great durability of the buildings centuries old, and made in the most primitive and crudest form of sun-dried mud; when I reflect on the vast magnitude to which you gentlemen have developed your business, producing as it does in the United States alone an annual output of I will not tell you how many million of brick, because I do not know, the temptation to become eloquent and oratorical is almost irresistible. It is so much easier to float an audience away on dreams of future conquests than to tell them a few funny stories. It is far less difficult to convince an audience of its great power of achievement and intellectuality than to make it laugh—although that ought to make it laugh. (Laughter.) But I have always been a glutton for work, so I have chosen the more arduous role of humorist when it would have been so much easier to have been an orator. In order to avoid the appearance of wanting you to believe that I think I am an orator, I have been reading up on the history of oratory from its birth in ancient Greece to its dath in modern political fot. Oratory is one of the lost arts for whose revival there does not seem to be any clamorous demand. A humorist has one advantage over the orator. He receives his reward immediately in the applause and appreciation of his audience and his conscience is clear. Nothing that he has said has induced you to believe he has said anything. When a humorist sits down you know you have heard nothing. When the real, Simon-pure orator has made his talk, it may take you several days to find it out. (Laughter.)

Oratory found its birthplace in Greece, which probably accounts for the smoothness and oiliness of many of its followers. It was cradled in litigation, largely over land titles. The early Greeks, returning from Italy found their estates in the hands of claim-jumpers and filed the first ejection suits since the Garden of Eden. From that day to this, land, timber and mines have formed the bulk of the world's litigation, largely because land, timber and mines are not portable and can only be purloined with legal assistance. The story is told of a timber king recently deceased who was almost constantly fighting in court, either establishing a fraudulent claim or contesting one. He went into court one morning a little late, and, seeing his opponent surrounded by two or three backwoodsmen, he took him aside and said: "Are these your witnesses?" "They are." "You win," said the timber king; "I have had that bunch two or three times myself." (Laughter.)

Lewis W. Penfield, Willoughby, Ohio.

You will pardon my digressing, but digressing is the very best thing I do. I am reminded of another backwoodsman, a native of the Ozark mountains of Missouri. A man who by means of laziness, indifference and honesty, managed to remain poor though surrounded by public lands fairly begging to be appropriated. He supplied most of his modest wants with a fish line and squirrel rifle and cultivated a few acres in a desultory manner. He allowed that if he could raise corn enough for himself and family, the niggers could eat wheat bread. Occasionally he would take a party of hunters through the woods and on these occasions his wonderful knowledge of woodcraft caused comment. He could find his way back to camp in the darkest night by the shortest path. One of the men said to him: "Old man, were you ever lost, wandering around in these woods by yourself?" He replied: "No, I don't remember that I was ever exactly what you could call lost, but I was bewildered as hell for three days once." (Laughter.)

It is only on the frontier that you have types like this. Individuality is not developed in a city. I am very glad that I was born the son of a pioneer. In my days Bat Masterson was a real bad man, and the James Brothers were a part of the overhead expenses of every express company. It is small wonder that our early ideals were what they were, grossly material, and measuring success entirely by the amount of money acquired. Man is a creature of his environment. He does not change as quickly as the chameleon, but give him time, and he must reflect his background or perish. Changed conditions bring changed ideals. I can remember when the greatest man in our community was the man who held the most mortgages, took the most interest from his fellow man. Today the biggest man in any community is the one who takes the most interest in his fellow man. I remember asking a globe-trotting friend of mine how he accounted for the universal democracy which exists on board an ocean liner. He said: "I don't know, unless it is that the passengers all face a common danger, and in the event of a disaster would be on a footing of common equality. They are governed by this without fully realizing it." It seems to me that more and more the really civilized man has found out that this great earth of ours is a great big balloon, whirling through space and carrying a rather long passenger list. Whether by the grace of God, or your own efforts you are travelling first-class or steerage, one thing is painfully certain, that one of these days a hole will be chipped in the crust and you will be laid away. Knowing this, and realizing the impossibility of owning permanently more than this 4x7 feet of ground, men are turning more than ever to mixing with their fellow-passengers, and they are doing it not through the fear of punishment, or the hope of reward hereafter, but from the immense satisfaction they get while doing it. You men and women come from pretty well all over the United States, and I will guarantee that in your several communities the leading man is not necessarily the one who pays the most taxes, certainly not the one who dodges the most taxes, but the one who takes the lead in matters of public welfare. It is easy enough to make money, if that is your supreme object in life. It is only a matter of what you are willing to give up in the matter of health, hair, friends and amusements. Anybody can get up on the street corner and mount a cracker box and preach discontent with conditions for which he has no remedy. The safe and sane path lies between these two extremes, and is trod by the men who realize that money, as a means, may be made a very great blessing, but money, as an end, can never be anything but a very great curse.

We scheme and we dream and we follow the gleam
  Of a fabled and phantom success.
We push and we labor, we jostle our neighbor,
  As upward and onward we press.
We crowd and are proud, are aggressive and loud
  As we fight where the battle is rife.
In brotherhood rather, oh let brothers gather;
  Let us look at the heart-side of life.

'Tis a pace, 'tis a race, that has much that is base,
  'Tis a struggle that knows no delay.
Those above kick the nether, those below pull together
  To destroy those that block up the way.
But a smile all the while is a help o'er the stile;
  There is hope for the fellow who sings.
Let us look at the right side, let us look at the bright side,
  Let us look at the heart-side of things.

We may block the way for some other heart gay
  Who sings, not impatiently stands.
We at most are but human, we are man, we are woman,
  Like those that reach up for our hands.
Let us not be too hot to complain of our lot,
  To condemn those who crowd now and then.
Content as we find things, remember the kind things.
  Let us look at the heart-side of men.
(Loud applause.)

Toastmaster Groesbeck: We are going to trespass upon Mr. Jarvis's good nature and ask him to sing us just one more song.

Mr. Jarvis sang "Rose of My Heart."

Secretary Randall: By permission of the toastmaster I want to say just a word here now, because I want you to leave the room with the voice of the toastmaster and not mine ringing in your ears. First, I want to read a telegram. Pursuant to instructions from the convention, I telegraphed Mr. Sibley of his re-election to the office of Treasurer, and I have the following message which has just been received:

"Theo. A. Randall,
  "Secretary, N. B. M. A.

"Telegram received. I am overwhelmed with appreciation for the kind-hearted esteem of the convention in re-electing me Treasurer. Will see that the surplus is maintained and will rely upon Brother Ittner for a joke when my store is exhausted. Regret of my life that I could not be with you in person. Will try to make amends when you come here next year. Love to all. Congratulations to George Clippert.

"JOHN W. SIBLEY."

(Applause.)

I knew you would all be glad to hear that. Now I wonder if Mr. Wreford would not like to make an announcement in regard to the excursion tomorrow. Many of those present were not in the room when the announcement was made this afternoon.

William B. Wreford, Detroit, Mich.: I am not particular about it, but I will make the announcement if Mr. Randall wishes me to. The train will leave the Michigan Central depot tomorrow morning promptly at 10 o'clock. There will be some of the local committee in the lobby downstairs to conduct parties to the street cars as soon as parties are made up, and the street car company will have cars waiting for us, but we should leave the hotel not later than half-past nine. The ladies are expected to go on this excursion and lunch will be served on the train. (Applause.)

Mr. Randall: Thank you, Mr. Wreford. As on all occasions of this sort, there is always one man who, putting all his energy into the work, makes it a success, and the success of this convention and the success of this banquet is due more to Will Wreford than to any other man, and I simply wanted Mr. Wreford to make that announcement that you all might get a good look at him. (Laughter and applause.) I said to you yesterday that I was very happy when my friend George Clippert was elected Third Vice-president. I think you now see some of the reasons for the joy I had. It seems that we climb just another rung higher each year in our work and in our joys, and we will leave Detroit with new love in our hearts for the Detroit brickmakers. We certainly have had the time of our lives here, and the next city that takes us has a pretty stiff job to go that other rung higher. (Applause.)

Toastmaster Groesbeck: I think I can say on behalf of the brickmakers of Detroit that we feel very, very grateful for having had this opportunity of entertaining the members of this Association from different parts of the country. We have had a very delightful program, and, last but not least, I desire to say that you have a treat in store. It affords me a great deal of pleasure to introduce my dear friend, Mr. Edgar A. Guest, whom we consider to be the most serious-minded man in Michigan. (Applause.)

### BREAKFAST TABLE CHAT.

EDGAR A. GUEST, Detroit, Mich.

"It takes a heap of living in a house to call it home—
And you're lucky if she doesn't bounce a brickbat off your dome."

*Mr. Toastmaster, Ladies and Gentlemen*:

I feel I ought to say for Mr. Wreford that the announcement which he made "for tomorrow" goes for today, we are through with yesterday. I am reminded somewhat of the worthless darkey who sat all huddled up on the street corner when the town clock struck. He counted the strokes, and said "That's bedtime for a lot of folks, but its just twelve o'clock for me." Here it is almost twelve o'clock, bedtime for most of you, and I have still got to work. I am also reminded of the servant girl who rapped on the door of her mistress's room and said, "There's a gentleman at the door to see you." And the mistress said, "Tell the gentleman I am not receiving this afternoon," and the servant said, "He ain't delivering, ma'am, he's collecting."

I want, however, to say a word to those of the committee who invited me to appear here tonight. Had I known that they were going to time my topic so it would be breakfast time, I promise you I should have declined with thanks. However, I am indebted to Dr. Sayre. I have long wanted to have that biblical text explained, and I was very much interested in his explanation of the building of the tower of Babel, and his clear illustration of the fact that there were no women there. Confusion was raised there, and I would like to ask the good Doctor, whence came the confusion? (Laughter.)

Mr. Clippert's reference to the Smokerette interested me greatly. The women have finally edged into the smoker—the last refuge of man has been bombarded and capitulated. It reminds me of a biblical quotation which fits in here. "The foxes have holes and the birds have nests, but the Son of Man has no place to lay his head." Two suffragettes were talking, and one said "Mary, I am going to give up, I am sick and tired and discouraged," and Mary said "Don't do that, Jane. Every great movement has been met by a storm of opposition, we must fight and fight hard." Jane said, "I can't, I am worn out, I am tired and sick, and I am going to give up." Mary said "Oh, you mustn't do that, and besides when you feel that way you must take your troubles to God, *she* will take care of you." (Laughter and applause.)

I was interested also in Judge Murphy's splendid and eloquent address. "The Triumph or Conquest of Commerce," as outlined by him appealed to me greatly and I wondered how soon commerce would make it possible to sell a book of verse and make a dollar out of it. (Laughter.) Those of you in Detroit have heard most of my stories, but for the benefit of the strangers I may tell the one of the man who asked a friend of his if he expected to go to heaven when he died. "Why," he said, "I don't know, I haven't thought about it a great deal. I don't care very much, because I own the other place." "You own it?" said his friend, "what do you mean by that?" "Yes," he said, "my wife gave it to me last night." (Laughter).

I am reminded of the story of the man whose first wife died and he married again, and a friend said to him, "Why, I thought your first wife said if she ever died and you married again, she would dig out of her grave and haunt you," and the man said, "She did, but I buried her face down, now let her dig." (Laughter.)

The while we are on the subject of the bible, I could not help but think of the story of the two darkies who were discussing the bible, and one said, "Do you-all believe everything said in that bible?" "Deed, I do." "Well, don't it say Solomon had two hundred wives." "Yassah, an' I believes it, if its in the Bible." The other one said, "Lord, what priviliges them early Christians did have." (Laughter.)

Edgar A. Guest, Detroit, Mich. The Poet Laureate.

Now, I claim to be a brickmaker. That is, I am not a brickmaker myself, but I have an uncle who is a brickmaker, and I presume that makes me a brickmaker by marriage, though I haven't had time to figure it out, except that I am a poor relative of a wealthy brickmaker. I have been wondering about the brick business, and I think I understand it now. When I see the expense the brickmakers are put to, I know how why it is when a man goes to pay for a thousand brick he finds the price has been raised a couple of dollars. (Laughter.) I belong to this organization of clayworkers, for I have a little back yard in which I try to raise a rose or two, and every time I go out and dig, I know I am a clayworker.

You know most of the old fogies persist in telling you that the old days were the good days. That all the fun was had in the old days, that all the good times were back in the old time, and today don't begin to compare with the olden days. As a matter of fact, today is better than yesterday and tomorrow will be better than today—that will be Saturday, pay day, I am talking about. I ran across an old gentleman the other day that thought today was better than yesterday in many ways. He told me about it something like this:

Last night we got a hurry call to go to daughter May;
Her husband said that ma and me were wanted right away.
And so, though it was after 12, and bitter cold outside,
We bustled out of bed an' dressed, an' took a trolley ride.
An' Jim—that is her husband—met us with a gracious bow,
An' smiling said, as we stepped in, "Well you're a grandpa now."

An' ma went flyin' up the stairs, an' Jim an' I stayed down
An' talked about the great event, Jim in his dressin' gown,
As comfortable as you please; an' then he sorter smiled,
An' said, "An hour or two ago, I thought that I'd go wild;
The stork was hoverin' above, an' I was all alone.
I'll tell you, dad, I burned the wires on that old telephone.

I telephoned the doctor, an' telephoned the nurse,
An' I'm sure the sort o' service that I got could not be worse.
I telephoned the druggist, an' I phoned the neighbors, too;
An' then when I was through with them, I telephoned to you.
Each minute seemed an hour to me, I thought they'd never come.
You bet I was a busy boy; I made the old wires hum."

An' then I laughed, an' said to him, 'Why when your wife was born
We didn't have a telephone the neighbors 'round to warn.
They got me out o' bed at 1 a. m. an' said to me,
'You'd better git the doctor now, an' git him here by three.'
I had to run six miles that night, to bang upon his door,
An' then to git the nurse I had to hike about four more.

That isn't all the hikin' that the women made me do,
I had to git her mother's folks, the same as she made you.
There were no trolley cars back then, at least that late at night;
I ran four stitches in my side, an' finished ten pounds light;
I walked an' did a double trot, a gallop an' a pace,
An' I never even stopped to wipe the sweat beads from my face.

An' here you're in your dressin' gown, an' sittin' by the fire,
An' everybody's on the job, all summoned by the wire.
You haven't even left your home or felt the winter's chill;
Just think, my boy, without a phone, why you'd be runnin' still.
You'd still be hikin' somewhere, an' wearin' out your shoes,
An' pausin' for your second wind—that's how I spread the news."
(Applause.)

Jason Knapp, North Tonawanda, N. Y.

That little baby was a boy baby and his arrival in the home made a big difference to the young father, who had never looked on life very seriously, and he expressed himself in regard to it something after this fashion:

A feller don't start in to think of himself an' the part that he's playin' down here,
When there's nobody lookin' to him fer support, an' he don't give a thought to next year;
An' his faults don't seem big, an' his habits no worse than a whole lot of others he knows,
An' he don't seem to care what his neighbors may think as heedlessly forward he goes.
He don't stop to think if it's wrong or it's right, with his speech he is careless an' glib,
Till the moment the nurse lets him into the room to see what's asleep in the crib.

An' then as he looks at that bundle o' red an' those wee little fingers an' toes,
An' knows it's his flesh an' his blood that is there, and will be just like him when it grows.
It comes in a flash to a feller right then, there is more here than pleasure or pelf;
An' the sort of a man that his baby will be is the sort of a man he's himself.
An' he kisses the mother an' kisses the child, an' goes out determined that he
Will endeavor to be just the sort of a man that he's wantin' his baby to be.

A feller don't think that it matters so much what he does, till a baby he arrives;
He sows his wild oats an' he has his gay fling an' headlong in pleasure he dives.
An' a drink more or less doesn't matter much then, for life is a comedy gay;
But the moment a crib is put up in the home, an' a baby has come there to stay,
He thinks of the things that he's done in the past, an' it strikes him as hard as a blow,
That the path he has trod in the past is a path that he doesn't want his baby to go.

I aint' much to preach, an' I can't just express in the way that your clever men can,
The thoughts that I think; but it seems to me now, that when God wants to rescue a man
From himself an' the follies that harmless appear, but which under the surface are grim,
He summons the angels of infancy sweet an' sends down a baby to him.
For in that way he opens his eyes to himself an' he gives him the vision to see
That his duty's to be just the sort of a man that he's wantin' his baby to be.
(Applause.)

The same father had another thought about that boy. About the Fourth of July he expressed himself in this way:

## THE BOY AND THE FLAG.

I want my boy to love his home,
His mother, yes, and me;
I want him wheresoe'er he'll roam
With us, in thought to be.
I want him to love what is fine,
Nor let his standards drag;
But oh, I want that boy of mine
To love his country's flag.

I want him, when he older grows,
To love all things of earth;
And oh, I want him, when he knows,
To choose the things of worth.
I want him to the heights to climb,
Nor let ambition lag;
But oh, I want him all the time,
To love his country's flag.

I want my boy to know the best,
I want him to be great;
I want him in life's distant west
Prepared for any fate.
I want him to be simple, too,
Though clever ne'er to brag;
But oh, I want him, through and through
To love his country's flag.

I want my boy to be a man,
And yet in distant years,
I pray that he'll have eyes that can
Not quite keep back the tears,
When coming from some foreign shore
And alien scenes that fag,
Borne on its native breeze once more
He sees his country's flag.
(Applause.)

There is another side of the picture, however. A few months ago I picked up a paper and read in the war news three or four lines, which said that the German officers were shipping home to Berlin thousands of brass tags which had been found on the dead soldiers. They had been used as means of identification. These had been checked off and were then sent to the families of the dead soldier. All that ever came home. It seemed to me rather sad that a little brass tag should be all that was left of the soldier.

## A LITTLE BRASS TAG.

BY EDGAR A. GUEST.

German army officers have shipped to Berlin thousands of little brass identification tags, taken from the uniforms of their dead.—From dispatches.

All that is left of her wonderful son
Is a little brass tag;
All of her baby that shouldered a gun
Is a little brass tag.
He that so proudly marched off in the line,
Clear-eyed and smiling, and splendid and fine,
Is home once again on the banks of the Rhine,
Just a little brass tag.

He with the eyes that were kindly and blue
Is a little brass tag;
He with the shoulder so square and so true
Is a little brass tag.
He that stepped forward to follow the flag,
To ride with a sabre or march with a Krag,
You'll find now with thousands, shipped home in a bag,
Just a little brass tag.

Oh, mother, the boy you're hungry to see
Is a little brass tag;
The end of your dreams of the man he would be
Is a little brass tag;
Your beautiful visions of splendors have fled,
Your wonderful man of tomorrow lies dead;
He went as a soldier, but comes home instead
Just a little brass tag.

It seems to me that since Miss Lyon has so beautifully and so kindly told you about "Guiseppe Who Works at the Ford," just to show you how poorly I can recite it myself, I can give you the other side of the picture. A few months after the poem which Miss Lyon has recited was written, it became necessary, on account of the Democratic times, or something, to lay off some of the Ford employes, and it brought a different state of affairs to Guiseppe.

### A KING LAID OFF.

Giuseppe Tomassi ees terribla sad,
He ees down in da moutha an' blue,
He ees gotta da troubla dats beega an' bad,
Hees Rosa ees sad weeth eet, too.
He scowla lak dees when he come home at night,
He no longa laugh lik da lord,
But banga da fist lik' he madda for fight,
Giuseppe's laid off at da Ford!

He puffa da cigarette now dat he mak'
By rola lik dees een da hand;
No longa he go to Pietro an' tak'
Da cigar wid da beega da band.
Hees Rosa ees tak' off dat satin an' lace,
Again she ees scrub at da board,
An' weara da beega da frown on da face,
Giuseppe's laid off at da Ford!

Giuseppe ees notta so proud lik' da keeng,
Nor waxa da blacka mustache;
He no longa danca weeth Rosa an' seeng,
He no longa spanda da cash.
He no longa pusha da poor man away
Whenver he walk through da ward;
No longa he gatta five dola a day,
Giuseppe's laid off at da Ford!
(Applause.)

Now, in conclusion, and by way of explanation of this text given me, I will give you a little bit of verse called "Home." I dedicate it to the brickmakers because I want them to understand that it takes more than bricks to make a home.

### "HOME."

It takes a heap o' livin' in a house t' make it home,
Aheap o' sun and shadder, an' you sometimes have t' roam
Afore you really 'preciate the things yer lef' behind,
An' hunger fer 'em somehow, with 'em allus on yer mind.
It don't make any differunce how rich yer get t' be,
How much yer chairs an' tables cost, how great yer luxury;
It ain't home t' yer, though it be the palace of a king,
Until somehow yer soul is sort o' wrapped 'round everything.

Home ain't a place that gold can buy or get up in a minute,
Afore it's home there's got t' be a heap o' livin' in it;
Within th' walls there's got t' be some babies born, an' then
Right there you've got t' bring 'em up t' women good, an' men;
An' gradjerly as time goes on, yer find yer wouldn't part
With anything they ever used—they've grown into yer heart;
The old high chairs, the playthings, too, the little shoes they wore
Yer hoard; an' if yer could ye' try t' keep th' thumb marks on th' door.

Ye've got t' weep t' make it home, ye've got t' sit and sigh
An' watch beside a loved one's bed, an' know that Death is nigh;
An' in the stillness o' the night t' see Death's angel come,
An' close the eyes o' her that smiled an' leave her sweet voice dumb.
Fer these are scenes that grip the heart, an' when yer tears are dried,
Yer find that home is dearer than it was an' sanctified;
An' tuggin' allus at yer are the pleasant memories
Of her that was and is no more—ye can't escape from these.

Ye've got t' sing an' dance fer years, ye've got t' romp an' play,
An' learn t' love th' things ye have by usin' 'em each day;
Even the roses 'round the porch must blossom year by year
Afore they 'come a part o' you, suggestin' some one dear
Who used t' love 'em long ago, and trained 'em jes' t' run
The way they do, so's they would get the early mornin' sun;
Ye've got t' love each brick and stone from cellar up t' dome,
It takes a heap o' livin' in a house t' make it home.
(Prolonged applause.)

Toastmaster Groesbeck: We hope all those present tonight have enjoyed this week and this very fine banquet, and enjoyed the speeches, and I think I can truthfully say to those who have visited us that we wish you may have just as good a time in the next city you visit. (Applause.)

## CONVENTION ECHOES.

### THINKS THE N. B. M. A. HAS DONE GREAT WORK.

Dear Secretary Randall:

My son and I certainly were pleased with the business, as well as the social part of the Convention. I think it was one of the best ever.

I often wonder where the clayworkers would be today had it not been for a few of you, who started the N. B. M. A. thirty years ago. We certainly would not be where we are now.

Again thanking you for favors shown, I remain,

Sincerely yours,

Springfield, Minn., March 20, 1915. A. C. OCHS.

### CONVENTION REPORT FINE.

My Dear Mr. Randall:

I spent Sunday with my family, and had a chance to look through the March Clay-Worker. I read the symposium of ladies' comments on the Detroit Convention aloud to the family, and all seemed to be of the opinion that the Convention was all right.

Like a properly trained husband, I still think the picture of Mrs. Penfield is the best one of the bunch, barring, of course, that of Mrs. Randall and the grandmother; but, as usual, Mrs. Penfield and I do not agree on this point.

I think your report of the Convention is fine and cannot fail to make a good impression on the trade. With regards to yourself and family, in which Mrs. Penfield joins, I am,

Sincerely yours,

Willoughby, Ohio, March 23, 1915. L. W. PENFIELD.

Eben Rodgers, Alton, Ill.

### APPROVES THE SMOKERETTE IDEA.

Dear Mr. Secretary:

My people agree with me that the Detroit people know how to entertain. The smokerette to us brickmakers was a new idea, and, as we see it, one worth following up, and I hope hereafter there will be nothing doing in the way of entertainment unless the ladies are counted in. We shall always feel greatly indebted to all the Detroiters for the splendid time they have shown to all of us.

Respectfully yours,

Horseheads, N. Y., March 9, 1915. R. G. EISENHART.

### THOROUGHLY ENJOYED THE DETROIT CONVENTION.

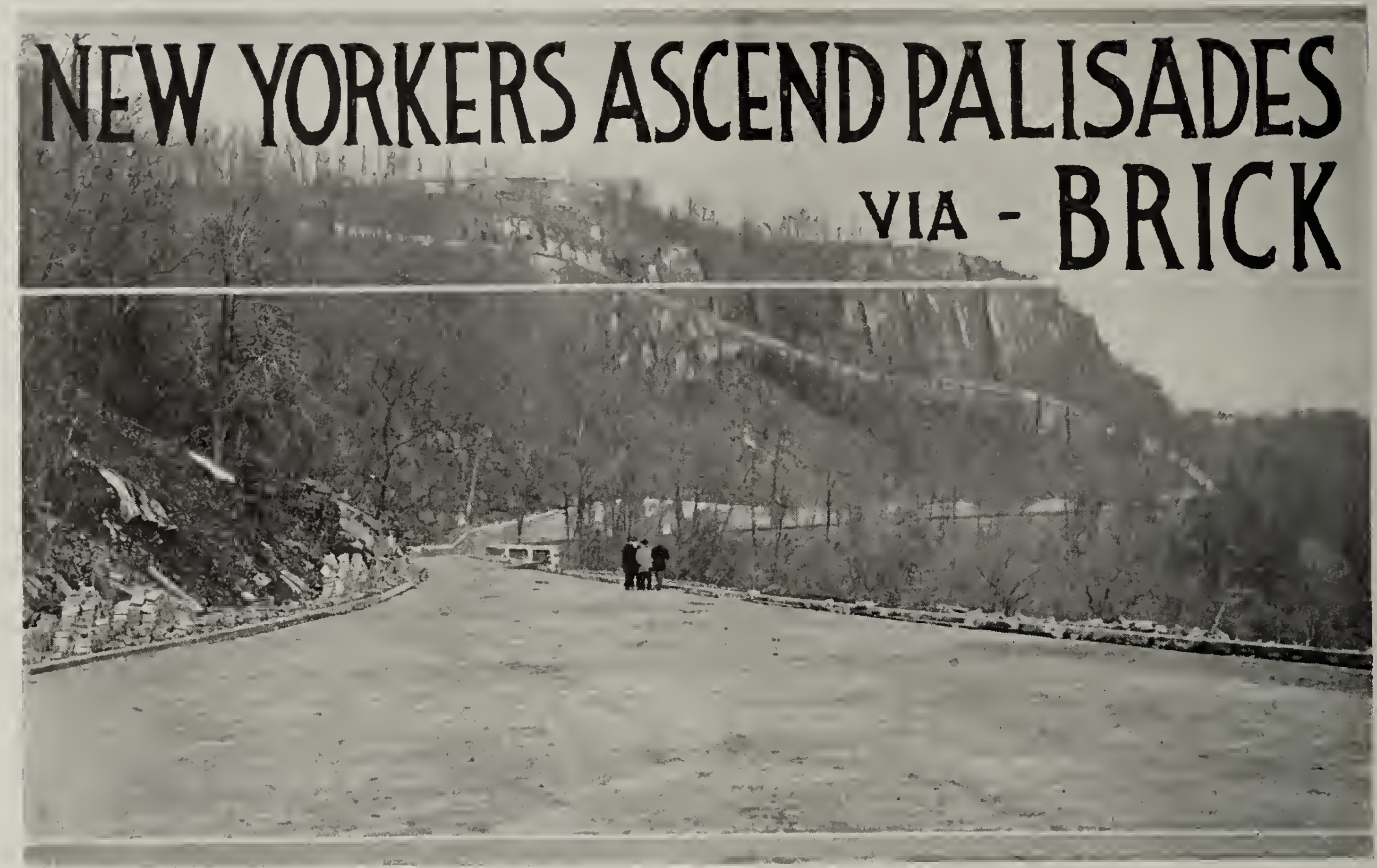
Dear Mr. Secretary:

I thoroughly enjoyed the Detroit meeting and congratulate you and the Detroit members upon its success. It was one of the best ever, and will always be remembered as such.

Yours truly,

Columbus, Ohio, March 30, 1915. ELLIS LOVEJOY.

# NEW YORKERS ASCEND PALISADES VIA - BRICK



DOWN THE Palisades of the Hudson river and Englewood, N. J., is a drop of about four hundred feet. The Interstate Park Commission, having in charge the great playground known as the Palisades Interstate Park, comprising 20,000 acres, and including all the marvelous Palisades of the Hudson, has built a carriage road down the face of the cliff which is 4,900 feet long and cost $145,000. What will interest brick men most of all is the fact that the road is paved with brick, made by the Mack Manufacturing Company.

It is one of the most expensive pieces of carriage road in the United States, and that it is paved with brick should be a talking point worth while to paving-brick makers.

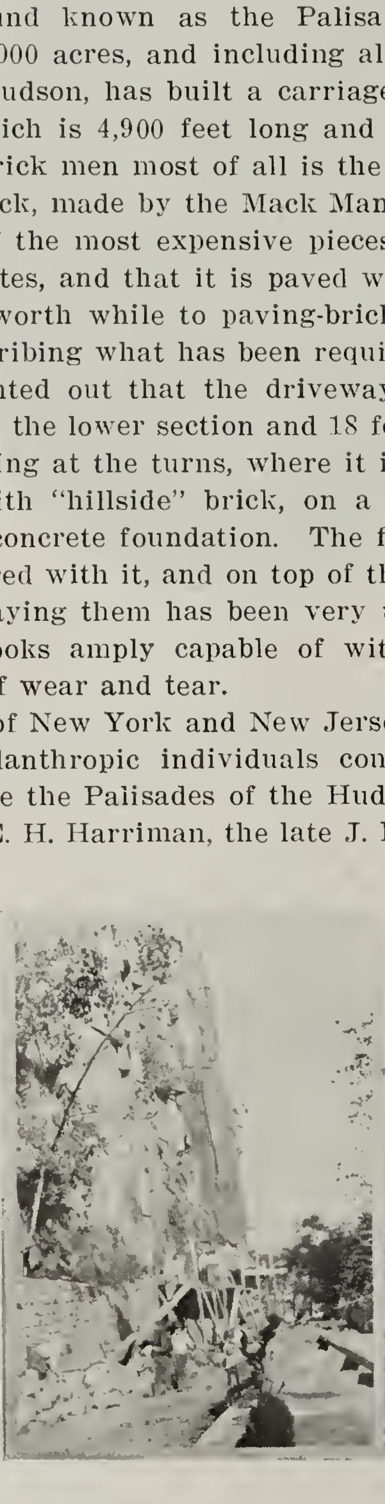
Before describing what has been required to build the road it may be pointed out that the driveway is 21 feet wide between curbs on the lower section and 18 feet wide on the lower section, excepting at the turns, where it is about 30 feet wide. It is paved with "hillside" brick, on a 1-inch sand cushion, with a 4-inch concrete foundation. The fill is cement and the brick are covered with it, and on top of that a coating of sand. The work of laying them has been very thoroughly done, and the roadbed looks amply capable of withstanding a tremendous amount of wear and tear.

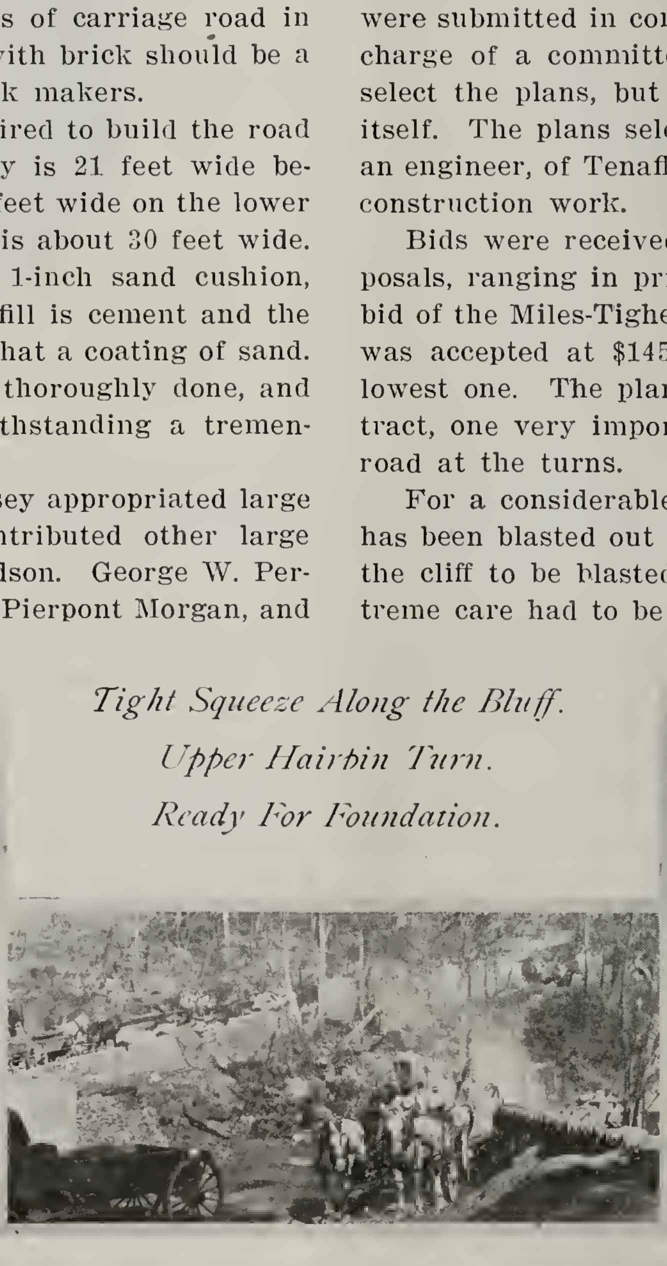
The states of New York and New Jersey appropriated large sums and philanthropic individuals contributed other large sums to acquire the Palisades of the Hudson. George W. Perkins, the late E. H. Harriman, the late J. Pierpont Morgan, and other wealthy men, were interested in the project. A commission was appointed by the governors of the two states, and work began. They have acquired a strip about a half mile wide along the Hudson, from Fort Lee, N. J., to Newburgh, N. Y. Mrs. E. H. Harriman gave them Bear mountain and $1,000,000. The commission now has about $8,000,000 in its treasury.

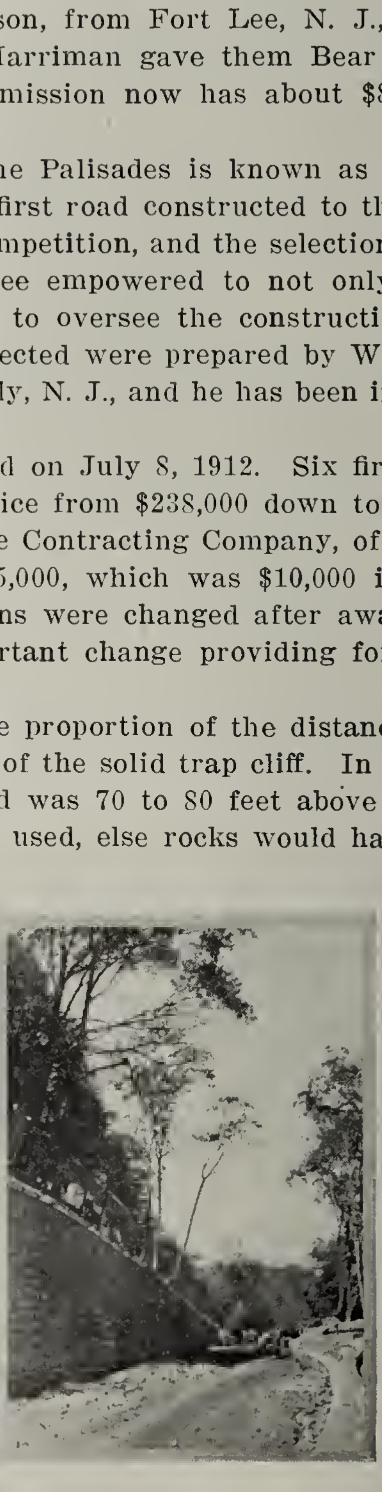
The road down the Palisades is known as the Englewood approach and is the first road constructed to the park. Plans were submitted in competition, and the selection was placed in charge of a committee empowered to not only make and to select the plans, but to oversee the construction of the road itself. The plans selected were prepared by Watson G. Clark, an engineer, of Tenafly, N. J., and he has been in charge of the construction work.

Bids were received on July 8, 1912. Six firms put in proposals, ranging in price from $238,000 down to $145,000. The bid of the Miles-Tighe Contracting Company, of Newark, N. J., was accepted at $145,000, which was $10,000 inside the next lowest one. The plans were changed after awarding the contract, one very important change providing for widening the road at the turns.

For a considerable proportion of the distance the roadway has been blasted out of the solid trap cliff. In some instances the cliff to be blasted was 70 to 80 feet above grade, and extreme care had to be used, else rocks would have been hurled



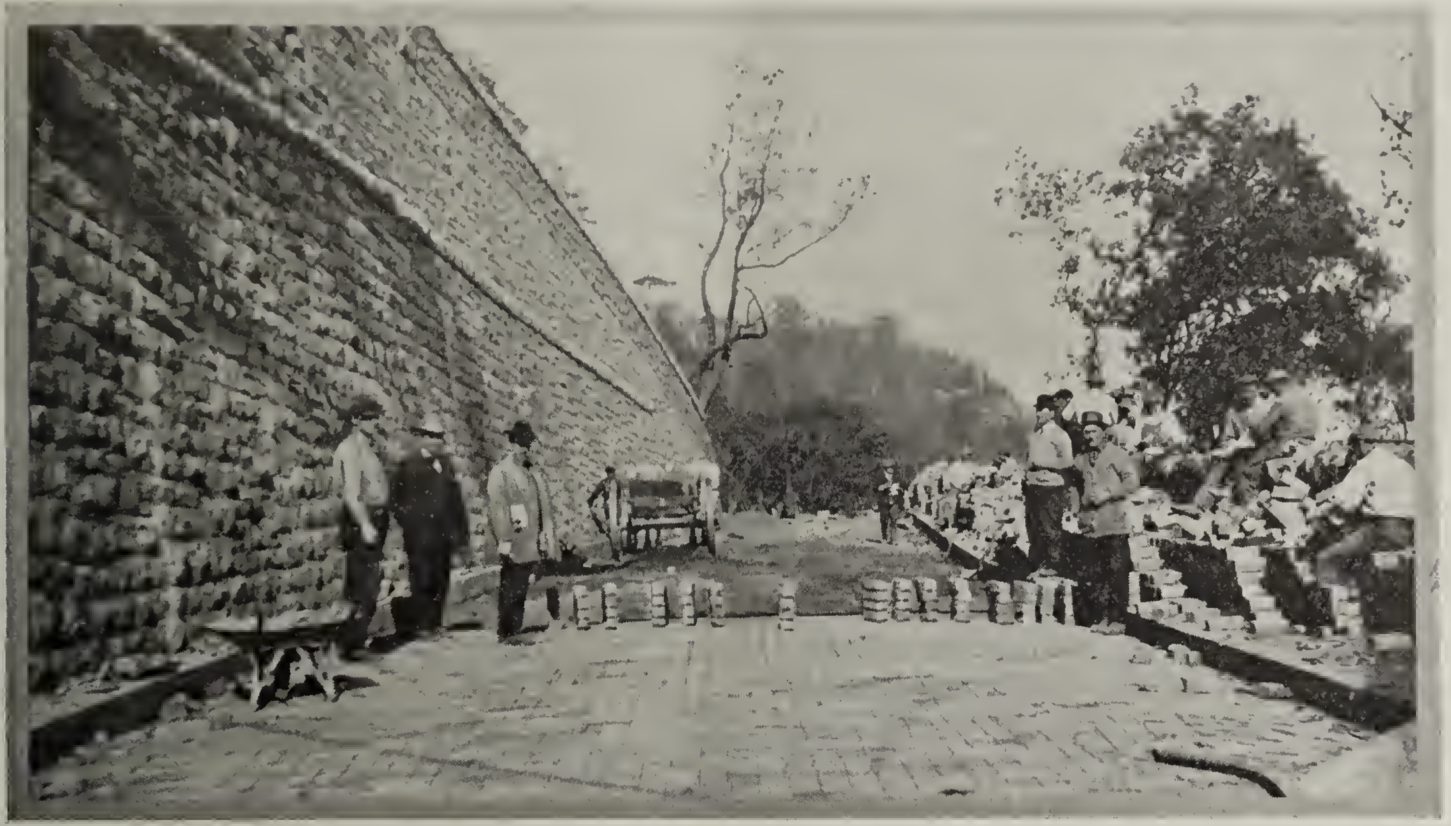




*Tight Squeeze Along the Bluff.*

*Upper Hairpin Turn.*

*Ready For Foundation.*



Laying the Brick, Ready for Grouting.

to the shore of the river 200 feet below. It was necessary to drill horizontally into the cliff for 8 to 10 feet, and then, by light, vertical holes, shatter the rock and work it out with bars and wedges. While this was a tedious process, it was satisfactory and 20,000 cubic yards of rock were thus moved.

The contract called for the protection of the trees and shrubbery, which made it impossible to protect the blasts in the usual way, but so successful were those in charge that only two or three rocks escaped. And this, too, when they had to drop the blasted rock onto a ledge only 30 feet wide.

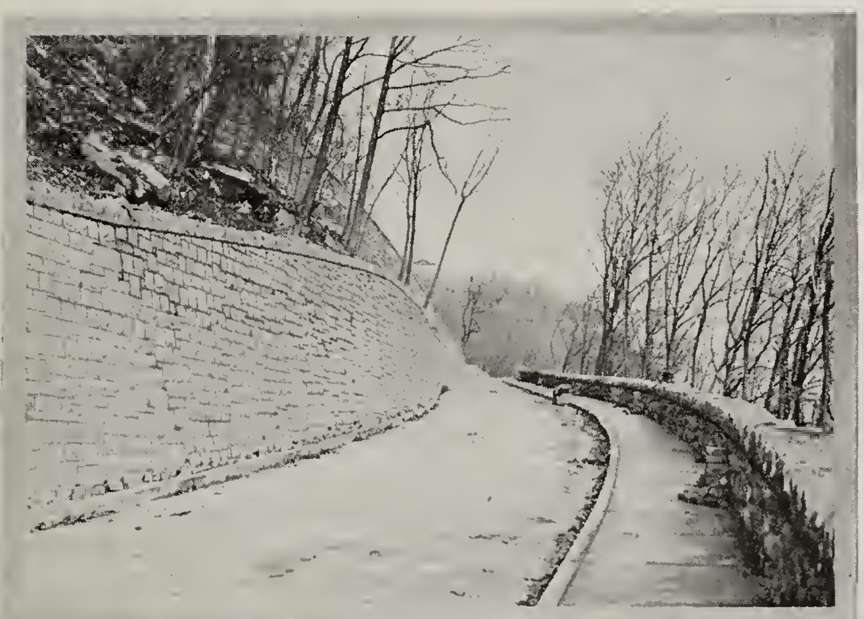
Retaining walls have been built, as shown in the illustration, out of the blue trap rock taken from the excavation. In some places these retaining walls cover a difference in elevation of 100 feet or more.

On the outer edge of the roadway a parapet wall 3½ feet high and 18 inches thick has been built all the distance from top to bottom. A sidewalk 5 feet wide winds down next to the parapet wall.

The excavation comprised about 25,000 cubic yards of rock, all tough blue trap, and 20,000 cubic yards of earth. Seven thousand cubic yards of dry rubble masonry, 2,000 cubic yards of cement rubble masonry and bridge structures have been built; 3,729 cubic yards of concrete have been placed; 44,000 cubic feet of blue-faced parapet wall, 3,000 lineal feet of steel protected curb, 3,000 lineal feet of storm water sewer and 4,000 lineal feet of four-duct wood fiber conduit have been laid. Trenches were cut through the solid trap rock for the 12-inch storm water drain. A set of steps winds from top to bottom, laid between walls of solid masonry 3½ feet high and about a foot thick.

Not all of the roadway is paved. The contracting firm hoped to open it for use this fall, but that was impossible. About two-thirds of the paving is done. A little more excavating is necessary, but this work will be relatively small.

Along under the cliffs on the bank of the river, the entire distance through the park, fifty miles or so, the commission will build a road, which will be known as the Hendrik Hudson



*A Portion of The "Hendrick Hudson Drive."*

*Top View Shows Part of the Perkin's Loop.*

Drive. This approach is a sample of the work to be done and the character of the roadway when it is finished. At the foot of the present road is Cox's ferry, which takes one across to Dyckman street, New York City. It is the first convenient road to New York City which northern New Jersey has, and will be liberally used next season, and ever after.

(Editor's Note—The above article was especially written for The Clay-Worker. The cuts were kindly loaned by the Dependable Roadway.)

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# DRYING OF CLAY WARES.

By Ellis Lovejoy.

### Part XV (Continued).

## CONSERVATION OF HEAT IN GERMAN FACTORIES.

In a previous article we described some German methods of constructing dryers above continuous kilns to make use of the radiated heat from the kilns. This is seldom done in this country, partly because of the greater amount of labor required and partly because of cheaper fuel.

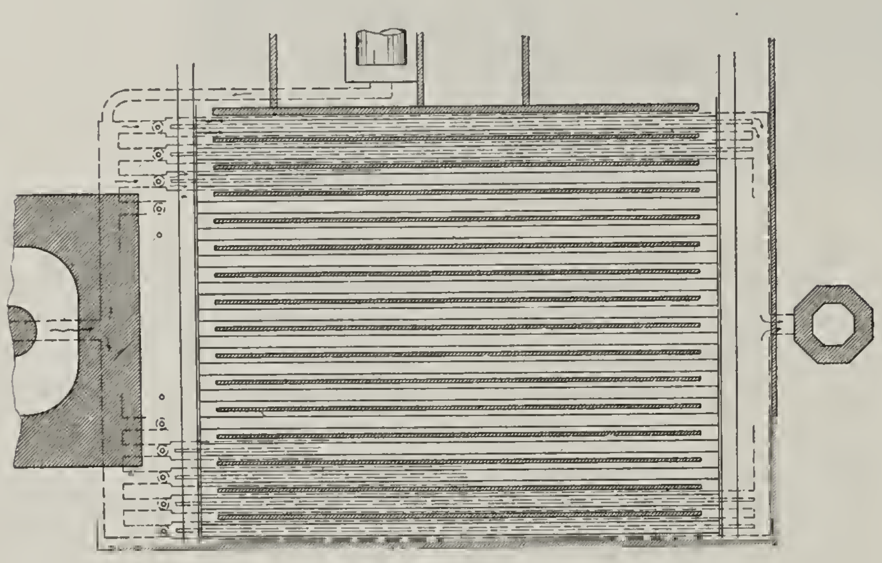
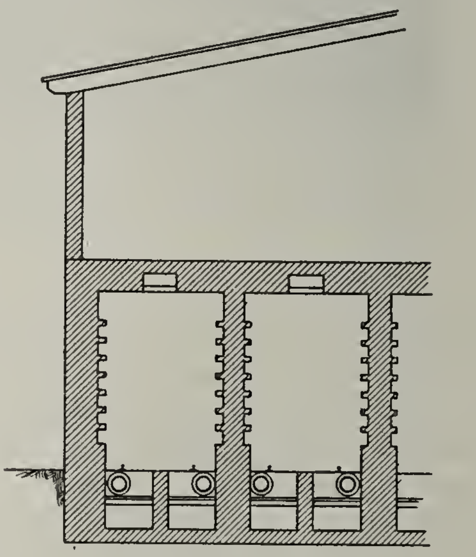


Fig 58 Plan



Cross Section Fig. 60

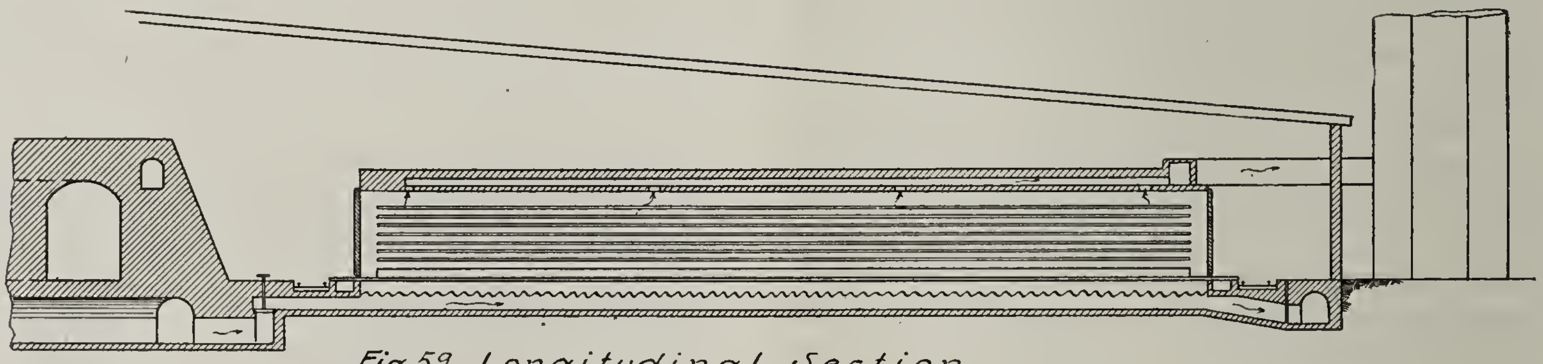


Fig. 59 Longitudinal Section

The Germans build expensive plants where necessary to get the full benefit of the fuel consumed, while we are very careless in this regard—often ridiculously careless.

Figs. 58, 59 and 60 show plan and section of a German dryer equipment, making extensive use of waste heat.

The main draft flue of a continuous kiln is connected with the stack through a series of flues, covered with corrugated iron plates, under the dryer tunnels, and the steam boiler's draft flue is similarly connected. Thus they get the waste heat of all combustion, either in the kiln or the boiler furnaces, and all the heat of cooling kilns.

The exhaust steam from the engines is carried through the tunnels in large ribbed pipes (see Fig. 60), which are much better radiators than the ordinary steam piping so largely used in this country.

The exhaust from the drying tunnels is taken up through the roof of the tunnel into ducts leading to the stack, as shown in Fig. 59, and any condensation of moisture in these ducts gives off the latent heat of vapor to maintain the roof temperature and the drying tunnels are not robbed of heat to supply the radiation loss.

The dryer is for the pallet system, and periodic in operation, and the projections in the tunnel walls are supports for the pallets. The pallets are handled by a lifting rack car or truck, Fig. 61, holding the number of pallets required in the height of the tunnel.

We do not present this German dryer as one worthy of adoption in this country, but merely to illustrate the degree to which the Germans carry conservation of heat and as a hint to clayworkers of this country that they are allowing comfortable profits to go to waste.

### Part XVI—Pregressive Dryers.

The periodic tunnel dryer, as its name indicates, is intermittent in its operation. A tunnel is filled with ware, then the heat and air are turned in and continued until the ware is dry when they are shut off and the ware removed.

A progressive dryer is one in which the air volume is constant and the temperature remains unchanged in so far as it is practical to maintain a constant temperature. The heated air enters at one end, passes through the tunnels and escapes at the other end. The ware, usually on cars, enters at the air exit end of the tunnels commonly termed the receiving end, travels through the tunnels to the delivery end where it is removed from the dryer and taken to the kilns.

The entering air, hot and with great capacity for moisture, first comes in contact with the hot dry ware leaving the dryer. As the air passes through the tunnels it successively comes in contact with cooler, wetter ware, until at the receiving end it passes among the cold, damp ware just from the machine. In its passage through the tunnel it becomes cooled down, thereby lessening its capacity for moisture and at the same time it is taking moisture from the ware. The dew point is presumed to be reached as the air leaves the tunnel at the receiving end.

The drying condition is theoretically ideal. The entering hot air comes in contact with ware in condition to stand a high temperature and which needs such high temperature to drive off the hygroscopic water in the pore spaces of the clay mass.

The air leaving the dryer comes in contact with green ware which frequently must be carefully heated up without any drying in order to open up the pore spaces, so that when the ware reaches that portion of the tunnel where drying begins the water will be drawn to the surface of the ware by capillary as rapidly as it is removed by evaporation. The humidity drying treatment, so necessary in safely drying many clay wares, is automatically carried out in the progressive dryer.

We fail oftentimes in the adjustment of the dryer and in its operation.

The normal condition of a progressive dryer is to be full of ware all the time and this is not maintained in any plants, or at least in very few.

Also the escaping air should be saturated, or nearly so, otherwise there is a loss of heat. If we assume that a dryer has been properly adjusted to a ware and that the inlet temperature is 200 degrees F., while the escaping air has a temperature of 100 degrees F., and the temperature midway of the dryer is, let us say, 150 degrees F., we have the condition illustrated in diagram No. 1, Fig. 62. During the night the heat advances until in the morning we have the condition illustrated in No. 2 diagram. After a shut down, Monday morning, for instance, the heat has progressed until the condition represented in diagram No. 3 is attained.

The setters in starting work in the morning may draw several cars from each tunnel, enough oftentimes to keep them occupied until noon. The first bricks from the machine come in contact with a temperature and drying condition not intended, and if they stand it the dryer could be changed to more-rapid drying conditions with fewer tunnels in operation. If the bricks do not stand this more severe treatment the fault is not with the dryer but with its operation. A progressive dryer should have receiving and delivery tracks for storage outside the dryer and at intervals during the night cars of dried ware should be drawn and cars of green ware entered. It is not practical to store cars equal to a day's output, but it is common practice to construct the storage tracks to hold three cars on each track. A tunnel holds fourteen to fifteen cars and on the basis of a twenty-four hour period, three cars per tunnel are equivalent to one-fifth of a day's output. If the dryer has a forty-eight or seventy-two hour period, the three cars are equivalent to two-fifths or three-fifths of a day's run. These storage cars aid materially in maintaining the normal condition of the dryer.

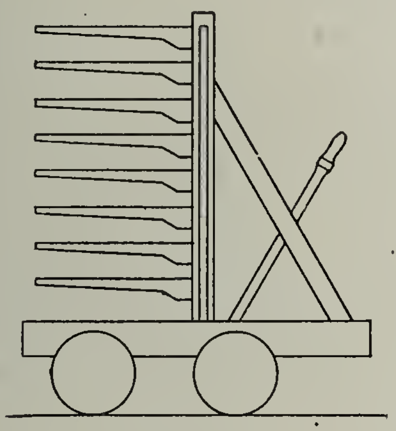


Fig. 61

Operators often find that the output of the dryer is insufficient to keep up the desired capacity. The first step is usually to increase the temperature which changes the conditions to that shown in diagram No. 2 or No. 3, Fig. 62. If the ware cracks, as often is the case, the difficulty may, perhaps, be overcome by reducing the air volume which retards the advance of the heat without necessarily lowering the temperature at the delivery end. With the higher temperature thus maintained at the delivery end we are enabled to drive off the moisture remaining in the partially dried bricks without damage to the bricks behind, since the latter do not get into the high temperature zone until in a condition to stand the higher temperature. Diagram No. 4 illustrates this condition except that the temperature shading should be deeper to show a higher degree of heat.

There are a number of ways in which the conditions in the dryer can be changed without altering the construction of the dryer, but when these fail it becomes necessary to make such changes in the construction as will give desired results. These changes will be considered under the discussion of the several types of progressive dryers.

(To be continued.)

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Written for THE CLAY-WORKER.

## NORTHWESTERN OHIO BRICK AND BUILDING NEWS.

THE BRICK TRADE HAS BEEN GIVEN considerable impetus as the weather conditions improve. The Willys-Overland Automobile Company has erected additions of immense size, using heavily of brick. There are many new business structures now under way or soon to be begun in the downtown business section of the city and indications from architects' offices are that many flats and duplexes will be erected a little later on. These are for the most part of brick construction.

Toledo had a $100,000 fire April 4, attended with some loss of life, which will probably be responsible for much unexpected work in the way of remodeling and improving present conditions. The fire was in a large downtown hotel, which was a remodeled structure finished inside with the cheapest of wooden construction. The tragedy has awakened the city officials in the building inspector's office to the need for more careful inspection and stricter requirements.

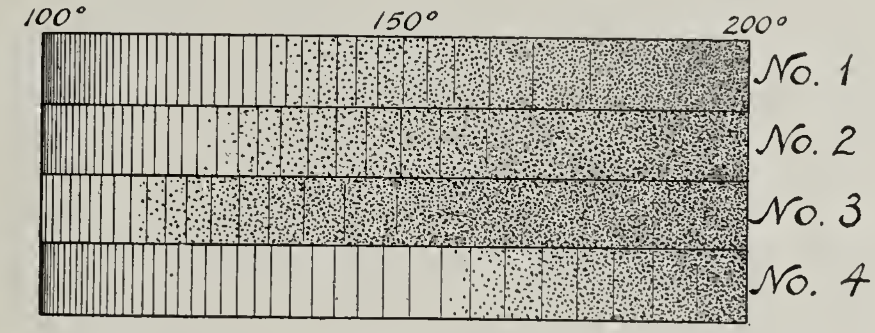


Fig. 62

Every holocaust of this character is strengthening the brick situation and every year shows more and more brick construction in Toledo. Practically all the apartments in Toledo of anything like recent construction are of brick. Many old frame firetraps in the central portion of the city have recently been condemned and will be torn down. This will mean almost entire reconstruction of brick, for, although these places are now lodging houses of a questionable character which bring in high rents, the section is really in the business portion of the city and the old traps will probably be replaced by business houses. This will of course be practically all of brick construction. Brick has grown remarkably within the past few years here and are being used extensively in residence as well as investment structures.

There are plenty of brick on hand and prices are fairly firm. While the demand is not yet heavy, indications are for a fair demand a little later on. Practically all Toledo yards are operating and the call for brick has increased notably within the past few weeks. Prices are fairly firm.

An extensive call for paving brick is looked for from smaller Ohio cities and towns and also for use on country roads.

The Dias Paving Brick Company, of Toledo, was recently authorized to increase its capital stock from $5,000 to $200,000.

The brick plant at Junction City, where the work is done by Ohio State Penitentiary prisoners, has 2,000,000 paving blocks ready for delivery, and it is announced that 2,000,000 of these blocks will be turned out by this plant every month. While the brick are sold cheaper than those made by outside concerns, it is not expected that they will interfere with the trade, as paving blocks have been in extremely heavy demand for road-building purposes and the supply has not been equal to the demand.

Ralph Cooke, industrial agent of the Pennsylvania Railroad, is boosting the clay industry of Ohio. He has recently issued a circular which states that the value of the clay products of Ohio in 1913 was $38,288,296, and represented more than 21 per cent of the total of the product in the United States.

The Dussault, the sandsucker of the Toledo Builders' Supply Company, has broken the record for early pumping this year. The boat got into action February 23 and on March 2 had delivered its seventh load of sand at the company's yards on Water street. The sandsuckers generally wait until about the middle of March or the first of April. There are seven sandsuckers at this port, owned by the R. E. Doville Company, the Toledo Builders' Supply Company, Mulinix Bros. and James Scanes. All boats are now at work.

Fourteen contracts were recently awarded in this city for street and alley paving and sewer construction. William McMahon & Son secured four of the sewer contracts, the remaining four being awarded to Albert Gryzbowski. A little more than $15,000 was involved in the sewer contracts.

The Ohio Builders' Supply Association meeting held in Toledo in February was a highly successful affair. Delegates were present from all the larger cities of the state and the association went on record as backing the fire prevention movement in the state.

Work has begun on the Chillicothe pike, near Portsmouth, Ohio. The Portsmouth Paving Brick Company's brick blocks will be used. Seven-ton motor trucks and trailers are being used to haul the brick. Several miles will be brick paved.

The city of Fremont, Ohio, is at work paving Clover street. Brick is being used, following a petition signed by more than half the residents of the street favoring the brick. Metropolitan brick with a four-inch concrete foundation will be used. The Modern Construction Company will do the work. This concern is just finishing a couple of $50,000 brick paving jobs, one in Clyde and one at Norwalk, Ohio. T. O. D.

**Stoneware Bodies.**—Stoneware bodies which will burn to a close vitrified body between cones 4—10 are composed as follows:

| | |
|---|---|
| Washed plastic stoneware clay | 55 parts |
| Burnt stoneware clay | 15 parts |
| Fine ground flint | 24 parts |
| Feldspar | 6 parts |

Another mixture consists of—

| | |
|---|---|
| Feldspar | 20 parts |
| Kaolin | 35 parts |
| White clay | 33 parts |
| Flint | 12 parts |

By using only stoneware clay the following body can be made:

| | |
|---|---|
| Stoneware clay ground | 90 parts |
| Feldspar | 4 parts |
| Flint | 6 parts |

By using two yellow burning clays a mixture can be made as follows:

| | |
|---|---|
| Light yellow burning clay | 29.8 parts |
| Dark yellow burning clay | 23.6 parts |
| Feldspar | 13.5 parts |
| Flint | 33.1 parts |

—Sprechsaal No. 30, 1910.

Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

SPRING HAS COME, and starts are being made on a number of projects which have been under consideration during the winter. While the present situation is not indicative of a boom, the appearances are for a fairly good run of business, made up of medium and smaller jobs, with probably fewer of the notable buildings which count so in totals, but do not afford business to many in spite of that. There are fewer large structures in prospect at this time in these cities than for several years, but on the other hand the medium projects are starting off very well. And all indications point to a better amount of brick being used in proportion to other materials than for a number of years. Brick manufacturers and dealers are showing greater faith in their wares than they have shown in former years. They have faith backed up with works, and that is what counts. Indications are appearing of real constructive work being developed, to further the use of brick where other materials would probably have been used without this work. This is but started, however, and leaves a vast amount of room for further work in numerous parts of the territory, but a beginning is worth having.

The labor situation so far is very satisfactory. There is not the rush of building in sight that sometimes exists, and men are plentiful enough to enable a contractor or other employer to handle a crew and exact reasonable requirements without having interference from union domination.

Harold Johnson, of Minneapolis, representing the National Fireproofing Company, bagged three large orders during the past year for the three largest structures erected in the Twin Cities. These orders also comprise the largest orders for fireproofing ever booked in these cities and totalled 750 carloads, amounting to a number of very respectable sized trainloads.

The Hennepin Avenue Methodist Episcopal Church being erected at Lyndale and Groveland avenues, Minneapolis, is to have its walls on the interior of buff Gostivino tile. The building is said to be the most costly Methodist church anywhere in the country. It is to be completed during the present year and will cost complete about $400,000.

A new incorporation in Minneapolis is the Colburn-Murray Brick Company, 630 McKnight Building, with a capital stock of $25,000. The incorporators include R. R. Colburn, who was formerly quite active in local brick circles, being with the Hydraulic-Press Brick Company, and has later been with a flourishing brick company at Hebron, N. D. T. J. Murray, also of Minneapolis, and active in brick selling, is another incorporator. They expect to have a representative line of goods. A. S. Dinnie, of Grand Forks, N. D., a prominent general contractor, is associated with the company.

The Minnesota Clay Works, Incorporated, of Minneapolis, has filed articles of incorporation. The capital stock is $100,000. The incorporators are H. Alfred Sodergreen, Nels P. Ostrum and Ernest W. Thorsen, all of Minneapolis. The purpose of the corporation is to manufacture brick and tile, fireproofing, etc.

George E. Bertrand, a prominent Minneapolis architect, of the firm of Bertrand & Chamberlin, was quoted in a recent interview as favoring the erection of residences to cost over $5,000 of brick or tile, both for superiority of looks and also for utility.

The proposed new housing code of Minneapolis has started a flood of building permits for apartment buildings, ranging from $15,000 to $75,000 in value, and fully fifty permits have been issued within the last few weeks. Many of them have hardly been started as to detail plan, beyond enough to justify the building inspector issuing a permit, but it is probable that the bulk of them will go ahead. The new housing code will limit the area of a lot which may be used for apartment purposes to 65 or 70 per cent.

An anomaly was lately reported in the Federal Court in Bankruptcy in St. Paul recently, in the statement that the Barr Clay Products Company, of Wanamingo, Minn., had paid all creditors 100 cents on the dollar. The liabilities were $89,868.72, including outstanding bonds secured by real estate of $75,000. It is claimed that this is the only instance in the history of the local court where a bankrupt concern paid out in full. This case is rather noticeable because at the time of failure there were some rather severe criticisms passed upon the company and the way it had been conducted.

The Minneapolis Brick & Tile Company has sold its business in North Minneapolis to the Farmers' Clay Products Company, which has started on alterations including an addition to the warehouse and other changes.

A. P. Cameron, one of St. Paul's best known general contractors, has been elected president of the Builders' Exchange.

Maurice Schumacher, general contractor of Minneapolis, was re-elected president of the Builders' Exchange of Minneapolis.

A Denison hollow air space tile house in Minneapolis showed a remarkable resistance to cold during recent cold weather, when a hot-water heating boiler kept the house at 72 degrees while the thermometer outside was 18 below, and the heat on the boiler was at the low point of 111 degrees. It often requires 140 to 180 degrees to keep a house warm at such a temperature.

The Northwest Building Material Exhibit has leased the entire fourth floor of the First National-Soo Line Building, Fifth street and Marquette avenue, Minneapolis, and have an elaborate display of building materials there, similar to the display in Chicago.

A. L. Eberhart, of Austin, Minn., will erect a modern residence of hollow tile, brick and stucco, from plans by A. R. Van Dyck, architect, of Minneapolis. W. D. Bassler, of Austin, also plans having a similar residence erected on plans by the same architect.

Plans have been completed by C. E. Bell, architect, for a ten-story mission hotel building to be erected at Second street and Hennepin avenue, Minneapolis, by the Union City Mission. It will be of steel frame and terra cotta construction.

John A. Benson was awarded the general contract for the erection of a modern brick addition to Tuttle Universalist Church, to cost $40,000. It is located at Twenty-seventh street and Blaisdell avenue, Minneapolis.

## EASTERN PAVING BRICK ASSOCIATION MEETS IN ANNUAL CONVENTION.

At the annual session of the Eastern Paving Brick Manufacturers' Association in the Fort Pitt Hotel, Pittsburg, Pa., March 30, predictions of prosperity in the brick paving business during the next year were freely made. Impetus to the industry is given by the desire of cities and towns throughout the country to let paving contracts so as to provide work for the unemployed. The association is composed of 29 companies in Pennsylvania, Ohio, West Virginia, Maryland and New York. The output of the various concerns amounts to 700,000,000 bricks annually.

The following officers were chosen for the year: President, Charles A. Young, Mack Manufacturing Company, Pittsburg; first vice presient, G. W. Greenwood, United Brick Company, Uniontown; second vice president, M. E. Gregory, Corning Brick Company, Corning, N. Y.; secretary, G. W. Lenkerd, Clymer Brick Company, Indiana, Pa.; treasurer, C. P. Mayer, Mayer Brick Company, Bridgeville, Pa.

C. E. Foster, of Bradford, Pa., retiring president of the association, presided at the morning session. During the afternoon the delegates were guests of the officials in charge of the United States Bureau of Standards.

Written for THE CLAY-WORKER.

## BRICK AND BUILDING NEWS OF PITTSBURGH.

WITH A GREAT NUMBER of larger buildings either under way, nearing completion or already finished, and with many others of a similar nature planned, the Pittsburgh brick and clay trade reports that these conditions have kept business up to about normal. Pittsburgh had some very good weather during the last six weeks and this has also helped to make business very good. The trade in general seems to regard prospects as excellent, as everybody expects business this spring, in every line, to be better than for several years.

The trade takes keen interest in watching the report of the Bureau of Building Inspection, which issued in March 438 permits for operations, costing $1,006,997, compared with 279 permits and $608,644 in February, and 304 permits and $985,666 in March, 1914. Last month 185 permits were granted for new buildings, to cost $799,351. Additions totaled 47, to cost $52,330, and alterations and repairs numbered 206, to cost $155,316. Of the new buildings, 106 were veneered, 54 were brick, 20 frame, 4 tile and 1 cement.

The Savage Fire Brick Company, which was founded by the late J. J. Hoblitzell, and has changed hands several times since Mr. Hoblitzell retired from the clay products manufacturing business to engage in other pursuits, was merged into a new million-dollar corporation March 1. Offices of the company will be continued in Meyersdale, Pa., and it is probable that at least one more official of the company besides S. J. McClune, who has been general manager of the Savage Fire Brick Company for the past few years, expects to remain in charge of the plants of the new corporation in Somerset and Bedford counties, with headquarters at Meyersdale.

The new company, which will be known as the Savage Clay Products Company, expects to rebuild the plant at Keystone Junction, that was destroyed by fire about a year ago, on a larger scale, and develop the mineral holdings of the Savage Fire Brick Company, in Somerset and Bedford counties, on a larger scale than heretofore. The Savage interests taken over include 3,000 acres of fire clay, coal and other minerals in Somerset and Bedford counties alone, which, with the operations at the three places mentioned, were owned by the heirs of the late W. Horace Rose, of Johnstown.

Alfred S. Freeman, the leading spirit in the venture, is general manager of sales for the American Sewer Pipe Company, of Akron, O., and is secretary, treasurer and general manager of the Freeman Fire Brick Company, of New Cumberland, W. Va. Others interested are as follows: William Banfield, general manager of the Follansbee Brothers Company, of Follansbee, W. Va., with general offices in Pittsburgh, one of the largest manufacturers of sheet steel and tin plate in the United States, who is also president of the Citizens' National Bank of Follansbee, is president of the East Ohio Sewer Pipe Company, is president of the Banfield Fire Clay Company, of Irondale, O., and president of the Freeman Fire Brick Company, of New Cumberland, W. Va.; W. D. Crawford, president of the LaBelle Iron Works, owner of a large number of plants, with headquarters in Wheeling; Albert McCombe, vice president, secretary and treasurer of the American Sewer Pipe Company, the owner of twenty-eight plants in Kentucky, Ohio, Pennsylvania and West Virginia; Charles B. Crawford, cashier of the Citizens' National Bank of Follansbee; F. W. Owensey, of Steubenville, general manager of the East Ohio Sewer Pipe Company, together with Attorney A. C. Simler, of Johnstown, Arthur C. Schiller, of Pittsburgh, and a number of other men who are large consumers of the commodities which the new company will produce.

Notice has been given that an application will be made to the Governor of Pennsylvania for a state charter of incorporation by John G. Hall, Joseph A. Beck and James Milholland for an intended corporation to be called "The Valley Brick Company," Pittsburgh, Pa. The object of the concern is the producing, mining or digging of clay, shale and stone, and manufacturing the same or admixture thereof into brick, tile and other shapes incident to the brick business, and selling and disposing of the same.

Plans for a modern brick plant, to supplant the old one of the Van Ormer Brick Company, at Pitcairn, Pa., destroyed by fire last summer, have been made by the company. The plant will be built on the site of the old one and will be modern in every way. After a long, up-hill struggle the company got onto a paying basis a year or so ago, and the fire came just when the plant was running to full capacity, with a demand for its entire product. The new plant will be much larger than the old and will take care of the growing demand in the valley for the company's product, which is common red brick and hollow tile.

President J. W. Robinson and Secretary F. E. Robinson, of the plant of the Garfield Fire Clay Company, at Robinson, Pa., which was destroyed by fire recently, announced that the plant would be rebuilt at once. The loss is partially covered by insurance. The industry is practically the only one in Robinson and gives employment to seventy-two men. The flames destroyed practically the entire equipment of the plant and five big dryhouses in an hour.

At a recent meeting of the stockholders of the Freeport Clay Products and Materials Company, at Freeport, Pa., the following directors were elected for the ensuing year: T. O. Jones, J. H. Oppenheimer, Joseph A. Gravatt, T. N. Gummert and A. L. Chapman, of Tarentum, Pa.; S. D. Freeling, of Marwood, Pa.; Francis Laube and T. G. Hill, of Freeport, and Jennings Dewitt, no address.

The Sharon Clay Products Company has been awarded the contract for 500,000 brick, which will be needed in the construction of the new benzol plant which is being built by the Carnegie Steel Company at the Farrell works. This company was in competition with a number of other brick concerns. Exhaustive tests showed the superiority of the Sharon brick.

Repairs on the Margarite Tile, Brick and Coal Company, formerly the Clark Brick Company, of Freeport, Pa., started recently. The Margarite Company has already organized and arrangements have been made for a lease on the plant.

After a temporary shut-down the Freeport Clay Products Company, at Tarentum, Pa., has resumed in full for the season of 1915. James Gravatt, the manager, has just discovered a superior quality of fire clay, which, it is thought, will increase the already high quality of the brick about 100 per cent. The clay, when ground, is almost as fine as flour, and experts who have seen it pronounce it of unusually fine quality.

When the adjourned annual meeting of the stockholders of the National Fire-proofing Company convened Friday, April 2, in Pittsburgh, Pa., it was announced that J. B. Finley, chairman of the board, had defeated the opposition candidate for chairman of the meeting by a stock vote of 146,708 to 47,278 shares. The following were then elected directors without opposition: D. F. Henry, J. B. Finley, John R. Gregg, W. A. Dinker, W. D. Henry, E. H. Straub, W. L. Curry, J. S. Craig, D. M. Campbell, Sidney F. Heckert, George A. Jones and W. E. Cooke. The latter two are the only new members. They take the places of C. E. Andrews, a representative of the minority stockholders, and H. M. Keesbey, a vice president of the company. Resolutions were adopted requesting the directors to declare the usual quarterly dividend of 1 per cent. on the preferred stock, providing for the election of directors, beginning with the next annual meeting, for terms of one, two and three years, and putting within the discretion of the newly-elected directors the matter of increasing the par value of the stock from $50 to $1,000 a share. A. SMOKER.

## A SUCCESSFUL GROUTING.

The above is the title of an interesting circular sent us recently by the Marsh-Capron Mfg. Co., Chicago, Ill., boosting their grouter. Their machine is shown in operation in the illustration at the top of the card, while boxed below appear the following statements:

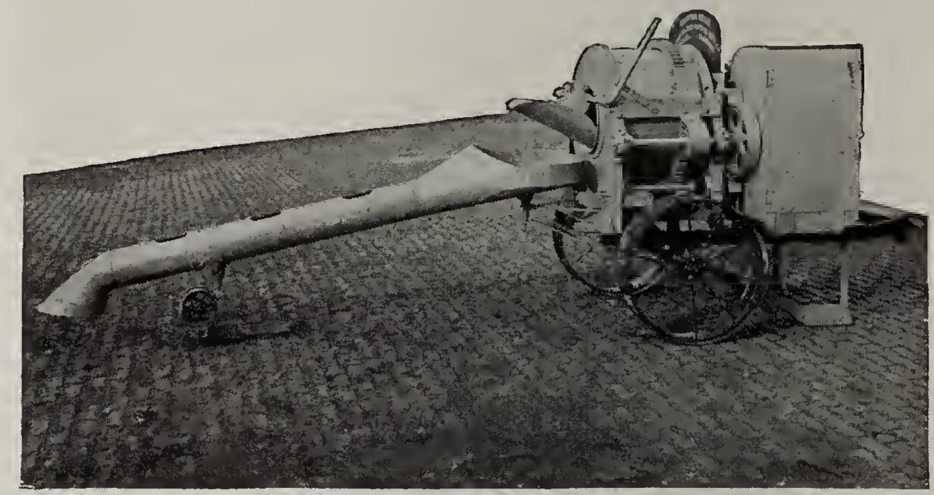
Brick paving contractors are offered in the Marsh-Capron grouter a thoroughly dependable machine. This little mixer has the unqualified endorsement of leading paving contractors and paving brick manufacturers, and for the work intended, is a very worthy "little brother" of the well known Marsh-Capron Rail-Track line of Concrete Mixers and Pavers.

This machine is built for service, is simple in design, sturdy in appearance, and of rigid, honest construction. It is operated by a 2 h. p. gasoline engine of approved type, which engine is protected by a steel house. Note the extra wide-rimmed strong wheels, and the five points at which the weight of the machine is distributed, insuring against vibration and the loosening up of the brick from the cushion.

Frame is constructed of steel channels, braced and reinforced. Drum is of boiler plate, with blades and buckets so arranged as to give an excellent mix. Driven by cut steel gears, no chain.

The machine stands 5 ft. 6 in. high, is 51 inches wide, and weighs approximately 1,000 pounds.

Particular attention is called to the chute, which is furnished at the bottom with a plate, perforated with thirty 1-in. holes—a convenience best realized by those who have seen the machine at work.



The Marsh-Capron Grouter.

Those interested in up-to-date methods in this particular field should write the Marsh-Capron Mfg. Co., Chicago, Ill. See their advertisement on page 582 of this issue.

## ABNER'S PROGRESS.

They were speaking about the rapid progress made by some country boys in the city the other evening, when this story was recalled by Governor-elect Marcus H. Holcombe, of Connecticut:

"Recently Uncle Josh was driving along the country road toward the village, and seeing his friend Hezekiah working in an adjacent field, he paused for a small talk over the barbed-wire fence. First it was crops, and then family, and Uncle Josh inquired after Hezekiah's son Abner.

"'Abner's in the city,' answered Hezekiah, comfortably resting on his hoe handle. 'Been there fer most a year now.'

"'Yes, I know that,' returned Uncle Josh reflectively. 'I was just wonderin' which side he was on.'

"'Which side he's on?' was the puzzled response of Hezekiah. 'I don't jist git ye.'

"'What I mean, Hez,' explained Uncle Josh, 'is Abner buyin' gold bricks yet, or has he started in ter sell 'em?'"—Philadelphia Telegraph.

Written for The Clay-Worker.

## NEWS FROM THE NATION'S CAPITAL.

SEVERAL MATTERS of special interest to The Clay-Worker readers have recently been made public at the offices of the Interstate Commerce Commission, Washington, since our last issue.

Charles C. McChord has just been elected chairman of the commission for the ensuing year. Commissioner McChord succeeds Commissioner James S. Harlan. The election of Mr. McChord is in line with the custom of the commission, namely, that of electing the chairmen in their order of seniority. Commissioner McChord was appointed a member of the commission in 1910 by President Taft.

### Complaints.

A number of brick complaints have been filed with the commissioners. Among some of the more important are:

Overcharge is claimed by the Metropolitan Paving Brick Company, of Canton, Ohio, in its complaint against the Pennsylvania Railroad Company and a number of other carriers Fifty-seven carloads of paving brick were shipped from Canton, Ohio, to Long Branch, N. J., during August and September, 1913, on which the rates charged were "excessive and unreasonable," according to the complaint. Reparation is asked.

The Robinson Clay Product Company, of Akron, Ohio, has also entered a complaint against the Illinois Central Railroad Company and other roads. Because of the misrouting of a carload shipment made from Akron to Chicago, Ill., in October, 1913, demurrage charges were made. The company asks for reparation to the amount of the overcharge.

Rates on common brick from Gonic, N. H., to various points on the line of the Boston & Maine and a number of other roads are declared to be unreasonable in a complaint filed with the commissioners by the Boston Brick Company, Inc., of Boston, Mass., against several carriers, including the Boston & Maine. Because of the change in the tariff grouping rates, which were formerly enjoyed by the company, were the same as in effect from Epping, N. H. The Boston company asks for an investigation and that more "just and reasonable" rates be allowed them.

### Reparation Orders.

The commissioners have ordered the following reparations to be paid to clay products companies:

National Fire Proofing Co. vs. The Raritan River Railroad Co. et al. A refund of $11.77 on one carload of hollow building tile from Amclay, N. J., to Massena Springs, N. Y.

Denver Pressed Brick Co. vs. Colorado & Southern Rw. Co. et al. A refund of $24.78 on two cars of pressed brick from Denver, Colo., to Casper, Wyoming.

W. S. Dickey Clay Mfg. Co. vs. Atchison, Topeka & Santa Fe Rw. Co. Refund of $7.08 on one carload of drain tile from Rich Hill, Mo., to Swanwick, Mo.

Central Connecticut Brick Co. vs. Boston & Albany R. R. Co. Refund of $118.66 on five cars of common brick from Middletown, Conn., to Indian Orchard, Mass.

National Fire Proofing Co. vs. Raritan River R. R. Co. Refund of $19.64 on one car of hollow building tile from Amclay, N. J., to Pulaski, N. Y.

National Fire Proofing Co. vs. Raritan River R. R. Co. Refund of $6.01 on one carload of hollow building tile from Amclay, N. J., to Clayton, N. Y.

Excelsior Brick Co. vs. The Atchison, Topeka & Santa Fe Rw. Co. Refund of $13.00 on one carload of common brick from Fredonia, Kans., to Bucklin, Mo.

Perkins-Goodwin Co. vs. Central of Georgia Rw. Co. Refund of $24.15 on one carload of clay from Claymont, Ga., to Wanaque, N. J.

National Fire Proofing Co. vs. Pennsylvania R. R. Co. et al. Refund of $7.47 on one carload of drain tile from East Palestine, Ohio, to Norton, Va.

National Fire Proofing Co. vs. Hocking Valley R. R. Co. Refund of $8.75 on one carload of building tile from Haydenville, Ohio, to Readstown, Wis.

E. M. Sergeant Co. vs. Southern Rw. Co. et al. Refund of $217.58 on two cars of clay from Langley, S. C., to North-East, Md.

The only decision in a brick case handed down during the past month by the commissioners was that of the Watsontown Brick Co., of Watsontown, Pa., against the Northern Central Rw. Co. and other carriers. In the syllabus on this case the commissioners said:

"Rate of $3.60 per ton on brick from Watsontown, Pa., to Chicago, Ill., found to be unreasonable, and a reasonable rate prescribed for the future." The new rates as applied will be $2.35 instead of the $3.60 rate.

Brick shippers will be interested in the amendment made to conference ruling No. 286(f) by the commissioners during the past month. The amendment is as follows:

"If, however, the agent of the carrier, after exercising reasonable diligence, is unable to obtain more definite instructions as to routing, the goods should be sent via the route specified in the bill of lading."

The Standard Vitrified Brick Co. have been denied a rehearing by the commissioners in their case against the Chicago, Burlington & Quincy Railroad Co., No. 4782.

Washington, D. C. A. SENATOR.

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Written for The Clay-Worker.

## BRICK NEWS FROM ALABAMA.

BIRMINGHAM BUILDERS' Exchange and all civic bodies are advocating a "build now" campaign. The daily papers are urging this movement to give employment to some of the many men who have been unemployed for the past few months. The Bricklayers' Union met and agreed to accept a 25 per cent. reduction from the regular scale. With this movement started there are announcements of repair work to quite a number of brick buildings, and a few new buildings to be begun as soon as the material can be assembled. From the indications it seems that a goodly number of bricklayers will get work and to some extent relieve the dullness of trade which brick men have experienced. Newspapers all over the state are taking up the "build now" campaign, and it is evident, from the way indications point, that there will be some improvement in the brick business all over the state.

At Huntsville, Ala., the news is that capitalists are looking around for the purpose of building a brick plant. Much anticipation in building in the near future with brick, in this territory, seems to be an auspicious time to erect a brick plant.

In the early spring of last year the commissioners of Orange county, Florida, issued bonds for $1,000,000 to be used in road building from Orlando to Kissimmee, a distance of thirteen miles. It was decided to build this road with brick, and the Copeland-Inglis Shale Brick Company, of Birmingham, were awarded the contract for supplying the paving brick. An order for 12,000,000 brick was placed with this firm. Some months passed before the bonds were finally sold. This firm has been doing some road work recently in Florida, and they have now received word that the money has been received and placed in bank at Orlando, and that they can now make preparations to begin paving this thirteen miles of roadway. This contract will keep the plant running several months and furnish work to a large number of men.

A plea for a nation-wide campaign for better building conditions was expressed in a speech which B. K. Nusbaum, field commissioner of the National Association of Builders' Exchanges, made to the members of the local Builders' Exchange at a special meeting held in March. Mr. Nusbaum outlined in detail the uniform contract regulation, which has been approved by a joint committee of the National Exchange and the American Institute of Architects, and which is to come up for action at the next meeting of these bodies, to be accepted or rejected. A. L. A.

Written for The Clay-Worker.

## NEW ORLEANS BRICK AND BUILDING NEWS.

AFTER A STAGNANT market that persisted ever since the war, the brick business in and around New Orleans woke up with a vengeance fifty days ago, and since that time factories are running to full capacity. Not only have normal conditions returned, but a building and paving boom is on and threatens to stay. Bricks that have been stacked up in yards for months have been marketed and factories are being crowded to supply the demand.

According to Fred. W. Salmen, head of the Salmen Brick and Lumber Company, of Slidell, La., who has headquarters in New Orleans and is one of the best posted brick men in the South, there are several reasons for the resumption of activity. One, the principal reason, is the building of sewerage and drainage canals in the city of New Orleans by the Sewerage and Water Board. Then, too, the city is paving a number of streets with brick; rat-proofing is requiring 100,000 bricks a day, and a number of dwellings in which brick forms the principal construction material are being erected.

The St. Joe Brick Works, of St. Joe, La., on the Northeastern Railroad, are producing 35,000 bricks a day, their capacity. When the Salmen Company became crowded in April, the St. Joe people were called upon to supply the former with an order reaching nearly a million bricks. The bricks were used in finishing a special job that had been begun with hand-made brick.

The Salmen Company booked many large orders in March and April. One order called for 2,000,000 bricks, to be used in erecting oil refineries for the Huaestacea Petroleum Company, at Rost Station, La. The Huaestacea Company is spending millions on oil improvements, and is putting in a good quality of bricks in the new buildings. The Galeana Oil Company, of New Orleans, is using 400,000 Salmen building bricks on its new warehouse; the Bradford Furniture Company's new six story building, at Howard avenue and Baronne street, has booked a large order; the Amelia apartments, in the select residential district, will use both face and building bricks, as will the new courthouse being erected by the parish of Plaquemine.

The Salmen Company also recently closed the contract for this year's supply of bricks for the Sewerage and Water Board, to be used in general work in and about the city. In eight months' time the Salmen Company will deliver to the city authorities more than 2,500,000 bricks for street paving.

One of the reasons of the "boom" is the decision on March 1 of the Supreme Court, which upheld the city of New Orleans in the latter's contention that rat-proofing should be made compulsory. Before that date rat-proofing was going on in a desultory fashion, most of the property owners holding back until the Supreme Court should render a decision on the two test cases. Bricks enter largely into rat-proofing. That material has supplanted concrete almost entirely in New Orleans, for the reason that it is cheaper and considered better material by many house owners. And rat-proofing is quite an item, too, when it is taken into consideration that one railroad, the Louisville & Nashville, is spending several hundred thousand dollars for that purpose alone on its city warehouses.

The Supreme Court's decision was hardly twenty-four hours old when the brickmakers and brick dealers were swamped with orders. Factories that were shut down on account of the European scrap resumed activities immediately. Uncle Sam had given orders that 55,000 business houses and residences be rat-proofed, following the outbreak of bubonic plague about a year ago, though the disease was quickly stamped out by sanitary measures from the combined forces of the national government, the state and city authorities; 25,000 had been made rat-proof before the decision, there are still 30,000 more structures needing the finishing sanitary touch, and in doing this bricks have to be used, and the brick dealers are reaping the harvest.

The Demourelle Brickyard, Covington; the Osyka Brick Company, Osyka, and the Fernwood Lumber Company, Fernwood, are all reported to be enjoying some of the big business that has arrived with a capital "A."

In reviewing the general conditions in and around New Orleans for the past few months, mention should be made of the efforts of certain promoters who have been endeavoring to interest New Orleans capital in a sand-lime brick venture. The man at the head of the scheme first visited manufacturers of clay products, but it is stated on high authority that he got the "cold shoulder" from them. Clay men contend a sand-lime brick venture in New Orleans can only result disastrously for its promoters; they point to the experience of one firm some years ago, which operated six months, sold a limited quantity of their product, and were forced to close their plant down.

As a whole, things look pretty bright, and the war hasn't knocked out everything by any manner of means. There are enough orders on hand, and more will come, to keep factories busy for perhaps the rest of the year, and after that, brickmakers believe, the war will be over and that even brighter things are in prospective.

It is said, as a result of the fight put up by the brick men last December, headed by Fred W. Salmen, before the New Orleans Board of Port Commissioners, to have that body ask for bids on brick as well as concrete to be used in the construction of the new $4,000,000 cotton warehouse system, the board will ask for alternate bids on brick and concrete for the remaining structures. The warehouse system will be completed in a year or less.

Brickmakers are interested in the new $8,000,000 depot being built by the Texas & Pacific Railroad at Terpsichore and Annunciation streets, in an area of approximately fifteen square blocks. About 2,000,000 bricks will be required in the buildings.

Another evidence that contractors are gradually getting away from the concrete idea and putting in bricks instead is to be found in the erection of the new refineries by the Colonial Sugar Company, at Gramercy, La., fifty miles from New Orleans. Bricks will be used principally in construction work.

O. R. LEANS.

## THE GRATH PRESS PROVING SATISFACTORY.

The Illinois Supply and Construction Company (St. Louis, Mo.), manufacturers of dry-press machinery, are receiving a number of highly complimentary letters relative to their Grath press. The following letter, under date of April 12, is self-explanatory:

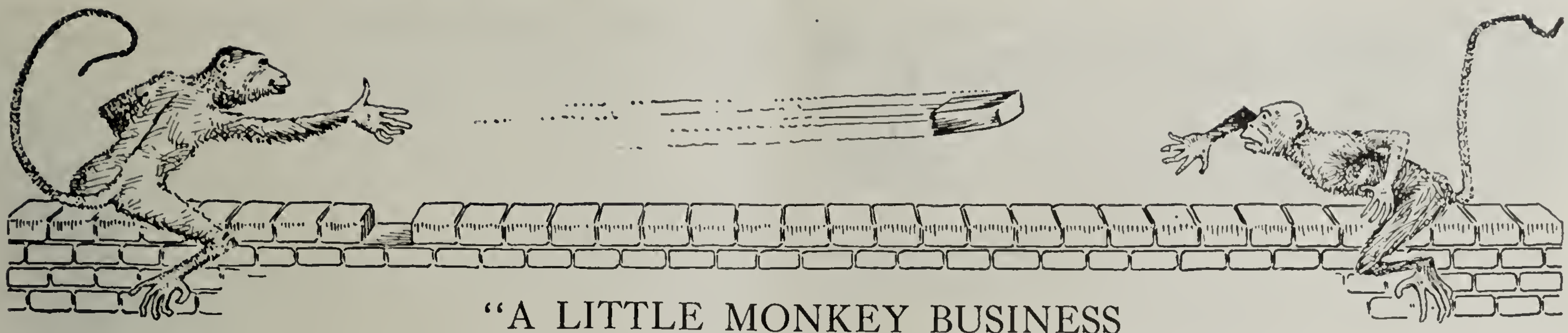
Illinois Supply and Construction Company,
St. Louis, Mo., U. S. A.:

In answer to your inquiry regarding the two special presses which you furnished this company, will state that we are very glad to be able to inform you that both presses are working satisfactorily and are making a good grade of sand lime brick. We are having a very good trade, considering the time of the year, and the best of it is the brick are giving good satisfaction and have pleased all who have used or are using them.

The presses are running right along, smooth and easy, and we are making from 40,000 to 42,000 fine sand lime brick per day on the two four-mould presses.

We have sold practically all of the common brick that have been sold on the Range this spring, and have prospects of many more good orders. In spite of all this, the general condition of the country points to an off year. But if business conditions will warrant it we will install the third Grath press, as, in our opinion, the Grath press is the simplest, strongest and best brick press in the market.

Yours very truly,
RANGE SAND LIME BRICK CO.,
R. L. HALL, Manager.



# "A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

### A Handy Substitute.

"John," asked Mary, "what is a synonym?"

"A synonym," said John, "is the word you use when you can't spell the other one."

### A Bargain Hunter, Indeed.

Lola, aged five, was being shown her twin brothers who had been born the night before. Gazing upon them reflectively she remarked:

"Well, I never saw such a woman as Mamma for hunting bargains."

### Safety First.

A well-known university professor was lecturing to some students on hygiene some time ago when one of the class—from the provinces—asked him how he, the student, could safeguard himself in drinking London water. The professor, rather startled him by replying:

"First boil it, then filter it, and after that—drink beer."

### Fully Prepared.

"Now," said the professor in the medical college, "if a person in good health, but who imagined himself sick, should send for you, what would you do?"

"I," said a student, "would give him something to make him sick, and then administer an antidote."

"Don't waste any more time here, young man," said the teacher, "but begin practice at once."

### Summer Life.

Summer roses,
Summer curls,
Summer poses,
Summer girls,
Summer bleaches,
Summer's hot,
Summer peaches,
Summer not.

—Chicago Examiner.

### Ever Try It?

"Wombat always gets next to the electric fan at the bar."

"Can't blame him for trying to keep cool."

"It isn't that. The breeze always wafts the check in front of somebody else."—Kansas City Journal.

### Didn't Blame Them.

The new baby had proved itself the possessor of extraordinary lung powers. One day baby's brother, little Johnny, said to his mother:

"Ma, little brother came from heaven, didn't he?"

"Yes, dear," answered the mother.

Johnny was silent for minute, and then he went on:

"I say, ma."

"What is it, Johnny?"

"I don't blame the angels for slinging him out, do you?"

### THE NEW WAY.

Dorothy and Eleanor met one morning out at the country club.

"Does Florence look any different since she and her husband have separated?" asked Dorothy.

"Oh, yes," was the reply. "She wears her hair a la divorce."

"Heavens!" exclaimed Dorothy. "How's that?"

"Why," smiled Eleanor, "parted, of course."

### Partnership.

"A man of three score and ten, who has prospered in business for many years, decided to take his son in partnership with him. The young man fully appreciated the move, but in his newly added dignity, as time advanced, he became inclined to disregard some of the old gentleman's ideas as fogy, and to take things into his own hands. His father, however, remonstrated: 'Look here, Andrew,' said he one morning, 'let's have a little less "I" and a little more "We" in this business hereafter. You want to remember that you are the junior partner.'

"A few days later the young man appeared at his father's office with a look of anxious concern. 'I say, dad,' he ventured, as the old fellow glanced up from his desk, 'we've been and done it now.'

"'Done what?' the stern parent queried gruffly.

"'Well—er—er we've been and married the typewriter.'"

### Musical Query.

Another thing we don't understand about the grand opera orchestra is why all the fiddlers finish at the same time when they are playing different tunes.

### A Close Shot.

It was during a golf game in Scotland. The first player who drove off was very bow-legged. The second player, unmindful that his opponent was directly in front of him, struck the ball and it whizzed between his opponent's legs.

"Hoot, mon," said the bow-legged one in anger, "that's nae golf!"

"Aweel," said his opponent complacently, "ef 'tis nae golf 'tis gude croquet."—Ladies Home Journal.

### Consolation.

Another good thing about being a vegetarian is that when the price of hen eggs is prohibitive one can eat the nests.—Dallas News.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

### Indiana Brick Plant to Increase Capacity.

Editor Clay-Worker:

Enclosed please find our check for $2.00, in renewal for our subscription to The Clay-Worker for coming year.

It may be of interest to you to know that the outlook is fairly good with us and sufficiently so that we are preparing to increase our capacity about 75 per cent., and will start in on our work of reconstruction within about thirty days.

With best wishes, we beg to remain,

Very truly yours,
CRAWFORDSVILLE SHALE BRICK CO.
Crawfordsville, Ind., March 16, 1915. G. B. Luckett, Sec.

### New Texas Brick Plant To Be Ready June 1.

My Dear Friend Randall:

Enclosed please find Chicago draft to take care of initiation fee in the National Brick Manufacturers' Association for the International Brick Co., and $3.00 for my membership. I wish you would send the badge on to me.

Whenever you or Jim can find time to come to El Paso, I will guarantee to show you one of the largest and best clayworking plants in the United States. We expect to be in operation between May 15 and the first of June.

With kind personal regards to all, I am,

Very truly yours,
INTERNATIONAL BRICK CO.
El Paso, Texas, March 20, 1915. S. J. Heafield, Mgr.

### Arkansas Brickmaker Getting Ready for Busy Season.

Editor The Clay-Worker:

I have recently bought out the Carbaugh brick plant and am giving same a general overhauling. The plant has a good equipment, including a Frost dry pan, Freese automatic cutter, Boyd dry press, Leader repress and one soft mud machine. We dry our brick by the Drymore system and burn in up-draft kilns. We get our shale from the pit by means of hoist and car. The prospects seem good for the coming season.

Yours truly,
Fort Smith, Ark. J. J. SABIN.

### An Advocate of Brick-Paved Streets.

Editor The Clay-Worker:

I think it would be much better if all the streets and thoroughfares of this town were paved with the best quality of brick instead of macadam, as it would be more permanent and clean and would not need oiling, which is very expensive and has a bad smell, and causes a great amount of dirt to be carried on to the walks and porches and in dwellings and other buildings, and it is very hard on vehicles and rubber tires, and it gets sloppy on the surface of macadam in wet weather. Macadam is worse on horses and tires than brick pavement. I think macadam pavement costs more than brick pavement, when the cost of oiling and resurfacing with fresh stone is considered.

There is one street here, known as Capnar street, which they propose to pave with macadam this fall from Main street to Park avenue, but which I think should be paved with best quality of brick, as an experiment, and because it is a street that gets a lot of heavy traffic and is narrow and has no sidewalk on one side. My father owns a building at the Main street corner, which runs right up to the curb on Capnar street, and a brick pavement would make it much nicer for people to cross over.

If you advise the brick pavement people and they communicate with the street committee and induce them to pave Capnar street with brick, it may result in some good business for them, as there are many streets to be paved here in the future. They pave some every year.

Respectfully yours,
Flemington, N. J. (Signed) C. R. GARY.

### Another Huckins.

J. E. Randall, care Clay-Worker,
Indianapolis, Ind.

Friend Jim—You will note on my letterhead the adoption of your "Build with Brick" slogan. You have done some good in this world by your trip to Springfield. We have another daughter of the Illinois Clay Manufacturers' Association presented to me on last Sunday night. Now, can you wonder that I did not get to Detroit?

Mrs. H. and the new baby are doing nicely, and we all join in sending our best to you and yours.

Yours very truly,
"HUCK."
Sheldon Brick and Building Supply Co., Urbana, Ill.

### Wants Specifications for Laying Spanish Roll Tile.

Editor The Clay-Worker:

Can you accommodate the writer by sending a copy of standard specifications for laying Spanish roll tile roofing, showing the dimensions of each tile? I presume the specifications will cover such details as the length of the lap, both end and side, etc.

Please address the writer. Appreciating your courtesy,

Yours very truly,
P. E. ALLISON.

### RECENT BULLETINS ISSUED BY ILLINOIS CERAMIC DEPARTMENT.

During the past year the ceramic department of the University of Illinois has issued five bulletins, dealing with subjects of more or less interest to clayworkers. These bulletins are:

Bulletin No. 19—"Investigations on Iron Ore Cement," by A. E. Williams.

Bulletin No. 20—"Designs of Seven Test Kilns," by R. T. Stull and R. K. Hursh.

Bulletin No. 21—"Deformation Temperatures of Some Porcelain Glazes," by R. T. Stull and W. L. Howat; "A Type ot Srystalline Glaze at Cone 3," by C. C. Rand and H. G. Schurecht.

Bulletin No. 22—"The Influence of Chlorides of Calcium and Iron When Precipitated in a Porcelain Body"; "Some Cobalt-Uranium Colors," by B. S. Radcliffe.

Bulletin No. 23—"Notes on the Development of the Ruby Color in Glass," by A. E. Williams.

These bulletins may be obtained without charge by applying to R. T. Stull, acting director ceramics department, University of Illinois, Urbana, Ill.

The Port Costa Brick Works, of San Francisco and Port Costa, Cal., closed down the plant for some weeks during midwinter, but are again in operation, accumulating stock for what is expected to be a fairly busy spring and summer.

# N. B. M. A. DAY AT THE PANAMA-PACIFIC EXPOSITION

### Midyear Meeting To Be Held at San Francisco Late in August, 1915.

In RESPONSE TO an urgent request of the Panama-Pacific International Exposition officials for a meeting of the National Brick Manufacturers' Association at San Francisco during the great exposition there, it has been agreed that a midsummer meeting will be held, not a convention, but just a social gathering of those who can make it convenient to visit the exposition the last week in August. Many of the clayworkers of the land will want to see this great show, and doubtless a large majority of them can plan to be there the last week in August, just as conveniently as at any other time. The gathering of the clayworking clans will add immensely to the pleasure of the occasion, so our readers are requested to take due notice and govern themselves accordingly. In honor of the event, the Panama-Pacific International Exposition officials have announced that August 26 has been officially designated as "National Brick Manufacturers' Association Day," and will prepare a program for the occasion that will make it one of great interest.

Italian Tower at Entrance to Court of Palms, Panama-Pacific International Exposition.

The function will no doubt center about the model brick bungalow erected under the direction of the Panama-Pacific Clay Products Association. The work of building, finishing and maintaining of which is in the hands of Herman L. Matz, of Chicago. Those who have not already done so, and desire to keep in touch with this movement to boost building brick, are requested to communicate with Matz, Chamber of Commerce Building, Chicago. The exposition is generally considered the finest show of the sort ever produced anywhere. The attendance so far has exceeded that of any previous exposition. So successful has it proven, that it is reported that they have already met their financial obligations and are really out of debt, which is indeed very remarkable. We hope in the very near future to publish a photograph of the brick bungalow, completed in all its appointments. In the meantime, we urge our readers to plan to visit the exposition late in August, so as to participate in the N. B. M. A. day, August 26.

Written for THE CLAY-WORKER.

## NEW YORK MARKET.

WITH APRIL CAME an upward turn in prices for all building material in which brick shared in some degree, though an extraordinarily heavy snow for the locality put a stop to all operations for a time. Experts say that it is quite impossible to say where the upward movement will end.

So far as brick is concerned, movement in the wholesale market is somewhat slack, partly, perhaps, because navigation is not yet resumed on the Hudson, though a few barge loads have come down. By the time this is in print the season will be fully in swing and barge loads will be coming down as usual. The quantity available in New York at the opening of the season is probably ample for all present requirements, but as the season develops larger supplies will be needed, and, unless they are here at the moment, the price must necessarily mount rapidly higher. Here are the approximate quotations at the time this is written:

Front buffs, No. 1, $26.50 to $30.00; gray, shaded and specked, $30.00 to $35.00; white, No. 1, $30.00 to $31.00; Hudson river common, $5.75 to $6.00; No. 1 hard, $6.00 to $6.50; light, hard, $4.50 to $4.75; pale, $2.75 to $3.50; New Jersey fire, No. 1, $23.00 to $24.00; No. 2, $18.00 to $19.00; Pennsylvania fire, No. 1, $28.00 to $29.00; No. 2, $23.00 to $24.00; Scotch, $33.00 to $35.00.

In Brooklyn and its environs a good deal of work is being done in apartment houses, some of very good type. Dwellings are also wanted in considerable numbers. Indeed, a considerable proportion of the development about Brooklyn is in the outlying sections, and consists principally of dwellings of one type or another. Many bungalows are being built and numerous small dwellings of other types.

The gradual movement of business uptown is typified in some of the proposed new loft buildings which are planned for the region above Forty-second street. There they are going to transform some of the cross-streets by replacing the old structures with loft buildings. Just how extensive this improvement will be this season depends upon the condition of the money market, but it is perhaps sufficient for the moment to point out that the people who are making the plans are especially anxious to begin, since they believe that the investment opportunities were never better. BURTON.

## VACANCIES ON N. B. M. A. COMMITTEE ON TECHNICAL INVESTIGATION FILLED.

In accordance with the motion adopted at the recent National convention, President Mayer has appointed Marion W. Blair, of Kushequa, Pa., and R. Kanengeiser, Bessemer, Pa., members of the N. B. M. A. Committee on Technical Investigation. Both are well versed in the science of clayworking and have had a wide experience in practical every-day work in the manufacture of brick, tile, etc., and the knowledge so gained will prove a valuable asset to the committee.

John Jepson, 429 Brisbane Building, Buffalo, N. Y., writes that he is interested in the manufacture of shale brick, hollow tile, flue lining, etc., and will be pleased to receive catalogues and other printed matter giving information as to up-to-date equipment, etc.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LXIII. APRIL, 1915. No. 4.

## CURRENT COMMENT.

The building outlook is good.

* * *

A little trouble makes a good tonic for a man with a real purpose.

* * *

Run your business, for that's the best way to keep it from running you.

* * *

The greater percentage of this year's home building should be built with brick.

* * *

Let the gloom doctors and the calamity howlers take the water cure, and let optimism reign.

* * *

Now is the time to feature "Build with Brick" posters, so they will have their effect during the summer building season.

* * *

The bungalow is a great thing to feature in brick advertising, because the bungalow home type is the popular idea of the day.

* * *

There is an old lady called "Hardtimes," who mothers more real efficiency inventions than any one else, and teaches more resourcefulness.

* * *

Wrangling with insurance people and regulating insurance rates is something we will have less call for when everybody takes to building with brick.

* * *

Once you get a man properly interested in brick and other clay products they will continue to occupy first place in his mind when it comes to building operations.

* * *

The value of a brick, like that of any other product, is just what you can get for it in the market, and what you can get for it depends some on what the other fellow asks for his. So, to quite an extent the brick men themselves make the value of brick.

* * *

One good way to improve conditions in the common brick industry is to improve the product and have more of the brick thoroughly well burned.

* * *

If we only had as many bricklayers in this country as we have carpenters, what a boom there would be in brick building and in the brickmaking business.

* * *

There is a chance for the brick trade to get more of the foundation work in home building if they will put forth the right kind of effort, and certainly the chances for trade are worth the efforts.

* * *

Do you ever hear a man who builds with brick say that he regrets it, and wishes he had used some other material? Put this question to some of your prospective builders and see if the result doesn't prove interesting.

* * *

The central idea of those in charge of brick burning should be to see how small a percentage of soft brick they can produce. The soft brick eat up the profit and reduce the value of the product, so the fewer of them the better.

* * *

Some of those who have built big chimneys and smoke stacks of concrete are now sorry, and wish they had built them with brick, so the conditions are ripe now for the brick trade to regain some lost ground in this business.

* * *

The clayworking industry is interested some in the coastwise trade, and a little in the general ocean-going traffic. Its big interest in water transportation, however, centers upon the inland waterways, for the biggest part of the brick trade is domestic and inclined to be local.

* * *

Every brick manufacturer of the country should have a hand in the Panama-Pacific clay products building in the shape of money contributed to its erection and care. If you have overlooked this matter, you had better send in a check to those having this work in charge.

* * *

The iron workers of the country have recently shown good spirit by accepting a wage reduction to keep the wheels rolling. Most all of us have had to make some sacrifice, and now we hope the trades people will get in line and ease off the cost of handling the things we need for our well-being.

* * *

Even the brick men approached the idea of comparative cost between a brick home and a frame structure rather timidly at first, for they were a bit afraid of what they would find. It develops, however, that there is nothing to be afraid of, and the showing is so favorable that comparative cost figuring should get to be a habit with the whole brick trade.

## CIRCULATE THE MEDIUM.

We are told by men in a position to know that money is quite plentiful in this country now and easy enough to be had. Moreover, bank statements and other financial reports indicate quite a liberal supply of money in this country available for use. This is good news, but somehow it is not complete, for with all these reports of an abundance of circulating medium there is still serious complaint of slow collections. The medium may be there, all right, but it is not circulating as it should, and what we need now is more action, more circulation of the medium. If money is plentiful and easy to be had, which it evidently is from reports available, then the thing for everybody to do is to arrange for what they need, square up their accounts so the other fellow may be encouraged to pay his, and the drag to business caused by slow collections eliminated. It will add zest to trade and make everybody feel better.

## THE PAVING CONTEST.

The paving brick manufacturers should not make the mistake of thinking in their security of a superior product that they are not to have any serious opposition or foremen worthy of their steel in wood paving blocks, for in the present campaign to exploit timber products one of the most active branches is that concerned with furthering the use of wood paving blocks. It is estimated that 375,000,000 feet, board measure, of wood paving blocks were used last year, and efforts are going to be put forth to increase this to a billion feet during the present year. In other words, the wood block people are going after the paving business systematically and with a big fund for exploitation. All this means that the paving brick people should stay awake and stay on the job. They have a splendid organization with a splendid man in charge, and now is the time they should stand by and uphold Will P. Blair, secretary of the National Paving Brick Association, and render all assistance practical, both financially and in the form of personal co-operation. The exploitation is half the game in this business, and the paving brick people have been doing their share of it and profiting by it. The good work is not ended, though, by any manner of means, but must be kept up, and the right idea is to put more vim and vigor into it this year than ever before, so as to hold the ground made and gain still more, instead of easing up and giving a rival offering a chance to edge in through a spurt of exploitation.

## BRICK IN KILN AND FURNACE WORK.

The lumber people recognize the value of brick when it comes to dry kiln and furnace work. Incidentally, they have been learning some lessons in this connection. Many of them were led to an extensive use of concrete for dry kilns and for erecting furnace walls and waste burners. Some of the best mill men in the south country, who have been interviewed lately on the subject, say that the ideal dry kiln is not one built of concrete; neither is it one built of lumber, but it is one with walls of brick. That is not all, either. Some who have used concrete for dry kilns have had a world of trouble with it, and others who have used it in furnace construction and have had to make changes and alterations, found this difficult and expensive. They had to drill and blast out the concrete after working hours, and most all of those who have had experience with it are cured. They will still use concrete for ground foundations under their mills and kilns, but when it comes to walls for kilns or furnaces, they are recognizing that brick is the proper material. This is not merely a feather in the cap of the brick trade, it is an indication of opportunity to materially increase the consumption of brick by proper cultivation of those in the lumber and woodworking fraternity, who are to make improvements in the way of building kilns or new furnaces.

## POTTERY AND INTERNATIONAL COMMERCE.

Several different things have served recently to emphasize and rather single out pottery as an item of considerable importance in international commerce.

In one of E. Phillip Oppenheim's new stories of political intrigue, one of his characters is represented as a German of importance in diplomatic circles, who claims to be heavily interested in the pottery trade with important connections in England.

Coincident with the serial publication of this story comes a consular report from England about the exhibition of English pottery and glassware held in Stoke-on-Trent during February. Speakers on this occasion made a plea that there should be some governmental action, which would put British manufacturers on even competitive terms with their rivals on the continent. It seems that they considered German competition not only a serious matter with the pottery industry, but the whole proposition big enough to be a serious matter of state.

The pottery product is one of great variety and of wider distribution in its sales than brick and many of the other clay products, and it is this wide distribution and sharp competition in various markets that perhaps emphasizes the industry in the public eye. It really is an industry of importance, a big industry made up of an infinite variety of small things.

## THE KING OF ROOFING.

In this day of active exploitation of rival materials for roofing purposes, it is refreshing to observe that all interests, when they can be induced to express themselves, freely admit that burned clay tile is the king of roofing material. The shingle people, who are hot contenders for the shingle, fighting fire limit extensions and taking up with paints calculated to make shingles fire-resistant, will admit readily that the clay tile roof is the best roof to be had. Their plea for the shingle is its cheapness and its coolness in summer as compared to metal roofing. Other candidates for favor in the roofing world make one claim and another, but notwithstanding their claims, all recognize that clay tile is the king of all roofing materials. Others may make the plea for cheapness or for this quality or that quality, but the clay tile stands out distinctly as being the best of all. With all this in its favor, there should be wonderful progress made in the volume of trade in tile roofing during the next few years. People are building a higher order of house, and those who want to build the best should be ready customers for clay roofing, because it has no rival when the question of the best is up. What better talking point for exploitation should any product need than this?

## VACATIONS.

One of the Emperors of Rome during the early Christian days, named Antoninus Marcus Aurelius, and surnamed "The Philosopher," is accredited with saying: "Men seek retreats, houses in the country, seashores and mountains; and thou are wont to desire such things very much. But this is altogether a mark of the most common sort of men; for it is in thy power whenever thou shalt choose, to retire into thyself. For nowhere, either with more quiet or more freedom from trouble, does a man retire, than into his own soul, particularly when he has within him such thoughts that by looking into them he is immediately in perfect tranquility."

This sounds a bit like early philosophical reasoning brought up to date and welded onto modern tendencies. But perhaps certain of our human tendencies are not so modern as we think, and the vacation idea is much older than we have been giving it credit for being. Anyway, the gem of philosophical reasoning is given here now, not with a view to arguing against the regulation two weeks off during the summer. Far from that, indeed, is the idea. The inclination is rather to wish that more people could take more time off for rest and refreshment, and to argue that every institution should strive to arrange so that every one connected with it, high and low alike, may be given the benefits of a vacation without harm to the business.

And the matter of retiring into one's self is a bit of logic that appeals because it suggests retiring for rest and recuperation into the woods, close to nature rather than to the turmoil of some of the fashionable summer resorts. It is well enough to visit such resorts if you have a great longing to do so, and perhaps if you are really of quiet habits at home a week or two of turmoil will have the effect of rest by the change it brings.

But there is, and has been for a few years now, a romantic idea of getting back to nature that has led many misguided people into giving up the fight in town and going back to the farm, to regret it sadly in a short time. Two weeks back in the country will come pretty near to curing this "back to nature" madness, and will put the one afflicted with it in much better condition mentally to wrestle with the problems of business. And in the quiet country is a good place to commune with self and to carefully work out the details of dream pictures.

### THE BUILDING BRICK BOOSTERS TO MEET IN INDIANAPOLIS.

Notice has been set out by Fritz Salmen, Slidell, La., chairman of the N. B. M. A. Brick Boosting Bureau, that a meeting of the committee will be held in Indianapolis, April 27, when it is hoped a full attendance will be recorded and a mighty movement started for the uplift of building brick in the United States. Certainly the time is ripe for such a work, and we will await the action of the committee with deep interest.

### ANOTHER CANDIDATE FOR THE NEXT N. B. M. A. CONVENTION.

Cleveland's hat is in the ring, so to speak, and it seems that it will be backed by the entire Cleveland contingent, which is a most formidable aggregation. Plans are being perfected for a great building exposition, to be held at the Ohio metropolis, February next, under the direction of the Society Advocating Fire Elimination. It is hoped to have one of the finest shows of building materials ever made in America; naturally brick, tile and other ceramic products will be conspicuous. Hence, the promoters insist that the N. B. M. A. should lend its influence to the mighty undertaking and hold the next convention in their city. As there are three members of the executive committee now conspicuous among Cleveland's boosters, that city will certainly get full consideration when the matter is taken up for final action by the executive committee.

### BRICK COMPANY'S OFFICE MOVED TO DAVENPORT.

J. L. Buckley, manager of the Hydraulic-Press Brick Company, of Davenport, Iowa, is sending out the following announcement to his trade:

"On July 1, 1914, owing to some extensive improvements being made at our plant, it became necessary for us to move the business part of our office to Aledo, Ill., in order that the manager might be in a position to devote more of his time and attention to the improvement work. We are pleased at this time, however, to advise that we have our plant running in excellent manner, and in order that we may be in closer touch with the architects and builders of the Tri-Cities and adjoining territory, we will move the business office back to Davenport on April 1, 1915, after which time we will ask that all correspondence be addressed to 410 Putnam Building, Davenport, Iowa.

---

N. Clark & Sons, San Francisco, report that they have been fairly busy for this early in the season. Most of the demand so far is for sewer pipe for country shipment, though there is also some demand for terra cotta for large public buildings. The outlook is now much better than in the fall, and this company is looking forward for a much more active season than last year.

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has been given as a definition of good engineering such as is done by
**The Richardson-Lovejoy Engineering Company.**
[See page 583.]

### FOR SALE, WANTED, ETC.

WANTED.

First-class, experienced man for position as stenographer and clerk to the sales manager of a large sewer pipe manufacturing concern. Answer, fully giving experience and references. Splendid opportunity for properly equipped young man who is willing to begin modestly. Address, Box 4—Mo.,
4 1 d Care Clay-Worker.

See additional ads on pages 574, 575 and 576.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

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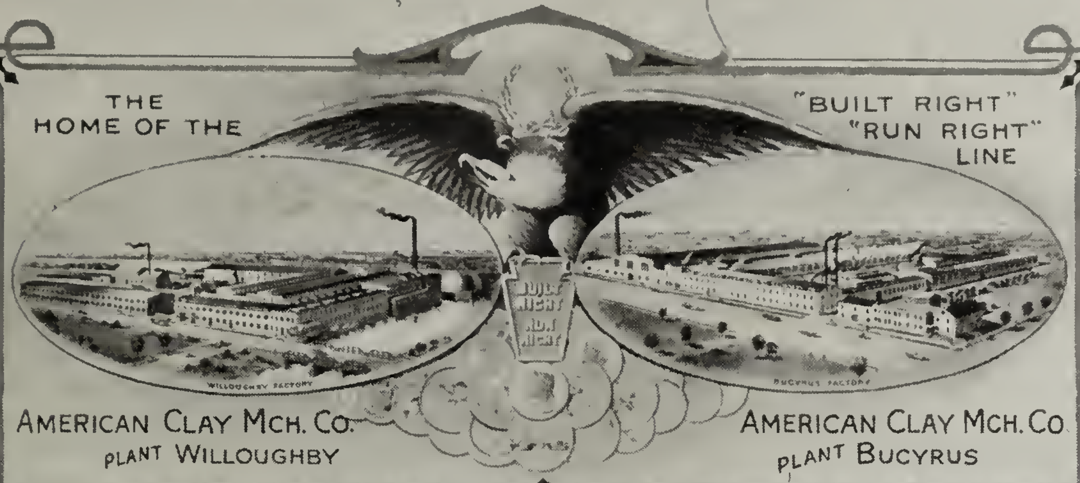

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PLANT WILLOUGHBY

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PLANT BUCYRUS

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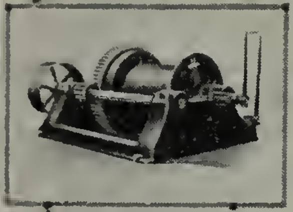
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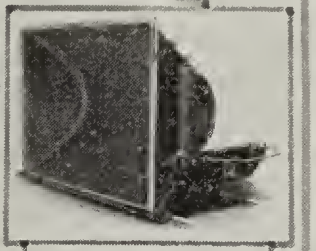
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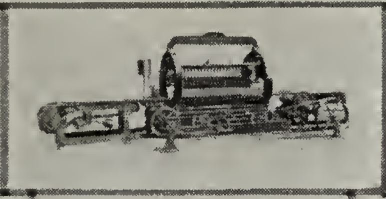
AMERICAN No 291 PUG MILL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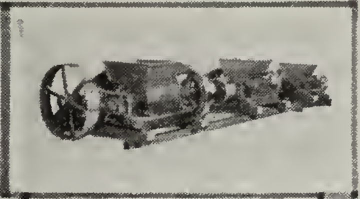
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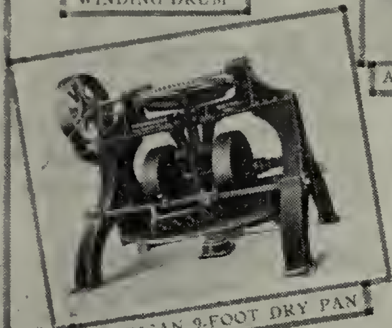

AMERICAN 9-FOOT DRY PAN

HAIGH CONTINUOUS KILN

# INCREASED CAPACITY = INCREASED PROFITS

When you find it advisable to make changes in your plants it will be well to remember to ask for information about:

**Our New Line of Auger Machines.**
**Our New Line of Pug Mills.**
**Our New Line of Automatic Cutters.**

These are all essential to profitable production and they have all been designed to increase capacity and decrease cost of operation. That means increased profits.

There are no other machines that will compete with these. Get complete descriptions and judge for yourself.

---

The Haigh Continuous Kiln will save about half of your burning cost. Ask for catalog and particulars.

---

The American Steam Shovel will reduce your clay cost.

---

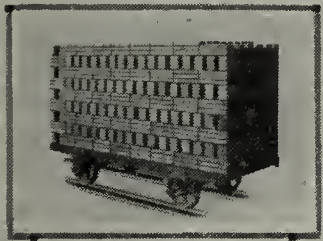
We supply large and small wants with equal care.

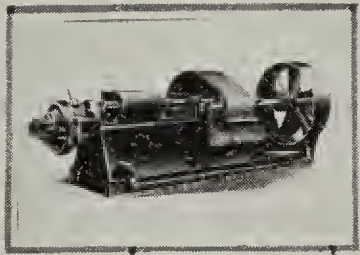
## The American Clay Machinery Co.

**Bucyrus, Ohio**

AMERICAN No. 233 AUGER MACHINE

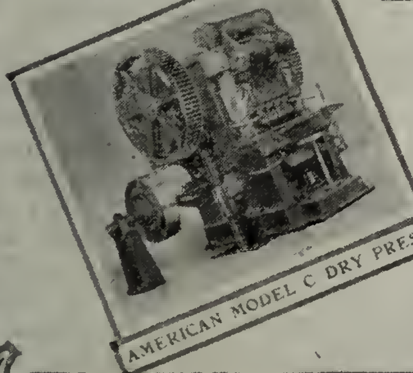
AMERICAN WASTE HEAT DRYER


AMERICAN DRYER CAR


AMERICAN No 290 AUGER MACHINE

AMERICAN STEAM SHOVEL

AMERICAN STEEL FRAME FOR PUG MILL.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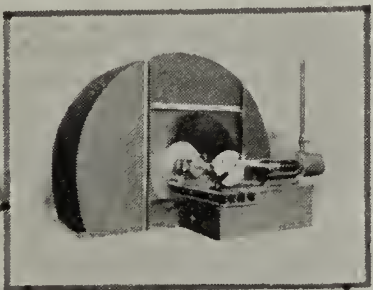
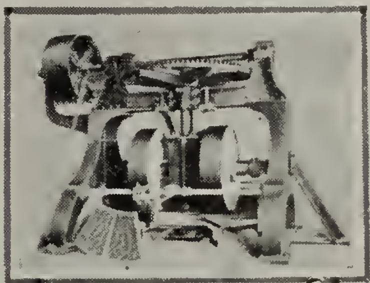
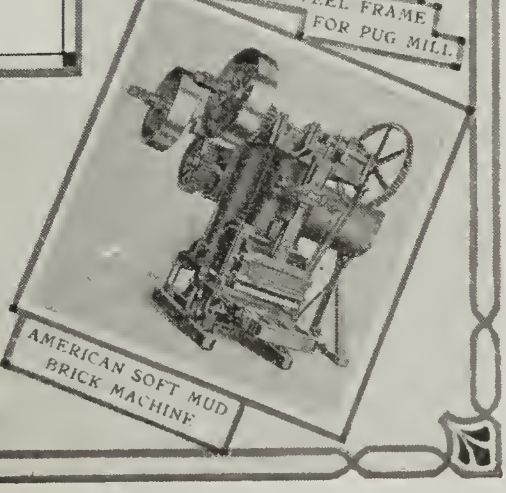
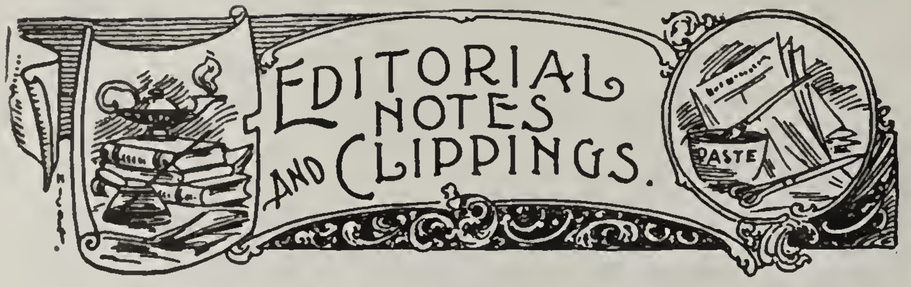

AMERICAN WASTE HEAT FAN


AMERICAN No 57 DRY PAN


AMERICAN SOFT MUD BRICK MACHINE

We Build Every Machine and Appliance Needed in the Clay Trade.



## EDITORIAL NOTES AND CLIPPINGS.

R. A. Ezzell will start a small brickmaking plant at Beeville, Texas.

The Peerless Clay Company is erecting a big clayworking plant at Langley, S. C.

The United Brick Company, Conneaut, Ohio, will increase the capacity of its plant at an early date.

T. Godfrey has leased the brickyard of G. A. Burgess, of Carleton Place, Ontario, Canada, for a term of years.

The Star Brick and Tile Company, of Mt. Vernon, Wash., is planning a number of improvements and extensions.

The American Pressed Brick Company, Wellston, Mo., has increased its capital stock from $60,000 to $75,000, and will extend its operations.

The Vitreous Clay Company, of Atlanta, Ga., has recently been incorporated by C. H. Pittman, A. R. Colcord and F. B. Jamison.

The Valley Brick Company, of Charleston, W. Va., has filed a voluntary petition in bankruptcy. The company has about $40,000 invested in the plant.

Robert Johnston, an employe of the Giant Clay Co., at Steubenville, Ohio, was crushed by a fall of clay at the plant and died within an hour after the accident.

The Bristol Brick Company, of Bristol, Tenn., contemplates making a number of improvements and extensions to their plant. A. C. Honaker, of Abingdon, Va., is president of the company.

The Holston Tile Company, McCloud, Tenn., will build a dry kiln; also install equipment to manufacture hollow silo blocks from clay fire brick, furnaces for kilns, dry kiln cars, drying machinery, etc.

G. S. Heffner, of Barboursville, W. Va., is interested in a movement to establish a brick and tile plant at Wayne, W. Va. A company has been organized to be known as the Wayne Brick and Tile Company.

The Roseville Paving Brick Company is a new concern which has recently been incorporated to manufacture paving brick at Roseville, Ohio. Fred L. Mauser is president, and W. R. Wilson, secretary of the company.

The entire plant of the Wagstaff Brick Manufacturing Co., Toronto, Ontario, Canada, was completely destroyed by fire the latter part of March, causing a damage of $15,000, on which there is no insurance. The plant will be rebuilt at once.

The Western Brick Company, Ltd., has been incorporated at Winnipeg, Manitoba, with $50,000 capital. The incorporators are Napoleon Francoic, Xavier Beauregard, Thomas Cuthbert Anderson, Herbert MacDougal, Thomas T. Thompson and David McFarquar Hackney, all of Winnipeg.

Two new kilns are being erected by the Nicholson Clay Products Company, at the plant near Byesville, Ohio, in order to take care of the large number of orders for brick and high-grade building and silo tile. The plant is now working full time, with good prospects for a long run.

The plant of the Oskaloosa Vitrified Brick Company, Oskaloosa, Iowa, has changed hands, and will be operated under the same firm name as heretofore. The newly elected officers are: President, Harry H. Phinney; vice-president, H. H. Sheriff; secretary-treasurer, A. P. Spencer, and manager, E. F. Bridges.

Plans are now in progress for the organization of a new brick manufacturing enterprise at Franklin, Pa., by John E. McCusker and Frank L. Bensinger. Both Mr. Mecusker and Mr. Bensinger have been associated with the brick manufacturing business of the East for a long period and are thoroughly conversant with the working of the industry. It is proposed to erect a plant with a daily capacity of 25,000 bricks and to employ about 25 men. The clay has been submitted for test to the American Clay Machine Company, of Bucyrus, Ohio, who report most favorably upon the brick produced from it. The new company also intends manufacturing hollow tile brick at the proposed plant.

It is reported that the Kyle Lumber Company, of Franklin, La., is in the market for brick machinery.

The brick plant at the Michigan state prison, Jackson, Mich., was badly damaged by fire recently.

The Aberdeen Pressed Brick Company, located at Ipswich, S. D., writes they are in the market for a pug mill.

The Amarillo Brick and Tile Company, of Cliffside, Texas, is making a number of improvements which will increase the capacity of the plant.

The Riverside Brick Company, of Charlotte, N. C., has been incorporated with $60,000 capital, by W. R. Tallaferro, Jr., T. A. Morson and C. D. Tallaferro.

The Hollansdale Tile and Brick Co. has been organized at Hollansdale, Wis., by F. W. Hall, Estelle Rowe and E. H. Whitcomb, with $15,000 capital stock.

The Wooster Shale Brick Company, Wooster, Ohio, recently incorporated at $300,000 capital stock, will increase its daily capacity from 40,000 to 60,000 bricks.

The Atlantic Brick Works, at Mays Landing, N. J., which were closed down all winter, started operations the first of April. The plant gives employment to 100 men.

The Barbourville (Ky.) Brick and Tile Company started up full blast April 1, after an idleness of several months, and will run the remainder of the year, giving employment to about fifty men.

H. Coffal, a former employe of the Poston Brick Co., Attica, Ind., has instituted a suit against the company for $2,000 damages for alleged injuries received while working for the company in December, 1914.

The plant of Anness & Potters' terra cotta works at Woodbridge, N. J., was almost totally destroyed by fire, April 7. The blaze had gained considerable headway before it was discovered. The loss is estimated at $25,000. The plant will be rebuilt at once.

At the annual meeting of the Whiteselle Brick and Lumber Company, Corsicana, Texas, the following officers were elected: J. E. Whiteselle, president; Max D. Almond, vice-president and general manager; J. L. Whiteselle, vice-president, and W. C. Oldham, secretary and treasurer.

The Lima Brick and Tile Company has been incorporated at Lima, Ohio. A. McPheron is president and general manager of the company, and Byron S. Langan is secretary and treasurer. The company is now installing a new soft mud machine, and with this additional equipment will have a daily capacity of 50,000 brick per day, in addition to a goodly quantity of hollow building brick and drain tile.

The Ottawa Brick and Tile Company, Ottawa, Kans., is preparing for largely increased operations this coming season. All of its facilities will be enlarged, new machinery installed and a larger force of men employed. Recently the company made a lease for a large tract of shale land, four miles from the city, and will in the future secure shale there. John Nelson is president of the company, and announces that later they may decide to manufacture roofing tile.

Italian grape growers who settled a few years ago on the hillsides of North Collins are suing the North Collins Shale Brick Company for damages to their vineyards. They claim that the smoke and fumes from the brickyard drift up the hillside, owing to improper and inefficient chimneys, and are ruining their vines. One of the actions is on trial before Judge Laing in county court. These Italians are experienced grape growers, who learned their business in Italy. They are settling on all the hillsides in North Collins and are making wine and doing a general market garden business besides.

Two million paving block have been finished at the Ohio state brick plant at Junction City, where fifty prisoners have been working throughout the winter. During the coming months it is expected to finish about 2,000,000 paving blocks every month, and they will be delivered on orders from the state highway department to any county or municipality that wants them. Just as soon as the weather will permit, additional prisoners will be sent to the plant from the penitentiary, and the capacity will be increased as fast as orders are received. It is not expected that the full operation of this plant will interfere in any way with the regular brick manufacturers, as the road building work in the Buckeye

(Continued on page 570.)

# The New Way

IT IS NOT THE PLAN of a city nor the plan of the farm, but instead it is a combination of the two. It provides a place for a home that will support you instead of you supporting the home. It provides for a *small* amount of ground to produce a *large* amount of INCOME. That's why it is THE NEW WAY. That's why it is named

INCOME PARK,

A WINTER RESORT AND PERMANENT HOME COMMUNITY on the Gulf Coast, a community devoted to the cultivation of Figs, Oranges, Grapefruit, Pecans and such other fruits and vegetables as the individual fancy may direct. The plans of this NEW WAY community are comprehensive and provide for co-operative marketing and buying, for pleasure grounds, for boating, bathing and fishing, for telephone, light, water, transportation and other conveniences.

THE NATURAL ADVANTAGES and conditions include good soil, excellent water, splendid drainage, abundant rainfall, delightful climate, and freedom from floods.

THE AVERAGE MONTHLY TEMPERATURES for the past thirty-five to forty years range from 50 degrees for January to 81 degrees for July and August. The rainfall for the same period averages 62 inches. We know of no other place in this or any other country where there are brought together by nature so many of the things that man requires and enjoys. The Gulf waters afford an abundance of the finest oysters, red snapper, pompano, sheepshead, flounder and other sea foods, and the small streams furnish bass and other fresh-water fish. The soil produces practically every known vegetable, citrus fruits and a large variety of other fruits and nuts.

TO TAKE ADVANTAGE of these conditions is your privilege, and to share in the profits of the development of this property is your opportunity. Let us show YOU:

HOW, as an investment, to be sure of a big profit.

HOW to own a WINTER HOME on the Gulf Coast at a profit instead of an expense.

HOW to own a PERMANENT HOME on the Gulf Coast, with an income of more than you are now earning.

HOW to provide a competency for old age.

**MOBILE BEACH & LAND COMPANY**
**State Life Building**
**Indianapolis, Indiana**

state is growing so fast that all plants where pavers are made have for months been running full capacity.

The Chamber of Commerce, San Antonio, Tex., is promoting the establishment of a vitrified brick and hollow tile plant.

The Chatsworth Brick and Tile Company will construct some additional kilns and install new equipment at their plant at Chatsworth, Ill.

The Abingdon Clay Company, Abingdon, Ill., has been incorporated with a capital stock of $40,000, by George E. Diersson, Samuel S. Holmes and others.

A. P. Green, of the Mexico Fire Brick Company, Mexico, Mo., has recently installed a Thew automatic shovel, with a view of increasing the output of his plant.

L. U. Nickell, of the Fulton Fire Brick Company, Fulton, Mo., reports business as improving. Mr. Nickell's plant makes a specialty of high-grade fire brick for malleable iron foundries.

After an idleness of several weeks the Andrew Ramsey Company Enamel Brick Works, Cumberland, Md., resumed operations the latter part of March, giving employment to a large number of men.

Benjamin Suer & Sons, of Cincinnati, Ohio, have purchased the plant of the Mitchell Brick Company, at Lawrenceburg, Ind., and will operate same to the full capacity of 50,000 brick per day the coming season. The purchase price was $40,000.

Warren C. White, a wealthy brick manufacturer of Cumberland, Md., died March 22, following an operation for double mastoiditis. Mr. White was prominent in the civic and commercial life of Cumberland, having served twice as mayor of that city. A wife and two sons survive.

The Winnebago Hollow Brick Block and Tile Company has been organized at Winnebago, Minn., with a capital stock of $75,000, to purchase the Winnebago Drain Tile Company's plant. The officers of the new company are: President, F. E. Hadley; vice-president, M. J. Haasey; secretary, C. C. Vickerman; treasurer, James Stevenson.

T. Bransford & Sons, manufacturers of soft-mud brick at Union City, Tenn., write that they expect to overhaul their plant, which has a daily capacity of 20,000 brick, and that they will be in the market for a new brick machine, and would like information in regard to a system for hauling clay and also a drying system. They also expect to build a new kiln.

John M. Mack, for the past several years one of the leading financiers, contractors and brick manufacturers of Philadelphia, died on January 26th at his home, Academy road and Grant avenue, Torresdale, a suburb of this city, from liver trouble, after but a comparatively short illness. Mr. Mack was head of the Mack Paving & Construction Co., and operated vitrified paving brick making plants in the vicinity of Reading, Pa.; Cleveland, Ohio; Pittsburg and Allegheny, Pa., much of the output of which were used by the Mack Paving Company. He was prominent politically and the Philadelphia Electric Company, the Mack Paving Company, the National Asphalt Company, the Philadelphia Rapid Transit Company and the Keystone Telephone Company, all of this city, are the products of the deceased. He was born in Philadelphia August 15, 1852, and first began life as a carpenter.

The Ohio Paving Brick Manufacturers' Association has been organized, with headquarters at Columbus, Ohio. G. L. French, of Canton, is president; F. L. Manning, Portsmouth, vice president; Charles J. Deckman, Cleveland, treasurer, and J. L. Murphy, of Nelsonville, temporary secretary. James P. Marker, formerly state highway commissioner of Ohio, will be chief engineer for the association. The following concerns are now members of the association: Big Four Clay Company, Canton; Metropolitan Paving Brick Company, Canton; Deckman-Duty Company, Cleveland; Bessemer Limestone Company, Youngstown; Trimble Paving Brick Company, Dayton, and S. Webster; Portsmouth Paving Brick Company, Portsmouth; Athens Brick Company, Athens; Peebles Paving Brick Company, Portsmouth; Nelsonville Brick Company; Hocking Valley Brick Company, Columbus; Alliance Brick and Clay Company, Alliance; Lincoln Paving Company, Canton; Burton-Townsend Company, Zanesville; Carlisle Paving Brick Company, Sciotoville. It is expected that practically all of the paving brick making concerns in the state will become members of it.

## PACIFIC COAST NEWS.

THE OPENING OF THE Panama-Pacific Exposition on February 20 was the big thing of the early spring on the Pacific coast. San Francisco and California in general were treated to a three-day holiday on February 20, 21 and 22; and this, combined with the fact that February is a short month at best and that Lincoln's birthday, on February 12, is also a holiday in California, left only twenty-one business days in the month. For this reason the month did not rank very high for business purposes. March, however, made a much better showing.

There are a number of displays at the Exposition that are of interest to the trade. Of these, one of the most striking is the "Model Brick Bungalow," erected under the auspices of the Panama-Pacific Clay Products Company. The brick manufacturers of California contributed the material for the house. N. Clark & Son, of San Francisco, donated the pressed brick for the building; Gladding, McBean & Co., of Lincoln, Cal., and the Steiger Terra Cotta and Pottery Works, of San Francisco, donated terra cotta; the McNear Brick Agency donated the red brick used, and the Los Angeles Pressed Brick Company, of Los Angeles and Richmond, Cal., furnished the floor tile and roofing tile.

The Los Angeles Pressed Brick Company has put in some attractive displays of the output of both its plants at the Panama-Pacific Exposition. These include an exhibit of sectional sewer brick, an exhibit of red pressed brick and an exhibit of roofing and floor tile and other products from its Los Angeles plant.

C. E. Pratt, of the Pratt Building Materials Company, reports a large contract for his company's brick for the new plant of the Western Sugar Refineries Company.

It is claimed that California brick manufacturers start the season in a much stronger position than usual. A number of plants have been closed down during a portion of the winter, some not having yet reopened. The accumulations are not large, and there seems less tendency to force brick onto the local market at concessions. The shipping of brick to other points on the coast has also tended to relieve the local situation. The ruling price is now $7.50, which includes the cartage to the job, most of the yards having arranged to do their own delivering.

Brick as a paving material has received more than its usual portion of attention during the last few months. In San Francisco several of the shorter streets are now being paved in this way, and at the town of Niles brick has been accepted as the most desirable substance for the needs.

Clay deposits on the White river, near Porterville, are attracting some attention from clayworkers. A test shows the samples taken to be very rich, and it is reported that the fields are very extensive. Mr. McKnight, of Los Angeles, who has organized several brick, tile and pottery companies, is studying the deposits there.

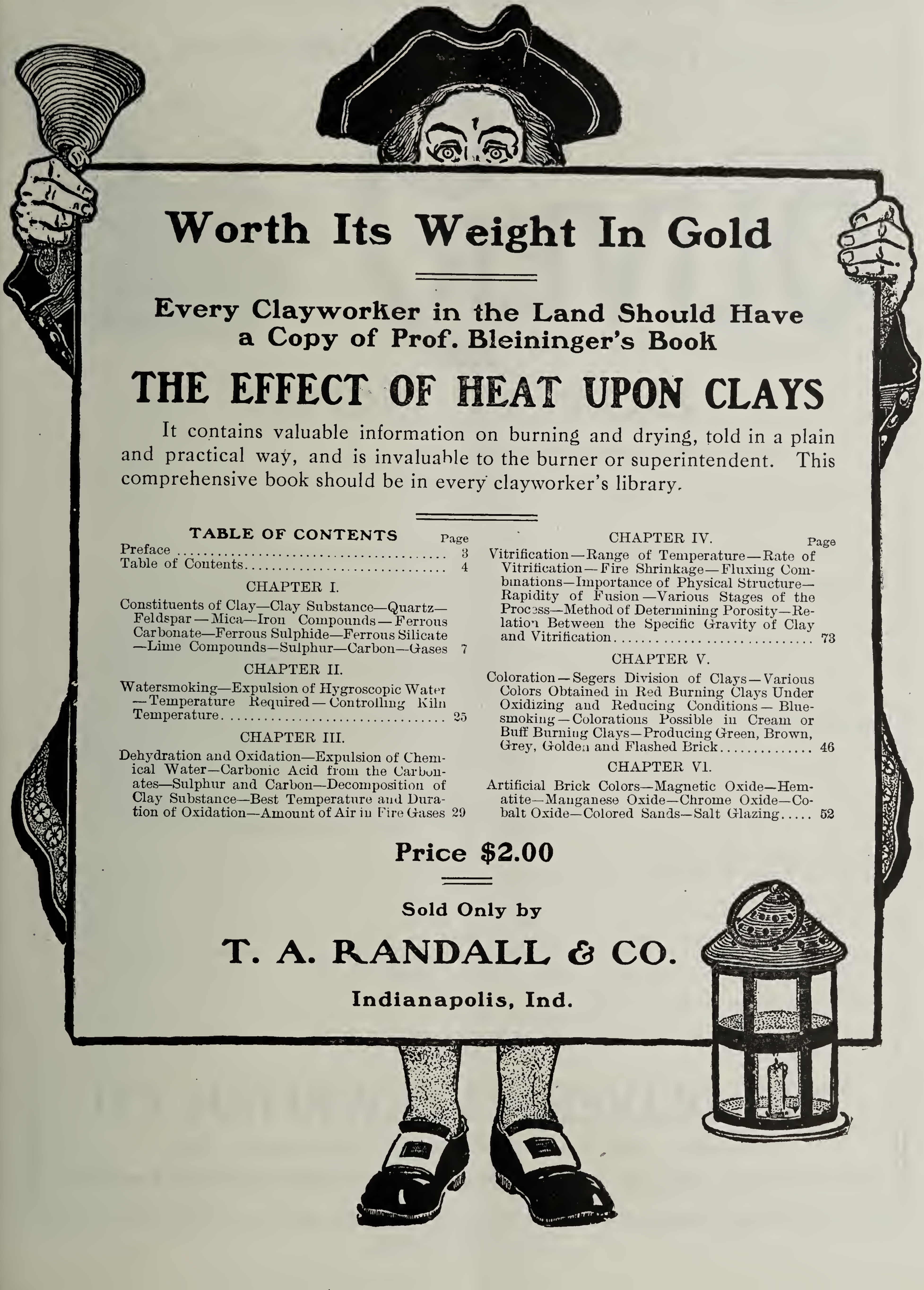
Tile flooring seems to have come in for its share of attention at the Exposition grounds. Several of the larger exhibits are using it, and there seems to be a disposition on the part of business people of the section to prefer this product for floors in stores, restaurants, etc. One of the cafeterias recently installed, having about as large floor space as any such institution in the west, chose white tile for its floors.

The National Terra Cotta Society has put in an interesting exhibit in the Manufacturers' Building, at the Panama-Pacific Exposition.

The United Materials Company, selling agents for the Los Angeles Pressed Brick Company, of Los Angeles and Richmond, Cal., have taken out a license for the manufacture of "Rug" brick, the specialty of the Hocking Valley Products Company. The company has put in an exhibit of this line in the Varied Industries Building at the San Francisco Exposition. The new product will be turned out from the Richmond, Cal., factory of the Los Angeles Pressed Brick Company.

At the last meeting of the Coeur d'Alene Clay Company, of Coeur d'Alene, Idaho, D. H. Kirk was elected president and W. T. Shockley secretary. SUNSET.

San Francisco, April 5, 1915.



# Worth Its Weight In Gold

**Every Clayworker in the Land Should Have a Copy of Prof. Bleininger's Book**

## THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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**Price $2.00**

**Sold Only by**

**T. A. RANDALL & CO.**

**Indianapolis, Ind.**

# *A New Model Typewriter!*

# The —— No OLIVER 9

*The Standard Visible Writer*

## BUY IT NOW!

Yes, the crowning typewriter triumph is *here!*

It is just out—and comes years before experts expected it. For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

**CAUTION!** The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day, never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hands. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

**Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.**

**WARNING!** This brilliant new Oliver comes **at the old-time price.** It costs no more than lesser makes—now out of date when compared with this discovery.

For, while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

If you are using an Oliver, it naturally follows that you want the finest model.

**17 CENTS A DAY!** Remember this brand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½ ounce touch—**plus the Optional Duplex Shift, Selective Color Attachment and** all these other new-day features.

**Yet we have decided to sell it to everyone everywhere on our famous payment plan—17 cents a day!** Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, included FREE if desired.

**TODAY---Write for Full Details** and be among the first to know about this marvel of writing machines. See why typists, employers and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

## THE OLIVER TYPEWRITER CO.

**Agency, 208 North Meridian St., Indianapolis, Ind.**

**YOU CAN RENT THE OLIVER TYPEWRITER NO. 5 THREE MONTHS FOR $4.00**

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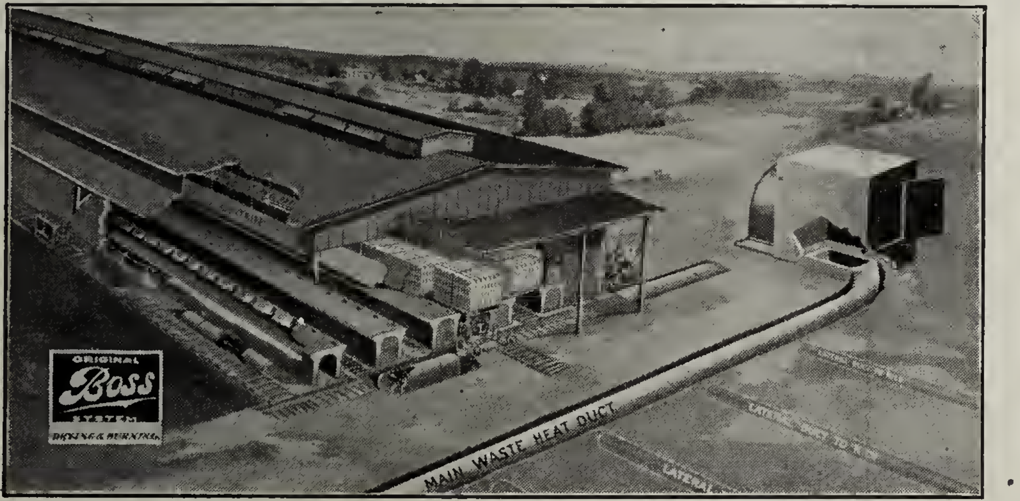

The Boss Ten-Hour Unit-Control Waste Heat Dryer.

**Mr. Brickmaker:**

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

**NO CLAY TOO TENDER.**

Ask us to show you how we do it.

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**Elkhart, Indiana**

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**WRAPPED**

**TWISTED**
**SOLDERED**

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

**The WEBB WIRE WORKS, New Brunswick, N. J.**

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**Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.**

## FOR SALE

FOR SALE.

Soft mud brick plant, 30,000 capacity. Only plant in city of 25,000. Address,

BROMILAW BRICK CO.,
4 3 cm Alexandria, Va.

FOR SALE.

Old established brick yard. Good reasons for selling. This is a proposition that will bear investigation.

SCHALLER-YOUNG LUMBER CO.,
3 3 cm Edgerton, Wis.

FOR SALE.

We offer two Standard paving brick rattlers which will be sold for $75.00 each, or one-half regular price. New and first-class in every respect. Address

THE PORTSMOUTH ENGINE CO.,
3 3 cm Portsmouth, Ohio.

BANKRUPT SALE.

A five-kiln, modern brick plant in Ranson, near Charleston, Jefferson county, West Virginia, with 15 acres of land. This property will be offered for sale at auction within the next 60 days. Watch for large advertisement later.

H. V. SHEETZ, Trustee,
4 1 cm Charleston, W. Va.

FOR SALE.

Cheap for cash. Machinery manufactured by American Clay Machinery Co. In No. 1 condition.

| | |
|---|---|
| 1—No. 51 pug mill | $200.00 |
| 1—Eagle double mold repress | 175.00 |
| 1—No. 6 Daisy side cut brick table | 20.00 |

B. H. REED & BROS.,
4 1 c Hightstown, N. J.

FOR SALE AT A GREAT BARGAIN.

A complete brick plant, the only one in a town of 1,000. Galesville is one of the best towns in Wisconsin, and is surrounded by the largest and best farming country in the state. Four acres of land go with it; plant is in good running order, and will be sold cheap. Good reason for selling. Address,

TOLLEF JENSEN,
4 3 cm Galesville, Wis.

FOR SALE.

170 roller-bearing, double-deck dryer cars. Never been used. Write for particulars and cuts.

MINNESOTA BRICK & TILE CO.,
3 3 c Millville, Minn.

FOR SALE OR LEASE.

Fully equipped stiff mud brick plant; two down-draft kilns. Demand for output. Brick $12.00 per M at yard. Address,

BROGHAMER & PITMAN,
4 1 dm Chadron, Neb.

FOR SALE.

First-class brick plant. Cost $30,000. Will sell for one-fifth cost. Part cash; will carry balance. If interested, write for information. Address,

G. H. WENNER,
4 1 cm Minden, Neb.

FOR SALE.

133 Standard 24-in. gauge rack soft mud brick dryer cars. These cars are of the best make and are in fine condition. Will be sold very cheap, as we do not make soft mud brick.

TERRE HAUTE VIT. BRICK CO.,
4 1 d Terre Haute, Ind.

ATTENTION, MR. BRICKMAKER.

In Cleveland, one of the greatest, if not the greatest, industrial city in the world, is an unusual opportunity in a well equipped plant for the manufacture of a staple article with an increasing demand.

To the right man, who is capable of systematizing a manufacturing plant, we might sell enough stock to double the capacity to increase profits. This concern has no debts; but every dollar is for machinery and working capital. Address, Box 4—OHIO,
4 1 d Care Clay-Worker.

FOR SALE.

One Andrus four-mold dry press machine, which has made but 400,000 brick. Practically new. $1,200.00 on cars, Memphis.

One five-mold (can be changed to six) Hercules soft mud machine.

One six-mold Hercules soft mud machine. Overhauled and in good condition. $250.00 each, on cars, Memphis.

One No. 0 late model Thew steam shovel, which has been worked about six months and is in good condition. $2,300.00, on cars, Memphis. Address

SOUTH MEMPHIS BRICK CO.,
3 tf d Memphis, Tenn.

FOR SALE.

Large size Freese cutting table complete. Small air compressor of the Ingersoll-Rand make, and McGowan cold water pump. Address BOX 84,
3 2 d Portsmouth, Ohio.

FOR SALE.

One American Clay Machinery Co.'s special giant auger brick machine, used for making fire proofing. In workable condition. Address

BOX 1—J. A. R.,
1 tf d Care Clay-Worker.

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Ten acres clay land, two round kilns, three-story building 28x120 feet, pug mill and other machinery from J. D. Fate Co. In good northern Ohio town; railroad siding; good local market and labor supply. This would take $6,000 to duplicate, but will take less than tax value of $3,800 for quick sale. Fine chance for one who knows this line.

O. C. SAUM,
Williamson Bldg.,
4 1 cm Cleveland, Ohio.

## WANTED, ETC.

WANTED.

To hear from owner of good brick and tile plant for sale. State price. Address, D. F. BUSH,
4 3 cm Minneapolis, Minn.

WANTED.

Position as superintendent or burner on building or paving brick plant. Best of references. Address, Box 4—P. A.
4 2 c Care Clay-Worker.

WANTED.

Position as manager or superintendent of brick plant. Experienced in all leading clay lines. Employed, but desire change. Best references. Address

BOX 3—BRICKMAKER,
3 1 cm Care Clay-Worker.

WANTED.

I will pay the price for an experienced brick man to superintend a small soft mud brick plant, one who knows the Iron Quaker machine. Can mix clays and know the kind of sand for molds for best results in burning and in fact all about the business from clay bank to burned product. Must have the best of references and guarantee work. Address, C. E. CASTLE,
4 1 d Fairfield, Ill.

## Classified Advertisements—Continued.

WANTED.

A position by a competent superintendent. Might buy some stock in concern if we both prove satisfactory. Good references. Address,

Box 4—L. I. H.,
4 1 d Care Clay-Worker.

---

WANTED.

Position as manager or superintendent by an experienced man, thoroughly familiar with the manufacture of all kinds and makes of brick. Would like to get in communication with reliable firm. Address Box 4—J. B.,
4 1 d Care Clay-Worker.

---

WANTED.

Situation as superintendent of heavy porcelain plant; eight years with the Trenton Potteries Co. Am also first-class sanitary modeler. Could act as foreman of sanitary plant. Good references. Address,

WILLIAM ANDERSON,
63 Oak Lane,
4 2 cm Trenton, N. J.

---

WANTED.

Foreman for plant making common and face brick. One who is experienced with continuous kilns preferred. References and salary expected in first letter. Address, Box 4—J. H. T.,
4 1 d Care Clayworker.

---

WANTED.

Position by experienced German kiln builder, with twenty-five years' practical experience, thoroughly efficient in ceramics.

E. WURZ,
755 Broadway,
3 3 dm Albany, N. Y.

---

WANTED.

Fire clay company in northern Mexico wants experienced man; manufacture of fire brick and assay supplies from residual fire clay, to examine and report on capital needed to erect and operate plant, with possible view of taking charge of same. Address,

P. A. SCHAEFER,
Apartado 14, Parral,
4 1 cm Chih., Mexico.

---

WANTED.

Second-hand clay gathered. Must be in good condition. State price.

GRANT TILE MFG. CO.,
4 1 cm Grant, Mich.

---

OPPORTUNITY FOR REFRACTORY MANUFACTURERS, FINANCIERS, ETC.

First class specialist in the clay, gas and combustion line, for many years employed as chief engineer and manager in first class fire brick manufactory, with constructing and building departments, handling all industrial firing installations; experienced in the gas, coke, iron, steel, chemical, etc., industries; extensive experience in the manufacture of all high grade refractory material, modern smokeless heating with all fuel for different purposes; have own improvements, new ideas and applications for different patents, wishes employment as manager or chief engineer, or connection with manufacturers, financiers, etc., to install or expand a present department or company for constructing and building of all correct modern firing for refractory manufacture. Address, Box 4—E. B.,
4 1 cm Care Clay-Worker.

(Continued on next page.)

Designing
Constructing
Operating

Producer Gas-Fired
Continuous Kilns and Dryers
Cost and Efficiency Systems

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CLAYWORKING ENGINEER

Resident Address
2803 N. KING'S HIGHWAY
St. Louis

Specializing in
HIGH GRADE FACE BRICK
VITRIFIED PAVERS
and
HOLLOW WARE

Special Arrangement for "MONTHLY" Readers.

**No Reason to Worry**
About that Accident or Illness
Which Might Happen---If You Hold One of These POLICIES.

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| $4.00 Yearly<br>No Dues. No Assessments. | $6.00 Yearly<br>No Dues. No Assessments. | $10.00 Yearly<br>No Dues. No Assessments. |
| Loss of life.....$1,500.00 | Loss of life.....$2,500.00 | Loss of life.....$5,000.00 |
| Loss of both eyes, hands or feet.. 1,500.00 | Loss of both eyes, hands or feet.. 1,250.00 | Loss of both eyes, hands or feet.. 2,500.00 |
| Loss of one hand or one foot.... 375.00 | Loss of one hand or one foot.... 750.00 | Loss of one hand or one foot.... 1,250.00 |
| Loss of one eye.. 150.00 | Loss of one eye.. 250.00 | Loss of one eye.. 500.00 |
| $10.00 Weekly Accident Benefit. | $15.00 Weekly Accident Benefit. | $25.00 Weekly Accident Benefit. |
| $10.00 Weekly Sick Benefit. | $15.00 Weekly Sick Benefit. | $25.00 Weekly Sick Benefit. |
| $25.00 Emergency Relief. | $50.00 Emergency Relief. | $100.00 Emergency Relief. |

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UTICA. N. Y.

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All sizes and gauges for handling different materials.

Special Buckets made to order.

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17th St. and Western Ave.
CHICAGO, ILL.
NEW YORK: Fulton Bldg.
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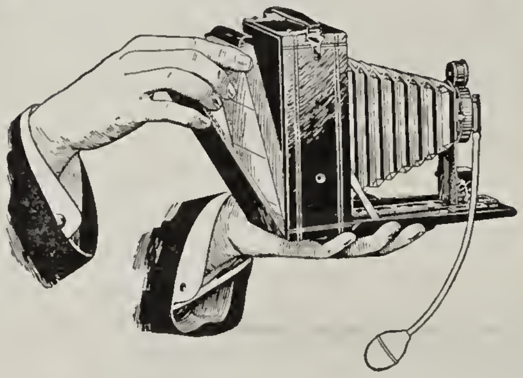
Open back—drop in pack—close back—that's all you do to load a



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The smallest, the lightest, the easiest to load and operate of all cameras—and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it to-day.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

**Rochester Optical Division**

Eastman Kodak Co., Rochester, N.Y.

# MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**

MINERS AND GRINDERS.

## FOR SALE.

Fine Fire Brick Property and Plant at Half Price.

Opportunity knocks at every man's door once. If you want to own a fine Fire Brick Plant making high grade fire brick and flashed face brick, here is YOUR opportunity.

For reasons good and sufficient when all the facts are known, this fine property is offered at less than half its real present value, and it will greatly increase in value as the property is further developed.

The property embraces 900 acres of fire clay, with necessary equipment for mining same. It has many desirable features, including a 30-inch vein of coal of good quality, and good railroad facilities, one line running through the center of the tract.

The clay plant consists of a three-story factory and an equipment of machinery for making fire brick and face brick which will be described in detail to anyone who is interested. There is also on the premises a two-room office building and a boarding house with accommodations for twenty men.

An analysis of the fire clay shows that it is equal to the famous St. Louis Cheltenham fire clay.

The title is clear and it is in every way a most desirable proposition. For analysis of clay and other particulars, address

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Care The Clay-Worker.

BARGAIN LIST OF SECOND-HAND MACHINERY, REPAIRED AND READY FOR SHIPMENT.

1 150-H.P. Non-Condensing Steam Engine.
2 6-H.-P. Upright A B Fan Engines.
15 12 to 15-H.P. Various Makes, Slide Valve Steam Engines.
10 15 to 35-H.P. Various Makes, Gas Engines.
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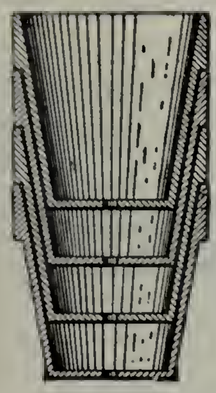
2 36x15 A B Ventilating Fans.
1 24x12 Pressure Blower.
1 No. 7 Sturtevant Blower.
2 C. & A. Potts Soft Mud Brick Machines.
1 Ross-Keller Four-Mould Dry Press Brick Machine.
1 Penfield Six-Mould Dry Press Brick Machine.
1 Raymond Automatic Cutter.
1 Hummer, Jr., Fates Brick & Tile Machine, with Full Set of building Block Dies.
1 100,000 Arbuckle Horizontal Pug Mill.
1 100,000 Michigan Horizontal Pug Mill.
2 Second-hand Rust Clay Feeders.
1 20,000 Kells Brick Machine and Cutter.
1 25,000 Disintegrator.
1 Bechtel's Automatic Side Cutter.
1 C. & A. Potts Disintegrator, good, condition

NEW MACHINERY AT SPECIAL PRICES.

1 100,000 Stiff Mud Brick Machine.
1 30,000 Stiff Mud Brick Machine.
1 20,000 Stiff Mud Brick Machine.
1 25,000 Disintegrator.
1 50,000 Disintegrator.
1 100,000 Disintegrator.
400 New Brick and Tile Barrows.
10 New Spring Trucks Complete.
2 Bechtel's Automatic End Cut Brick Cutters.
1 Iron Frame Winding Drum.
1 Wood Frame Winding Drum.
1 10-foot Clay Elevator.
Above machinery offered subject to prior sale at reduced prices.

**MARION MACHINE, FOUNDRY & SUPPLY CO.**
**Box 156 Marion, Indiana**

Mention THE CLAY-WORKER
When writing to Advertisers,
Mention THE CLAY-WORKER



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No expert workmen required.
Capacity in 10 hours:
6,000 two-inch Pots; 3,500 five-inch Pots;
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A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

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**T. A. RANDALL & CO.** (Inc.) **Indianapolis, Ind.**

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**PITTSBURGH, PA.**

Builders of
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Dry and Wet
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Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

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**Stephen Girard Bldg.**
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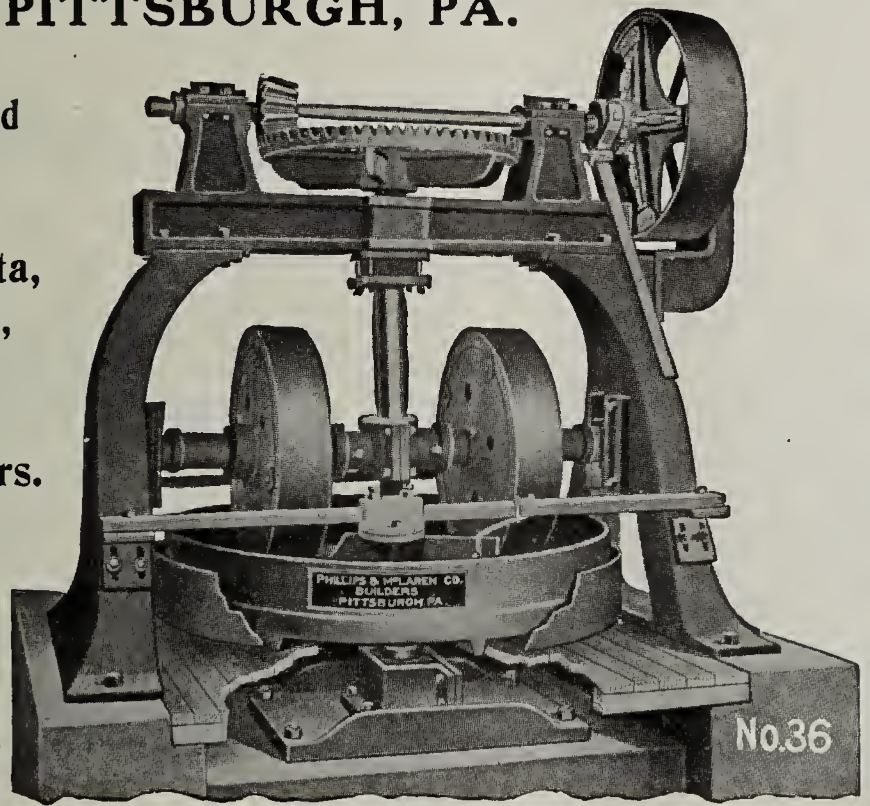

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RUTGERS COLLEGE,
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Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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W. H. S. DEMAREST, D. D.

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For Mortar Cement and Brick.

**BROWN, BLACK, RED AND BUFF.**

Strongest and Most Durable.

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EASTON, PA., U. S. A.

Correspondence solicited.

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Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brickmakers' Use.**

ECLIPSE MORTAR COLORS,

Red, Brown, Buff, Black.

YOU HAVE KNOWN FOR YEARS THAT

**RICKETSON'S MORTAR COLORS**

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

**Why Not Insist on Having Them?**

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**Red, Brown, Buff, Purple and Black.**

**RICKETSON MINERAL PAINT WORKS**
MILWAUKEE, WIS.

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Consulting, Designing & Constructing
**Engineer and Patent Attorney**
To the Manufacturers of
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**WILLIAM N. MOORE**
Patent Attorney
Loan and Trust Building
WASHINGTON, D. C.

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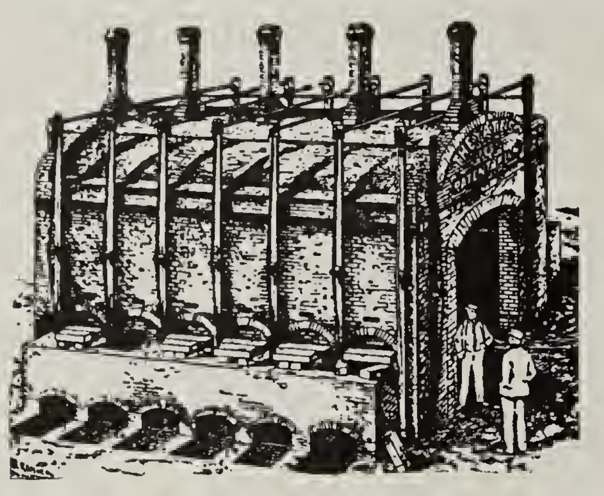
ESTABLISHED 25 YEARS



**The Yates Patent Down-Draft Kiln
Also Continuous Down-Draft.**

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

**ALFRED YATES,**
**SHAWMUT, PA.**

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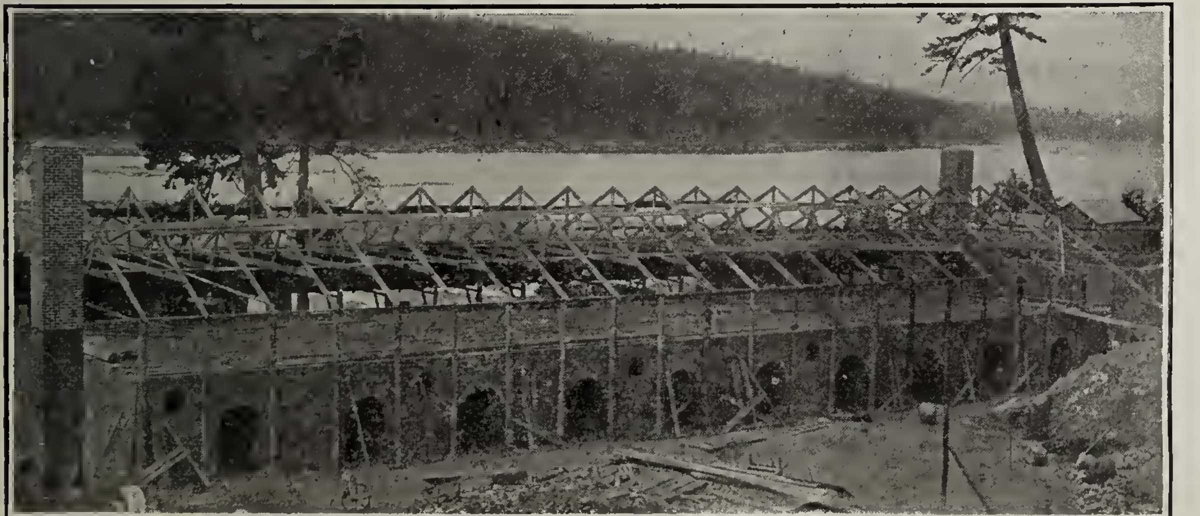

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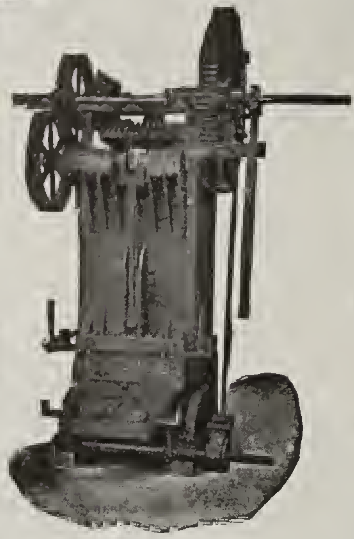

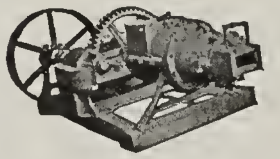

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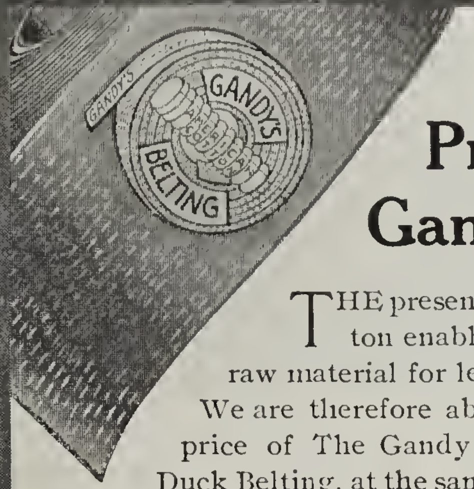

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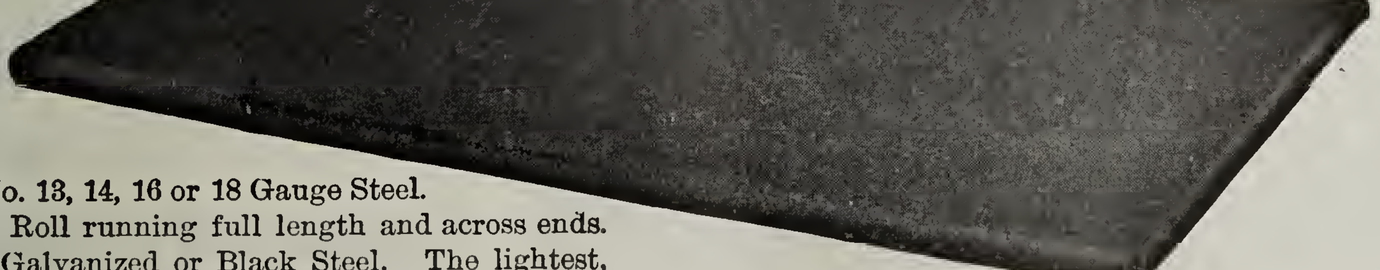

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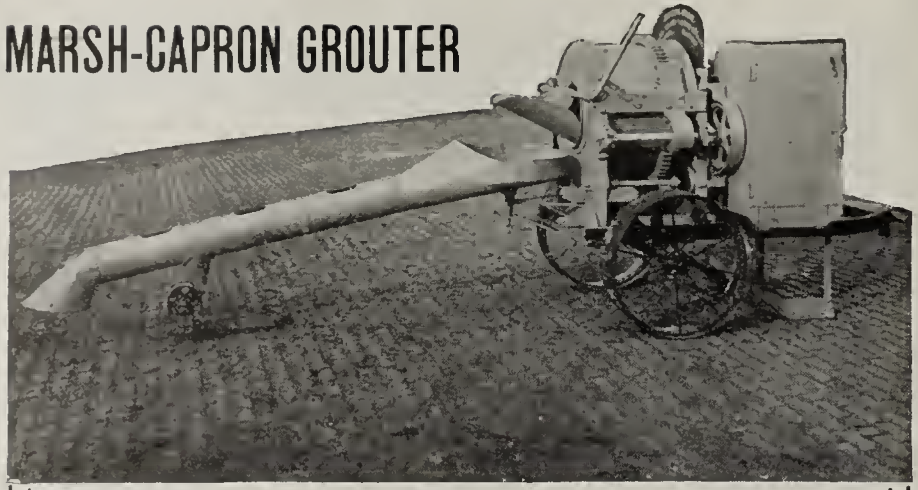

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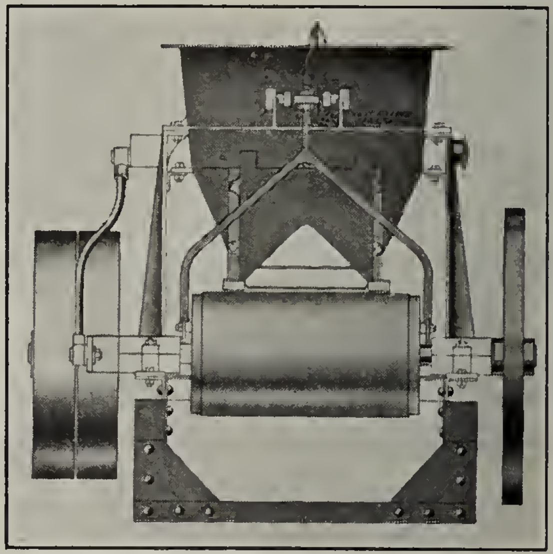

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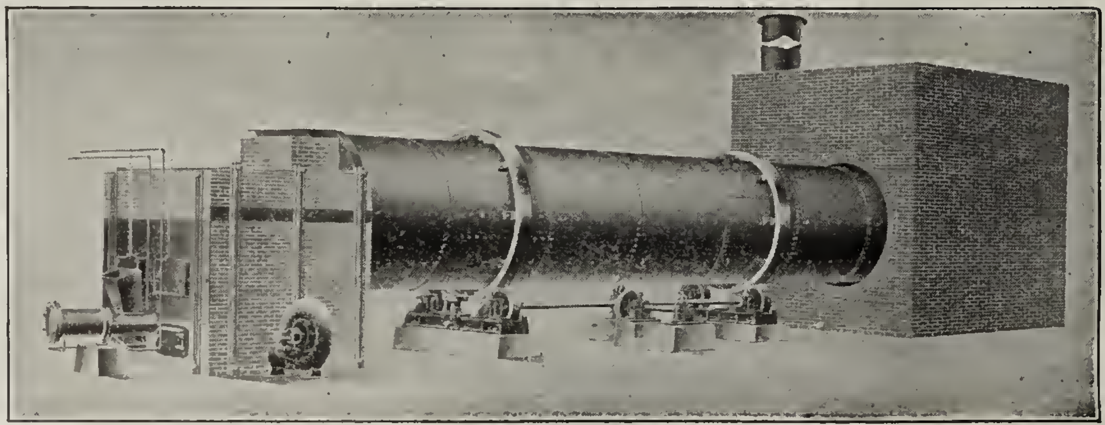

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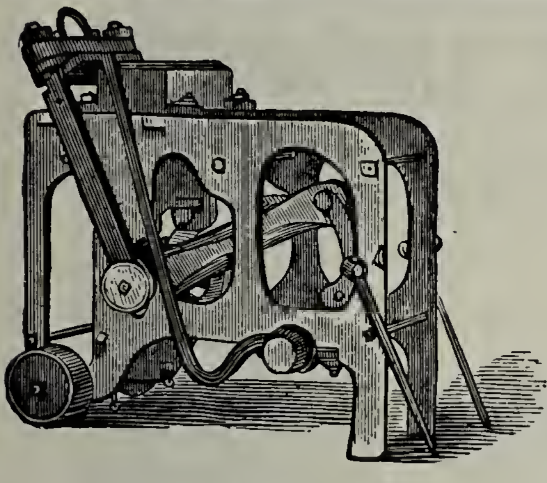

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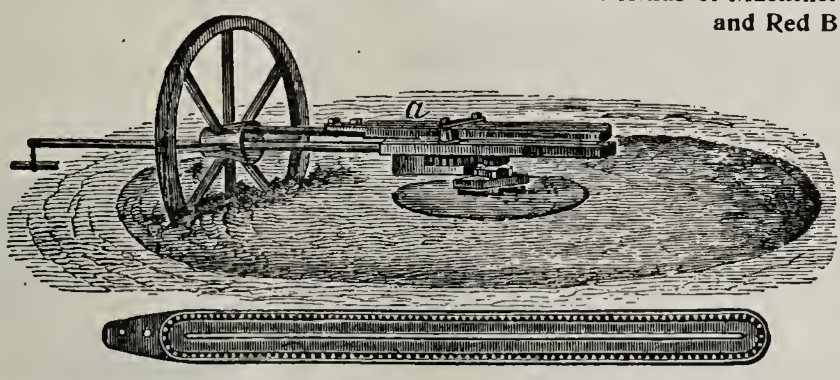

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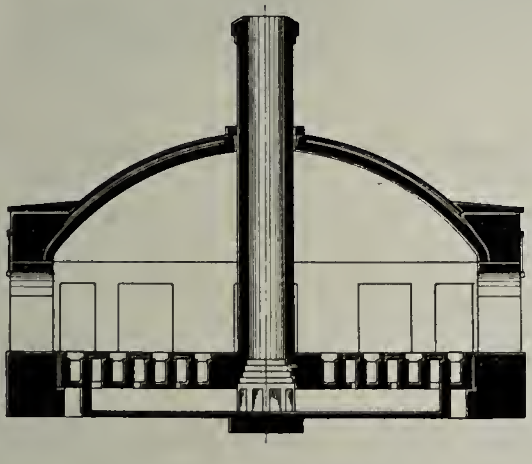

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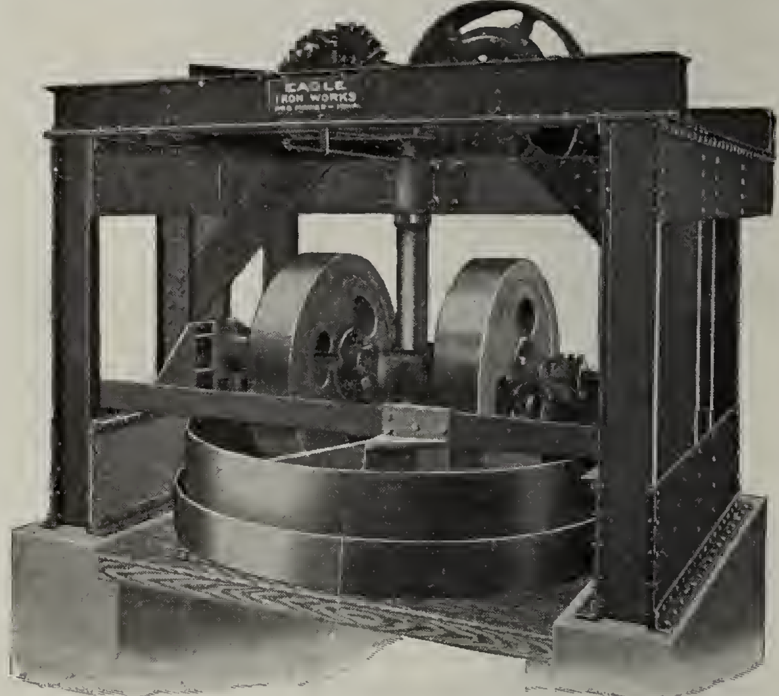

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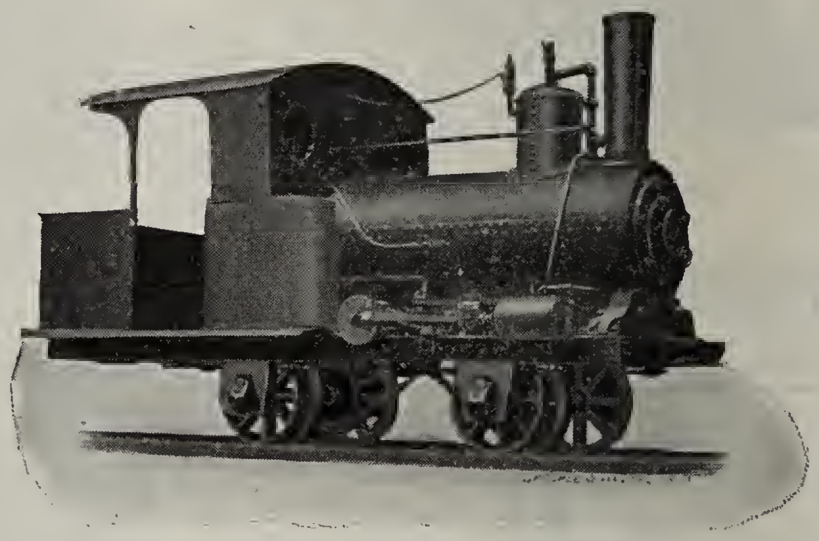

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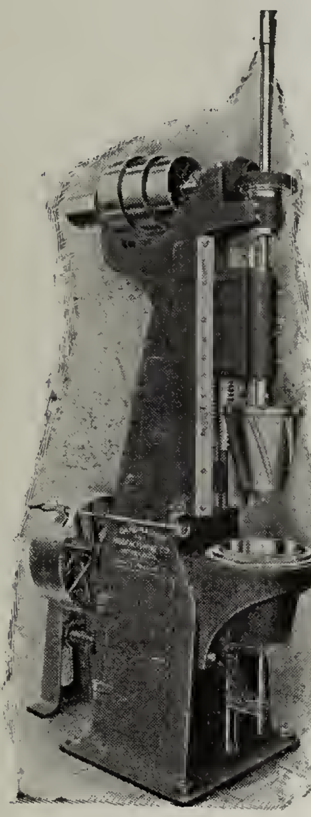

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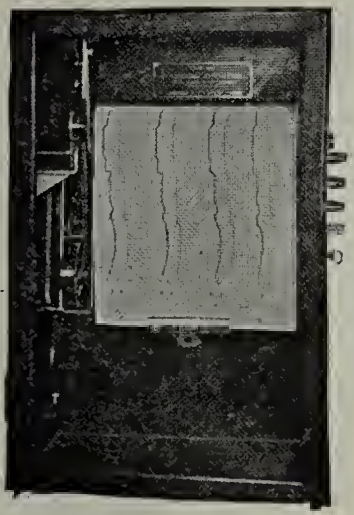

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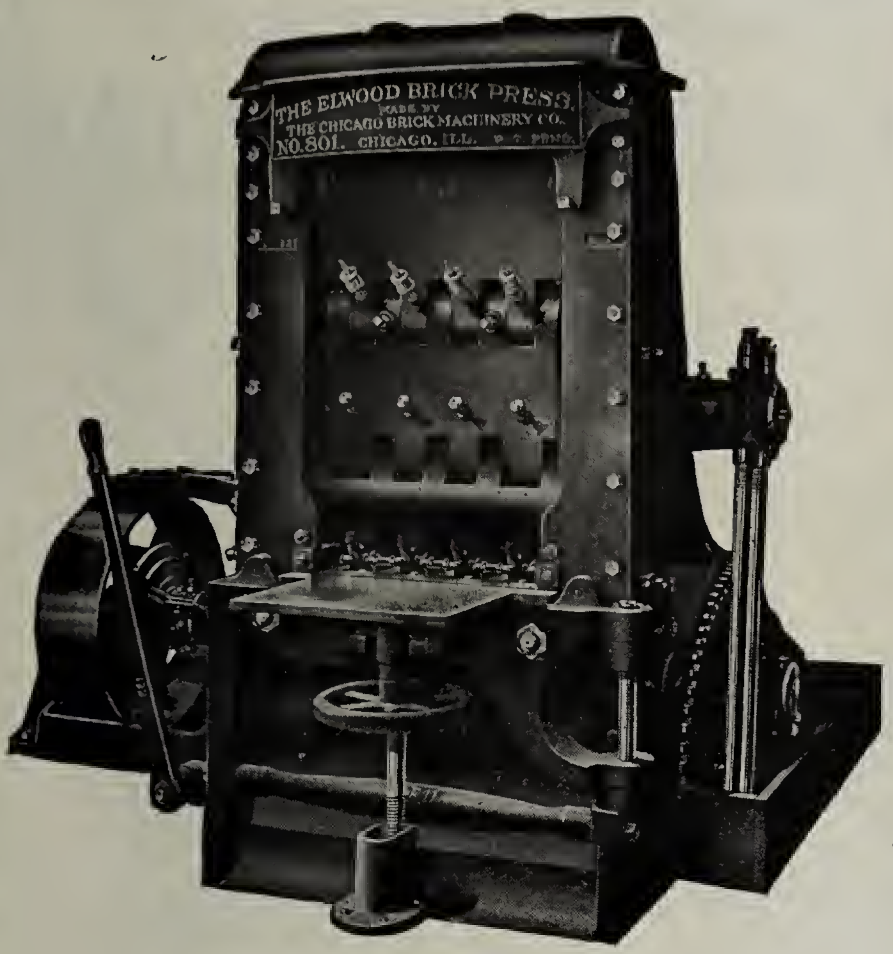

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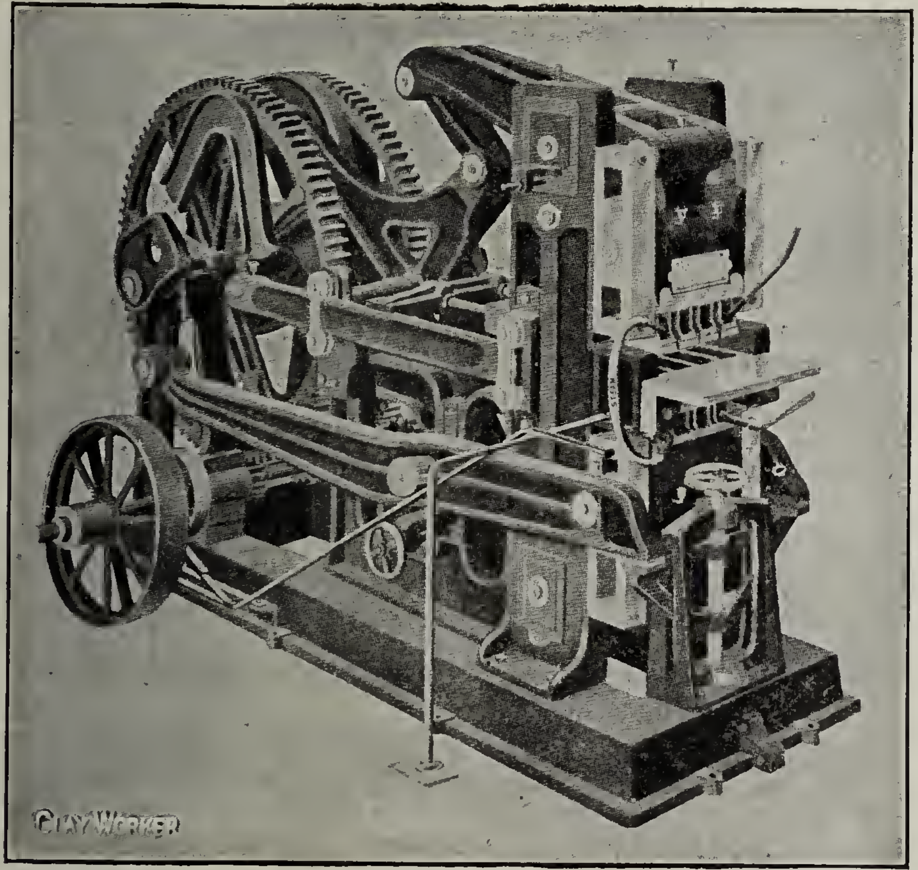

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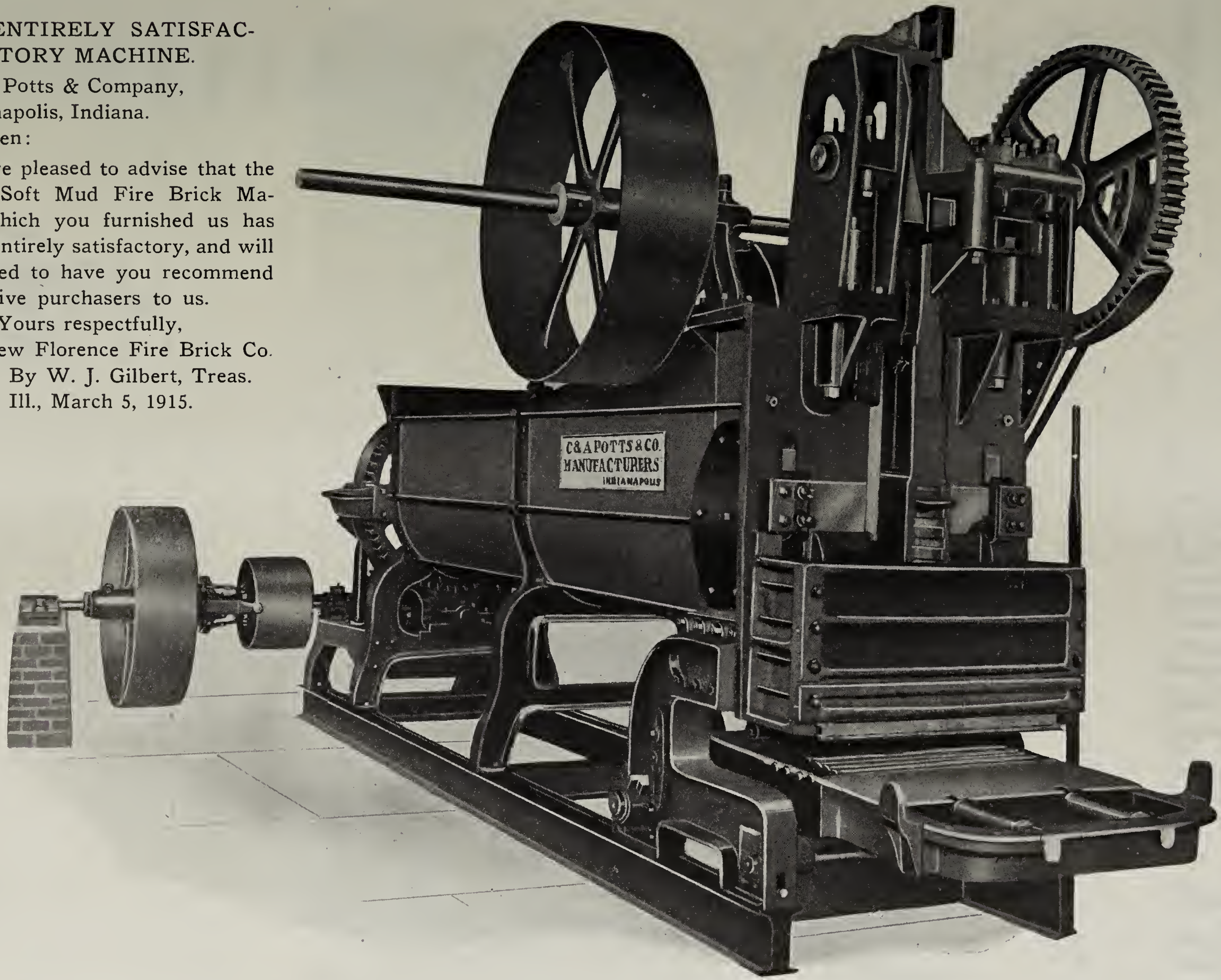
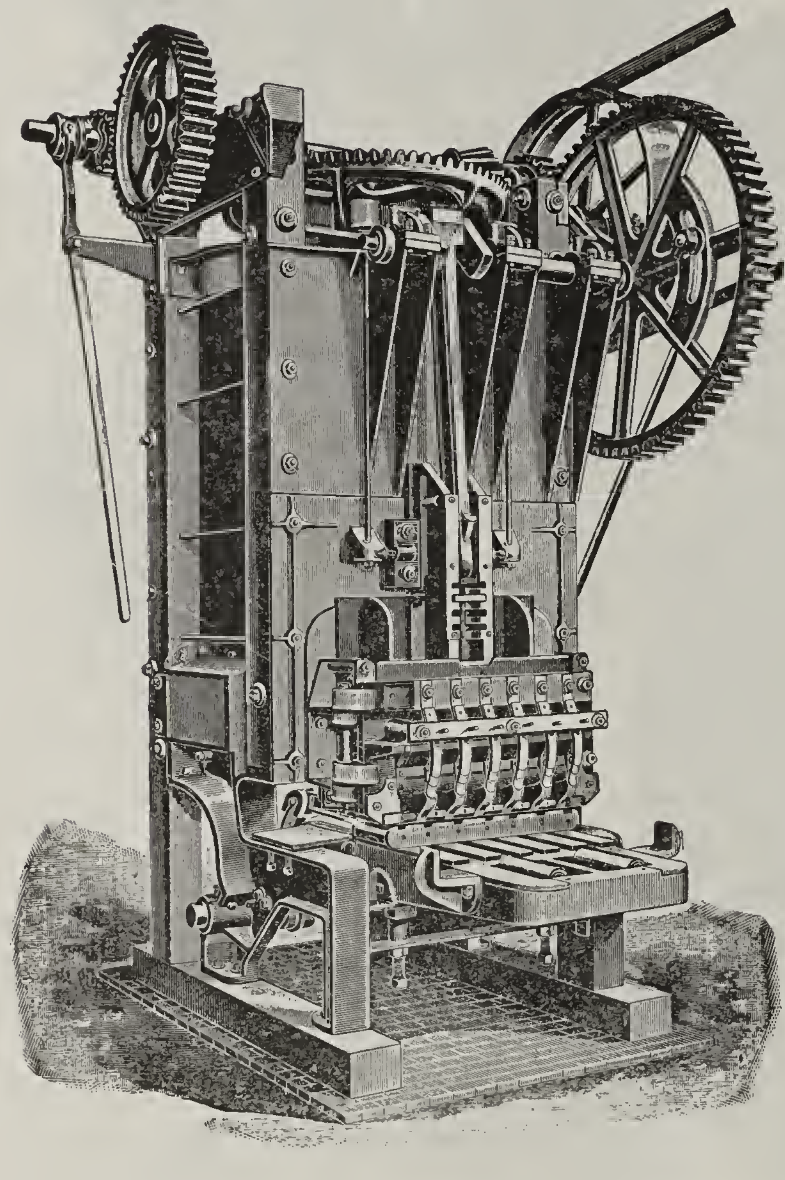


# "New Haven" Brick Machines



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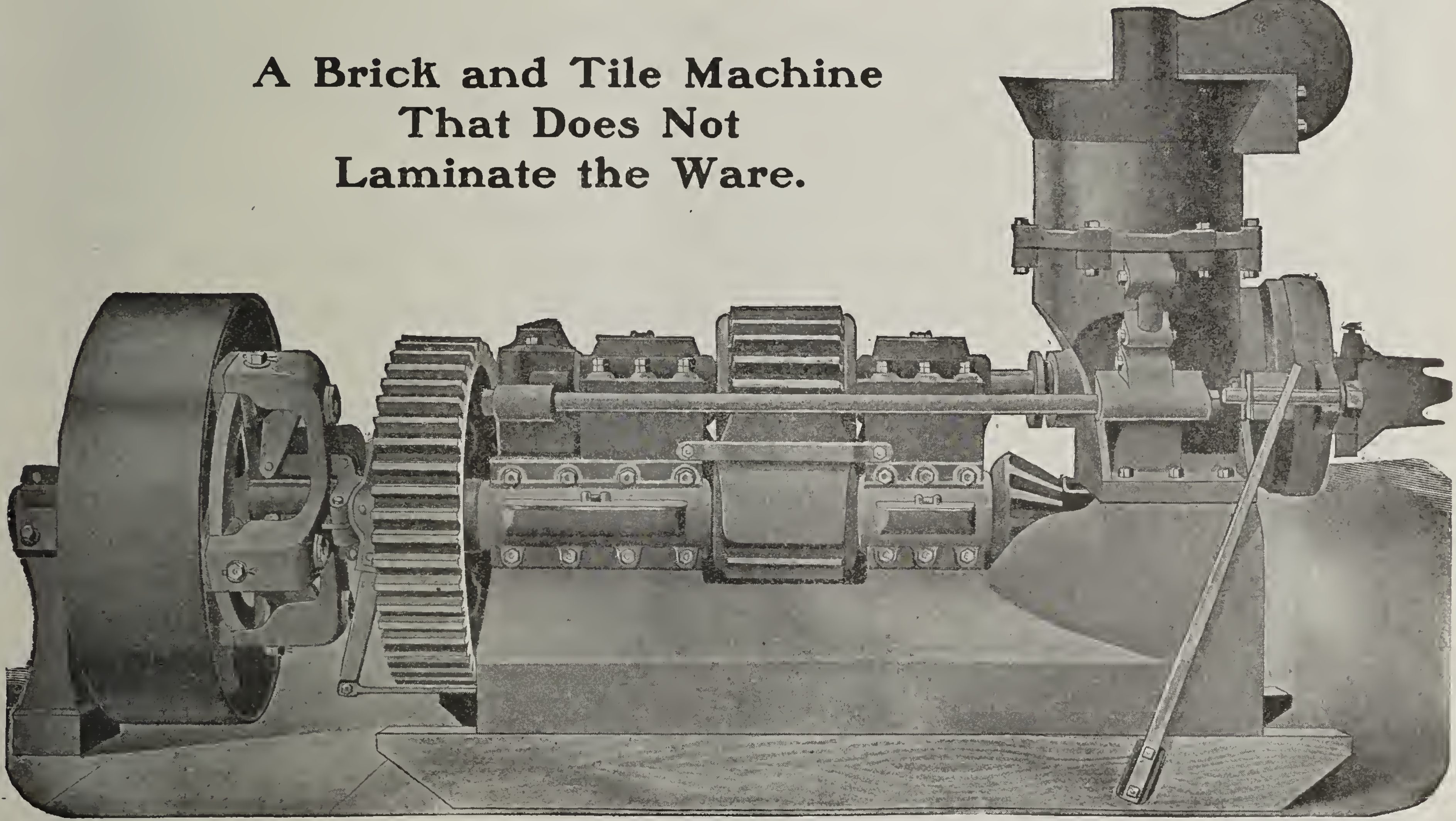
Laminate the Ware.



The Big Wonder Brick and Tile Machine

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

*Write for Catalog and Prices.*

## THE WALLACE MFG. CO.

**FRANKFORT, IND.**

# LET'S TEAR DOWN THE FENCE:

Between the community of interests making and selling fire resistive building materials and eighty per cent of the residence building of America there is a high wall.

This wall is formidable in appearance, but it is flimsy in construction and a 42 centimeter shell of TRUTH would blow it into smithereens.

No amount of pulling and hauling among the units of this great community of interests will destroy this wall. That simply gives the fellow on the other side of the wall, whose very life depends upon its existence, a chance to build it higher and re-enforce it.

But, if all of you would push together the wall would give 'way.

That wall is built up of prejudice, ignorance and misinformation. It's name is—Habit—the wasteful American habit of building to burn.

Eighty per cent of the money spent for residences in the United States is listed in the building report as "frame." This is good for the lumberman only. It is not good for the home owner or the renter, because it is neither safe nor economical. It particularly is not good for the brick, stone, tile, cement and metal man, because it is keeping you out of the greater part of your legitimate field.

The Society Advocating Fire Elimination is recruiting an army to tear down this wall of misrepresentation, In this army there are brick, cement, stone, tile, gypsum, metal and all other intersts having to do with SAFE building construction.

Will you join with us?

Let us tell you of our plan for local organization through which many communities are helping themselves to better building and better times.

SAFE
PROTECT YOUR HOME

**Society Advocating Fire Elimination**

**The S. A. F. E.**

**340 Leader-News Building CLEVELAND, OHIO**

# The Verdict–Guilty!

We have been accused, after having placed the Powell Patented Shale and Clay Planer on the market for over one year, of giving the Clayworking Industry, one of the greatest helps that it has ever had, the ARBUCKLE up-to-date line of Paving Block, Stiff Mud Brick and Hollow Ware Machinery, as well as supplies of all kinds for the clayworker, not being excepted.

The Patented Shale and Clay Planer reduces the pit gang like a German 42 centimeter gun would reduce a Belgium fort. That is, it leaves only one man who is necessary to operate the machine.

It also reduces the number of Dry Pans ½ to ⅔.

It saves all explosives.

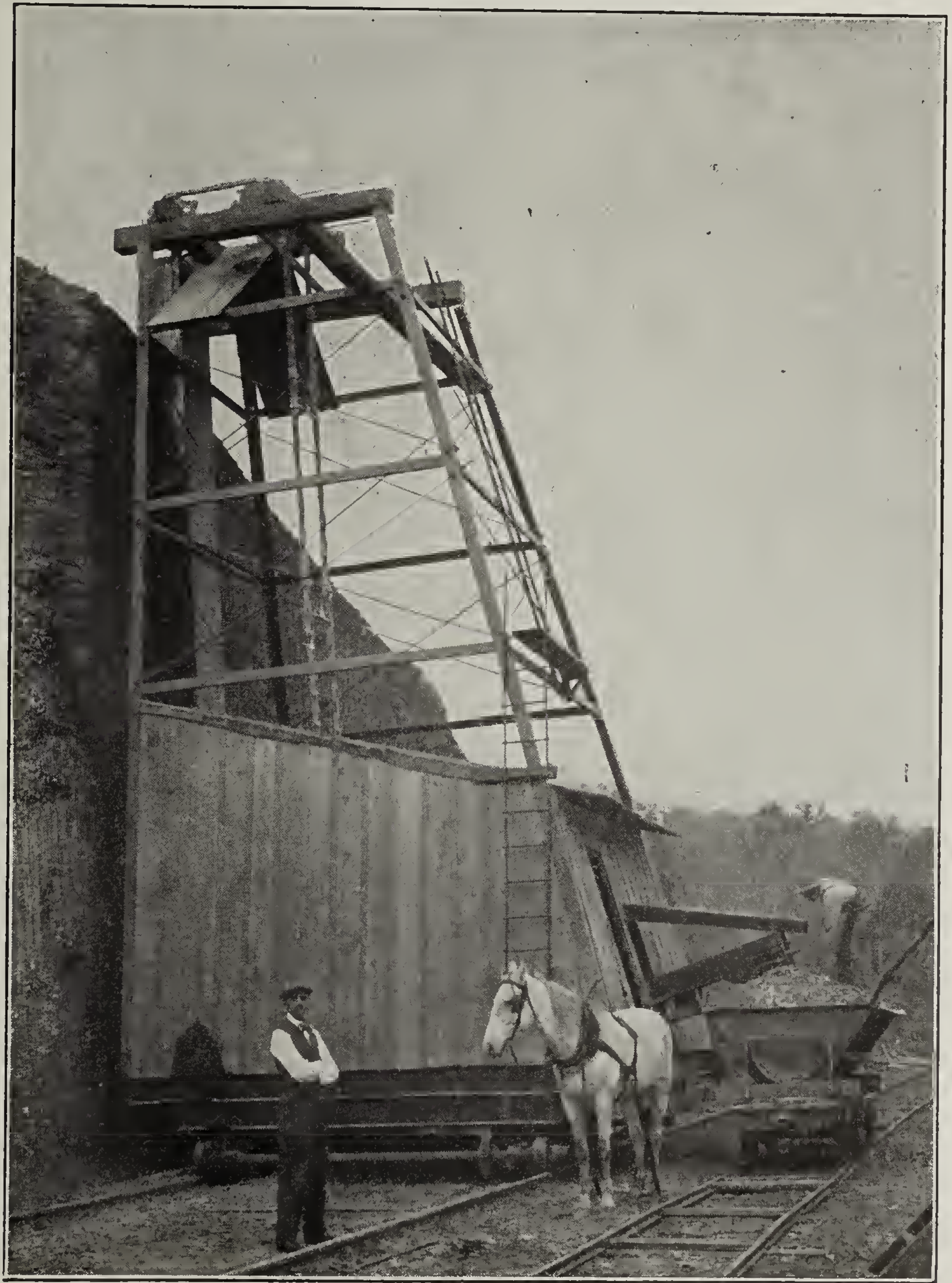
**Above all,** it gives a thorough mixture of the Bank face, cut up into fine pieces.

No Labor Troubles with the Shale and Clay Planer, which is ready to work at any season of the year.

Built in sizes to handle your proposition from a two-foot surface clay bank to a hard shale bank 100 feet high.

When writing state approximate height of bank and also composition of same.

**KNOW THE ARBUCKLE FIRST**



## ARBUCKLE & COMPANY

**Exclusive Manufacturers**

**RUSHVILLE, INDIANA = = U. S. A.**

Infringements will be promptly and vigorously prosecuted.

# The Marion Line

Every machine or device that bears the "Marion" name represents untiring labor and ceaseless research for correct and scientific design by competent engineers—the skill of capable machinists—the highest quality of material.

The completed product, therefore, is synonymous with "Efficiency," for each device or machine is built to eliminate waste in time, labor and raw material.

## The "Shear-Klean" Grate

This "Marion" Grate burns low-grade "clinkering" coal—slack and screenings—and does it so effectively a full day's run is assured without cleaning through the fire doors.

The fireman handles and controls his fires without the use of slice bar or poker.

The "Shear-Klean" Grate is a great fuel-saver, and every clayworker ought to have the "Shear-Klean" Grate Book that tells all about it.

## The "Marion" Winding Drum

These are of the self-contained friction type. One lever operates the friction pulley and the brake which keeps the car—loaded or unloaded—under perfect control of the operator.

There are several types and sizes of the "Marion" Winding Drum—each of which is described in the Marion Booklet.

## The "Marion" Rotary Soot Blower

This is a device to be permanently attached to the rear wall of your boiler—opposite the center of the flue space. It prolongs the life of the boiler—makes flue cleaning a pleasure instead of a drudge and absolutely keeps the flues free from soot.

The Marion Booklet tells how others have used this device to a profit.

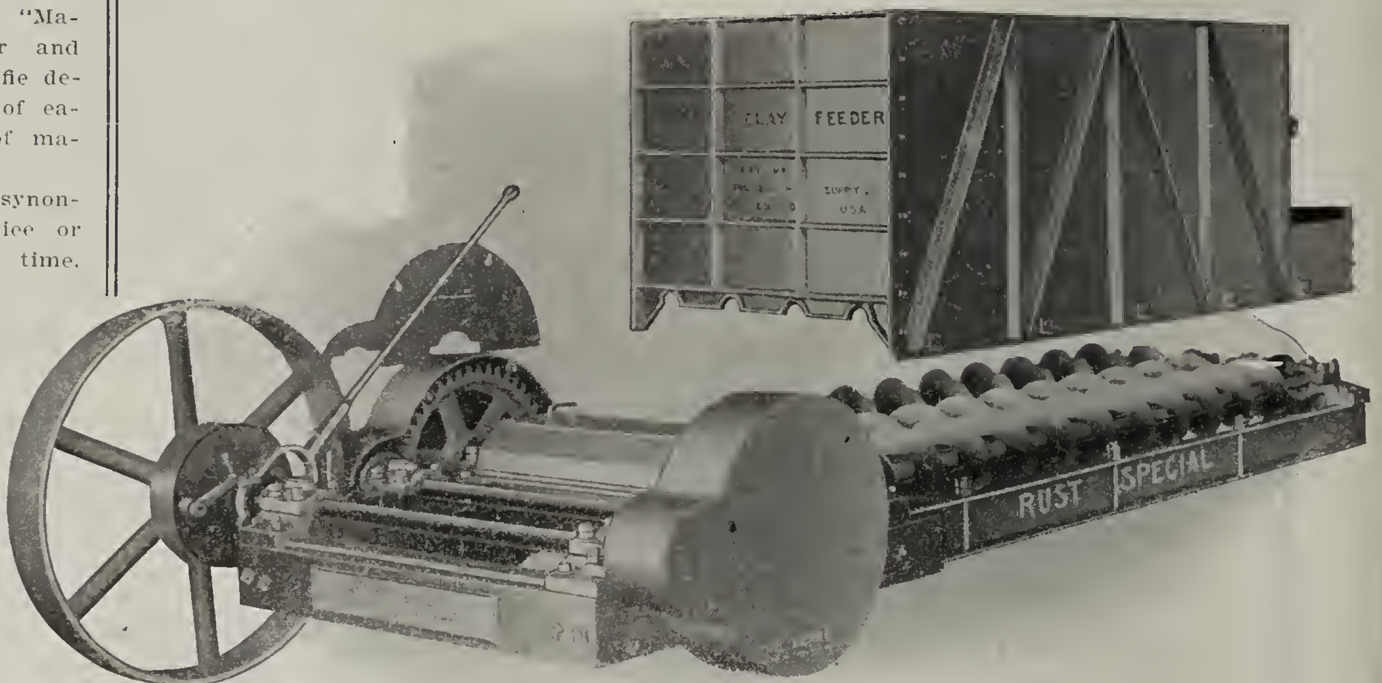
## The "Marion" Brick and Tile Machines

This line embraces six machines—each designed to give the maximum of efficiency at the minimum of cost. They are made with the upright puggers and with the square hoppers, and their capacity runs from 12,000 brick or 5,000 to 8,000 three-inch tile, to 100,000 brick per day of ten hours. The "Marion" Eli Booklet describes these machines.

## Other "Marion" Products

All the "Marion" products are described in the General Catalogue of the "Marion" Line—a copy of which is yours for the asking.

# The New Rust Special is a Big Producer



By taking all the dry pan production and feeding it evenly into the pug mill and as fast as is required to get full capacity—

By insuring even tempering of the clay—

By keeping the flow of clay through the die continuously—

By making the work of the off-bearers a uniform action, without skip or break—

The New Rust Special—the latest thing in these wonderful plant speeders—makes an uncertain plant a Big Producer.

## It Cuts Out the Labor of Two Men===

And then—in addition to this speed-up insurance and the improved product that comes with uniformity in feeding, there is the labor saving, for each Rust Special cuts out two men—or $1,350 per year in wages, if you pay this help $2.25 per day.

### Send for FREE Marion Book and Get the Facts

There is a Marion Book or Bulletin for every product that bears the Marion name and copies are FREE to all who wish them.

These Marion Books do not deal in generalities—they tell FACTS. Every statement of claim is backed up by PROOF—the evidence of satisfied clayworkers.

We have booklets as listed below. Send for the one you want.

- Rust Clay Feeders.
- Shear-Klean Grates.
- Rotary Soot Blowers.
- Brick and Tile Machines.
- Winding Drums.
- Atlas Car Movers.

The Marion Machine, Foundry and Supply Co.

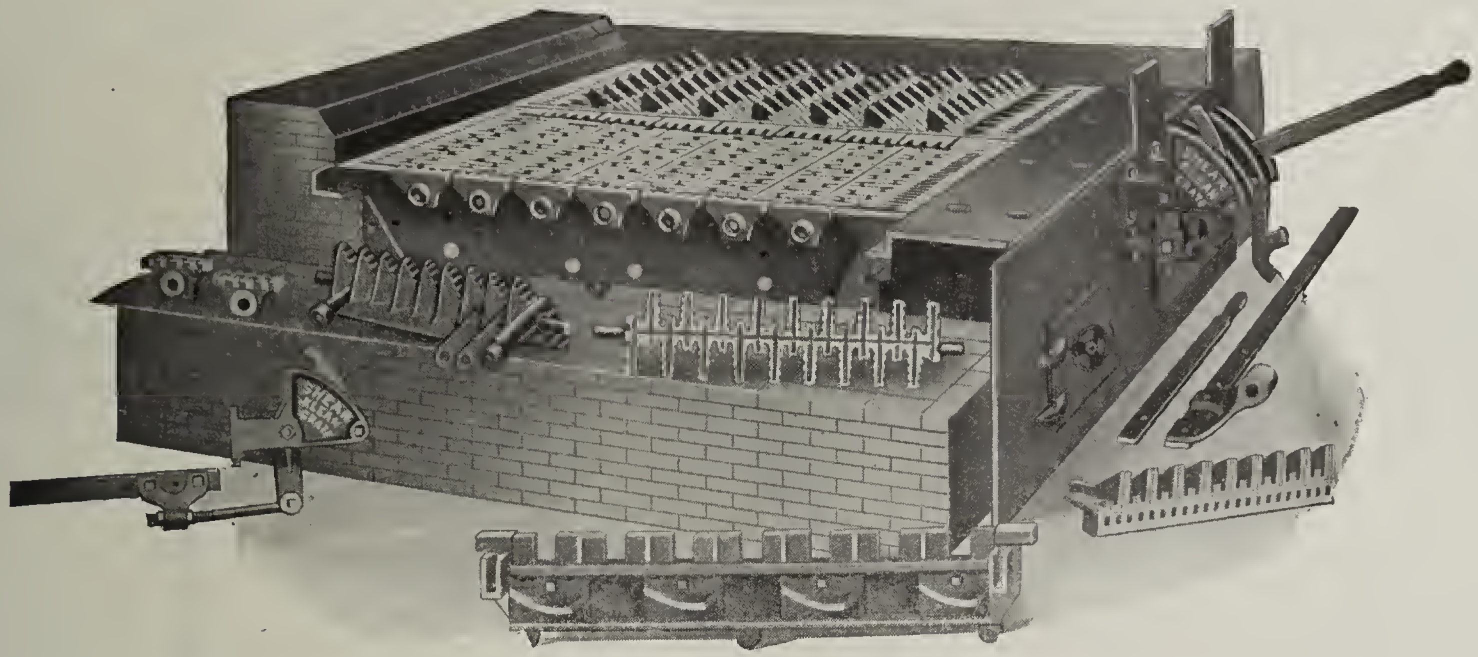
**Marion, Indiana**

Box 156

Mention The Clay-Worker.

# The "Shear Klean" Grate

## Saves Fuel---Saves Waste---Eliminates All Clinkers



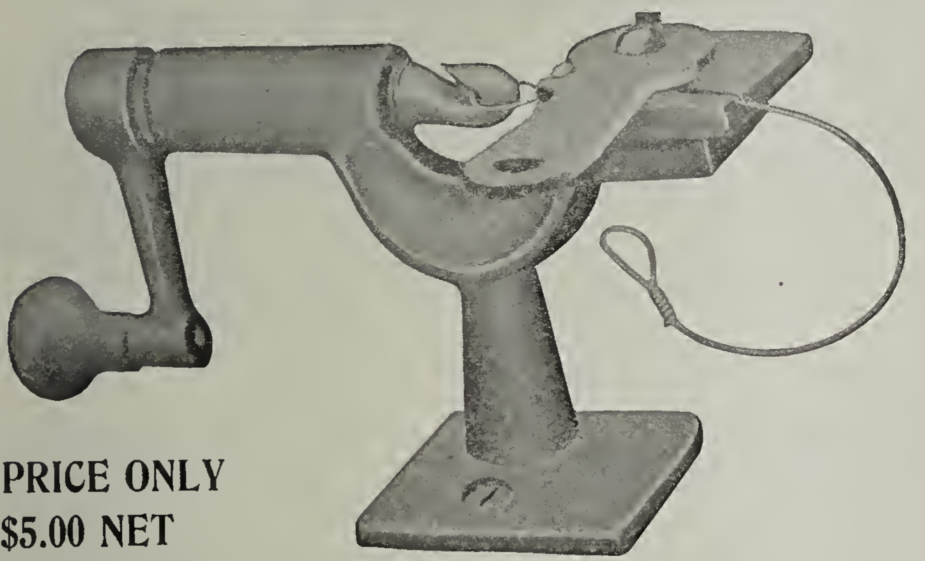
This grate is especially adapted for burning low-grade "clinkering" coal, especially slack or screenings—and it burns them so effectually that it makes them give a full day's run, without cleaning through the fire doors.

Its working principle is such that the fireman can handle and control his fires WITHOUT THE USE OF SLICE BAR OR POKER.

At plants using the SHEAR-KLEAN there is no inrush of cold air to chill the walls and fire-bed—interrupt the distillation of gases, and reduce the temperature of the furnace.

You know as well as we, that OPEN FIRE DOORS CAUSE LEAKY FLUES—producing smoke, waste heat, and lower steam pressure. The SHEAR-KLEAN prevents these wastes.

## You Need This Wire Twister Because You Can Not Get the Same Results Without It



**PRICE ONLY**
**$5.00 NET**

It twists both wires and the wire will break before the loop will pull out.

Heretofore we have confined the sale of our Wire Twister, as far as we could, to users of our Clayworking Machinery.

It has proven so handy, however, that we have determined to throw it unreservedly on the market.

Will ship anywhere on approval, charges prepaid,

Not only twists the wire better, making the loop stronger than when done by hand, but does it so quickly, it soon pays for itself in TIME alone. Place your order for one now.

## The Marion Rotary Soot Blower

### Prolongs Life of Your Boiler

We have so much confidence in the Marion Flue Blower we are willing to ship it anywhere on a 30-day Free Trial. If it fails to do all we claim for it, ship it back and we will refuud freight charges.

The Marion Flue Blower is a permanent fixture in the rear wall of the boiler opposite center of fluespace and by its use the life of a boiler is prolonged by keeping the soot from the tubes.

Soot, if permitted to remain on the tubes, precipitates acid, causing corrosion, and the accumulation of soot causes a great loss of fuel.

With the Marion Flue Blower the soot is blown in direction of the natural draft out through the chimney, cleaning the boiler while in commission, thereby avoiding strains which occur in old method of opening front of boiler, causing flues and seams to leak.

**Please send for our new 56-page book entitled "EFFICIENCY."**
**It will be worth reading. It is FREE.**

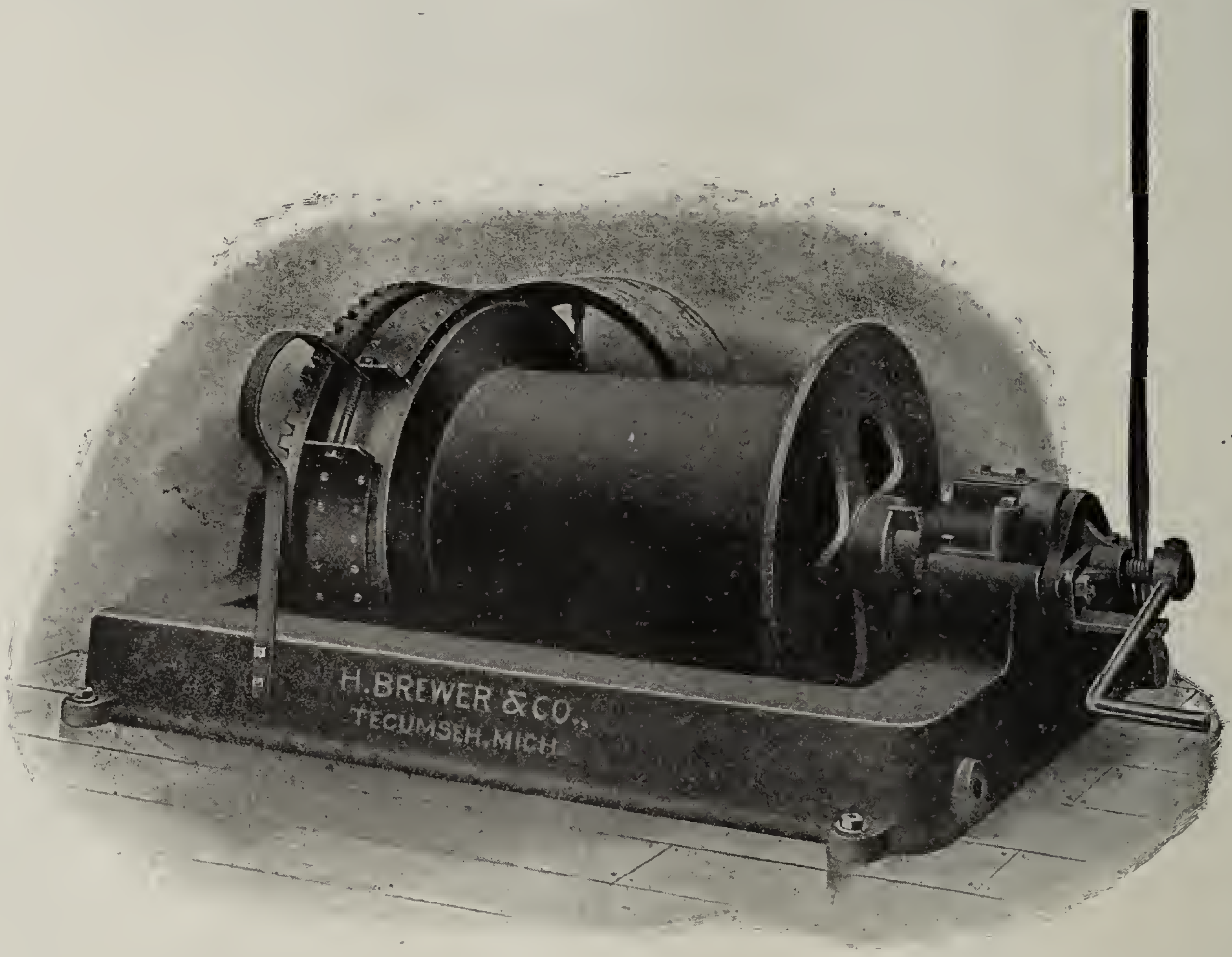
## Marion Machine, Foundry & Supply Co., Marion, Indiana

**Chicago Office, Monadnock Bldg.** **P. O. Box 156**

IF MARKED BREWER IT'S GOOD

# HOISTS

You can buy a Brewer Hoist without buying trouble with it. It will keep on hoisting without any coaxing. We have spur-geared hoists, bevel-geared hoists, spur-friction hoists and bevel-friction hoists. Large ones and small ones and all of them **good.**



## This is a Heavy Bevel=Geared Pattern

It is No. 28. It weighs 3,000 pounds. The drum is 20 in. diameter, 28 in. between flanges and the flanges are 30 in. diameter. The journals are self-oiling, the gears 4 in. face, the brake band 5 in. wide. Can be made right or left hand. Illustration above is left hand. It is enough of a hoist for the biggest plants, and we have smaller ones for the others.

**If you ask for our catalog you will get it**

**H. BREWER & COMPANY, Tecumseh, Mich.**

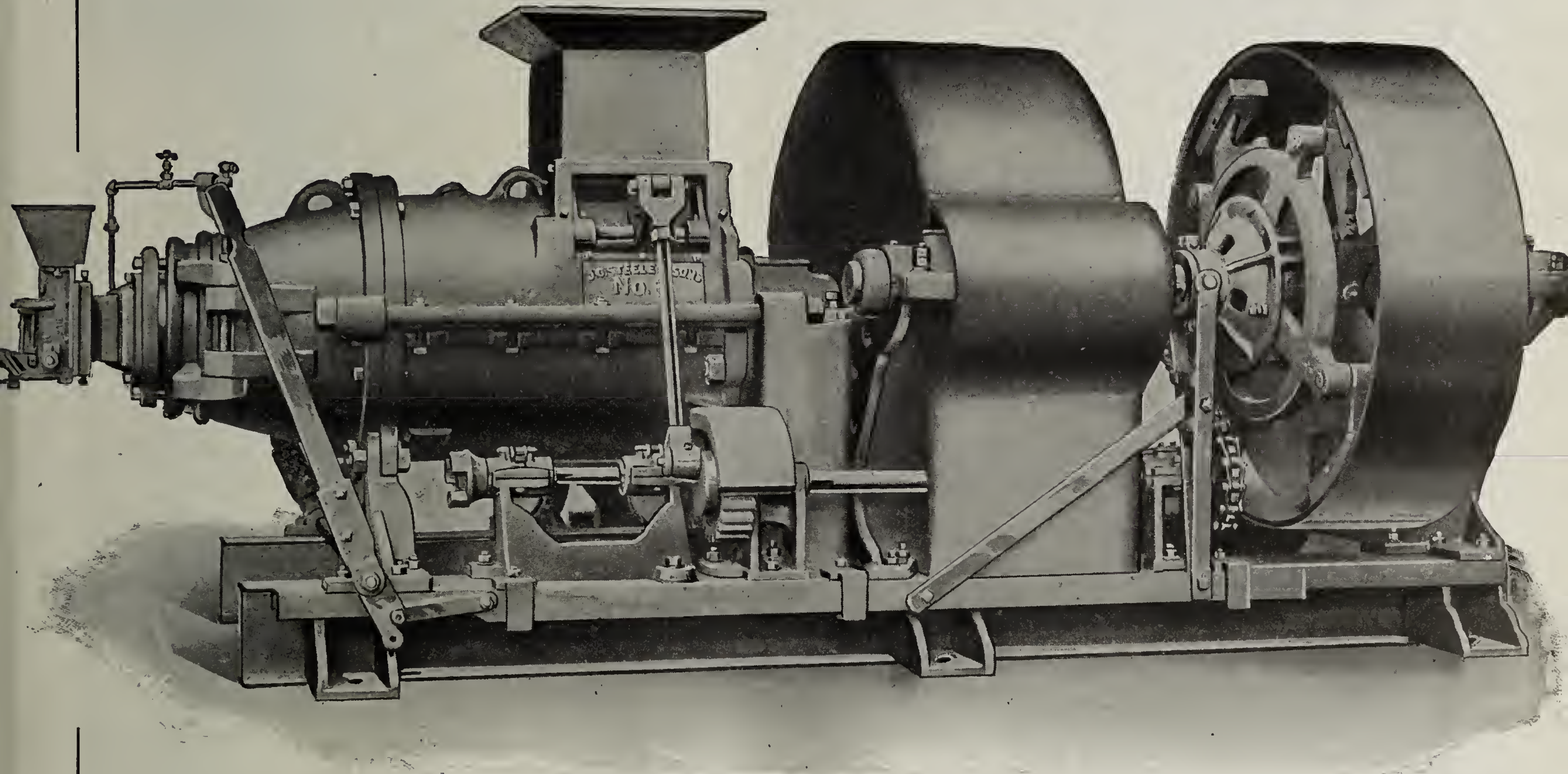
# THE STEELE CLAY MACHINERY

## Is the Result of Over Twenty-five Years of Team Work

The combined and continuous effort of our Organization in meeting the complex problems of working a great variety of material, from very short sandy clays to the most obstinate clays and shales, is producing most satisfactory results.

In many cases the superior quality of goods produced by our customers has caused the adoption of our machinery by competitors.

Experienced service and fair treatment is continually widening our field.



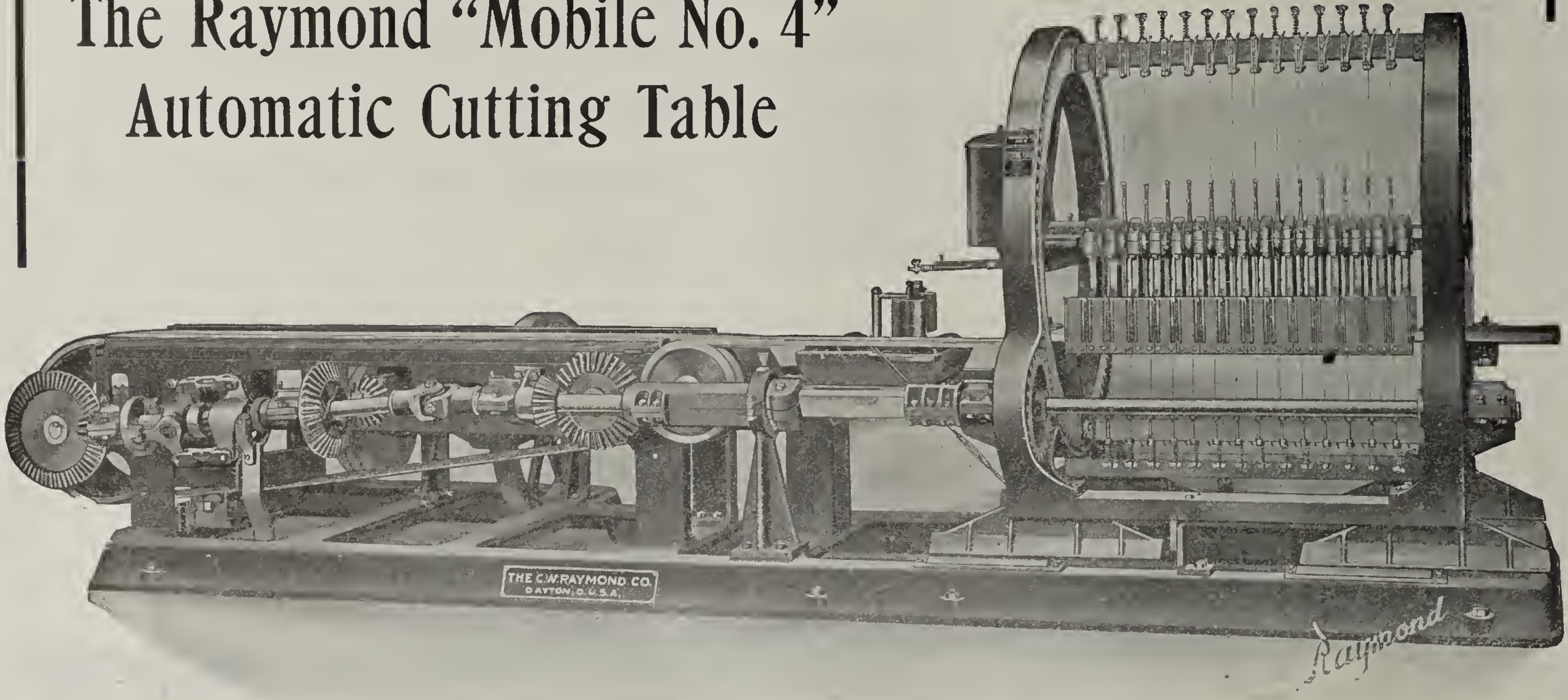
**J. C. STEELE & SONS**

STATESVILLE, N. C.

GEO. H. SMITH, KANSAS CITY, MO., Western Agent

# THE MASTER SURGEON

## The Raymond "Mobile No. 4" Automatic Cutting Table



### The Raymond "Mobile No. 4" Automatic Side Cutter

What we admire most in surgeons is their steady nerve, unerring judgment of making incisions, skill, and the confidence that the operation will be a success.

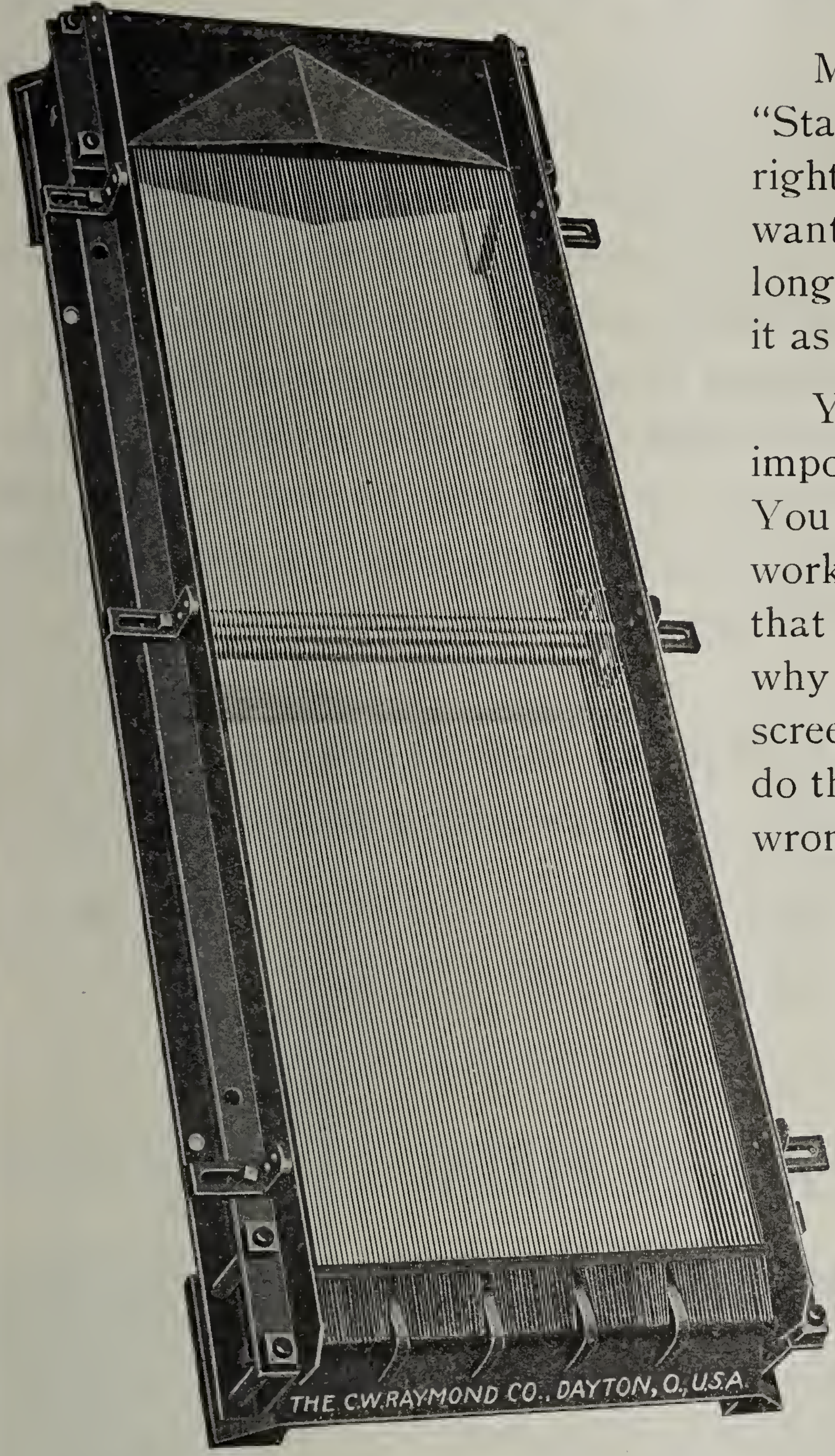
The Mobile No. 4 may rightly be called the "surgeon of the brick world" in that it also has those same qualities of a surgeon of the medical world. The steady nerve makes straight edged brick; the judgment of making incisions makes uniform sizes—all alike; skill, that it knows to the second when to make each new incision; and we have confidence that success will be achieved because of these other qualities possessed by the Mobile No. 4. Everything works towards the same end—perfect, even, straight brick. Write now for detailed information.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# A STAR FROM SCREENLAND


THE C.W.RAYMOND CO., DAYTON, O., U.S.A.

RAYMOND NO. 2 PIANO WIRE SCREEN

Movies are not the only ones who have "Stars from Screenland." We have a star right here, and you may have one if you want one. This star has held the public favor longer than any other, and bids fair to hold it as long as screens are used.

You know that good screening plays an important part in the quality of your ware. You know that faulty screens cause the overworking of one of your machines, so, in order that you may be assured of the best product, why not get the best screen, not just a good screen. You canot expect your machines to do their part properly if you start the clay wrong. Every unit in your plant must do its share or you won't get results.

Our No. 2 Piano Wire Screen is just the one you've been looking for. It won't hurt to examine it, will it?

Costly repairs may be eliminated by using our screens, and we have a screen for every kind of clay that has been found so far. Examine ours before you buy any kind of a screen.

Screen No. 2 is made solid and free from vibration of the frame. There are no cross wires to clog, thus giving a free flow of clay into the machine. Any desired mesh can be obtained. It has 10 square feet of screening surface, being 24 in. x 60 in. Best Piano Wire used. We would be pleased to receive your inquiry.

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# CAN YOU BEAT IT?

No, not in this century or the next. When a dryer is constructed of the best heat radiating materials, built so that one tunnel can be used alone, or that all can be used together, with the same result—perfectly dried ware (you notice we said "dried") and when it can and always will, use the same fuel for two thousand brick as the others use for a thousand—how can you beat it? Not in Material, Workmanship, Fuel Consumption or Price.

The idea is right and the Dryer is **all** right. We would appreciate your asking for the names of brick men who use our Dryers so you can get their candid opinion. You can't get one any too soon for your benefit. Your success is our success, so don't delay, but write today.

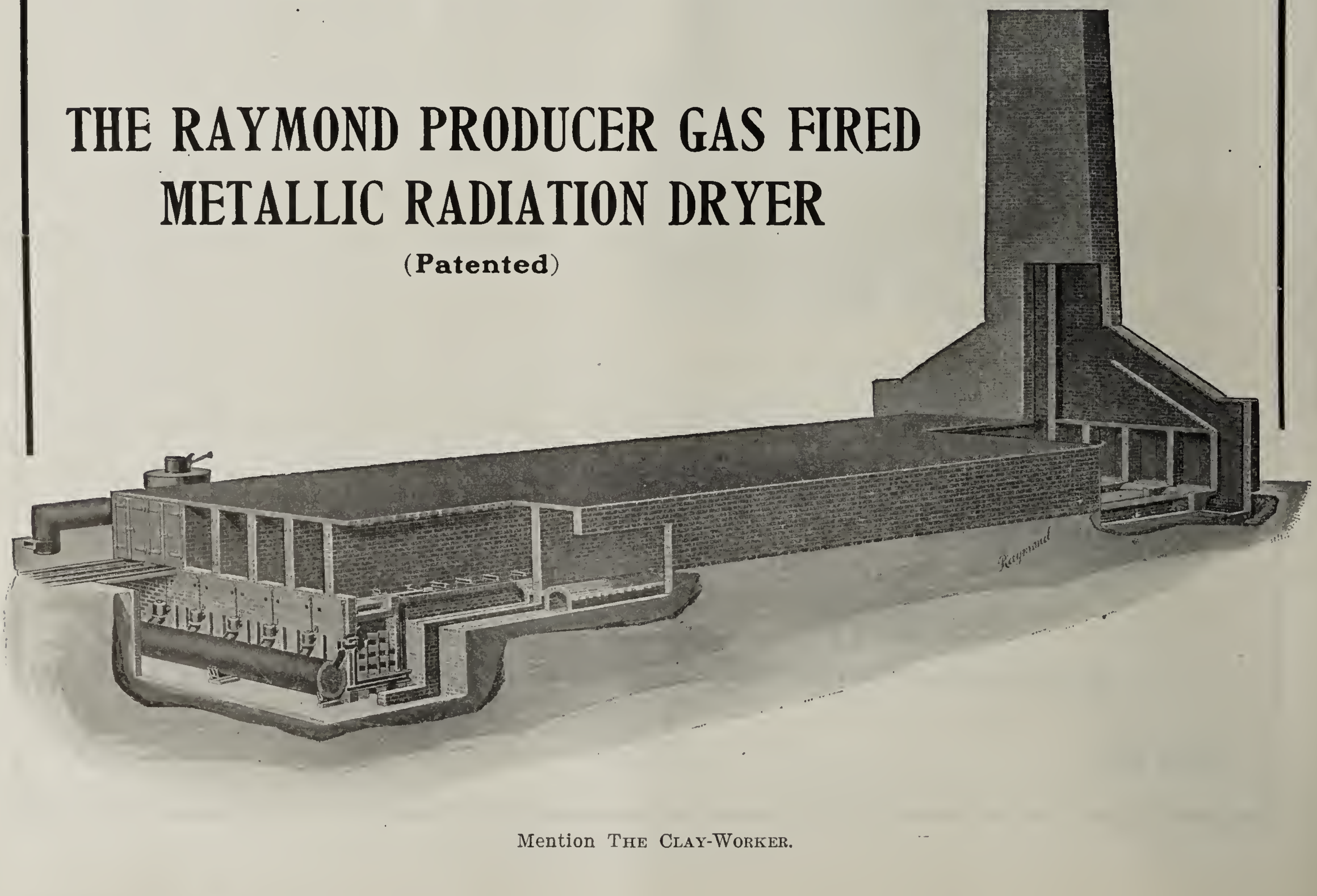
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

## THE RAYMOND PRODUCER GAS FIRED METALLIC RADIATION DRYER

(Patented)



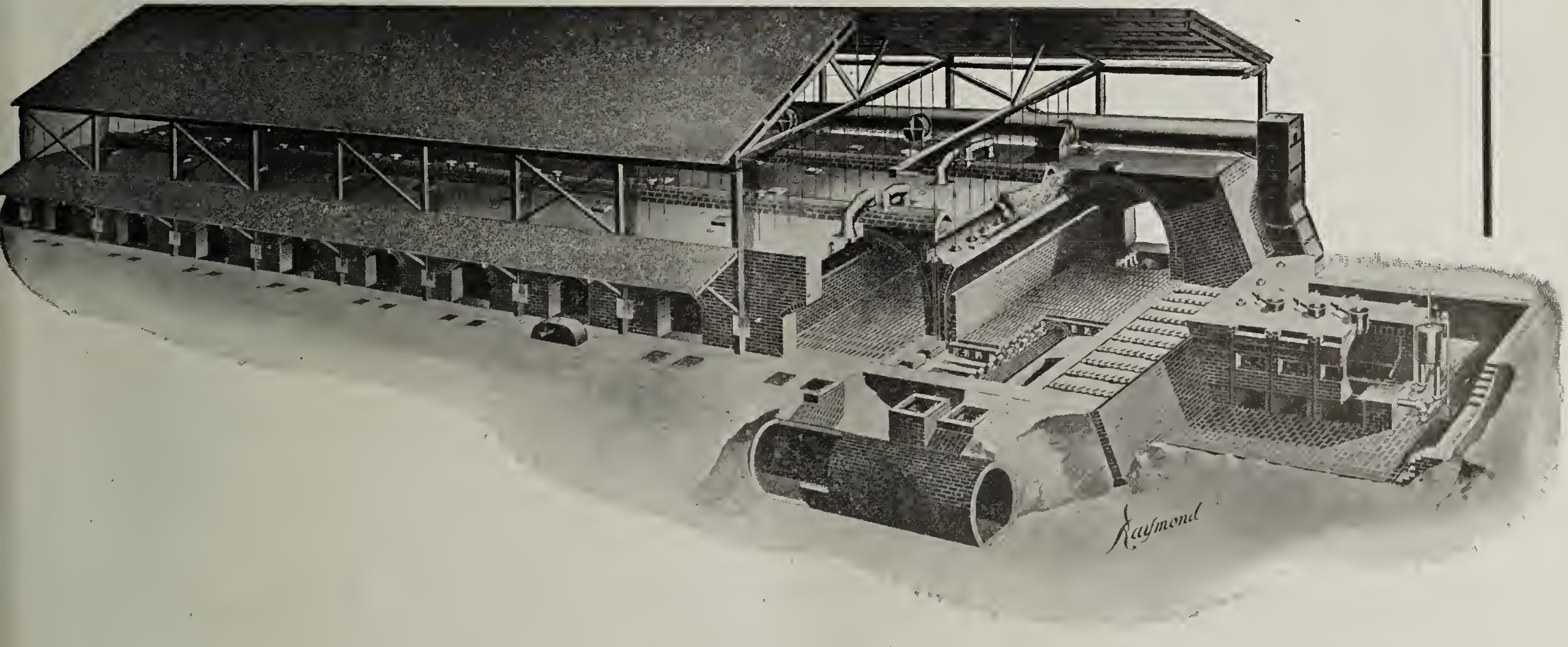
# ALL FOR YOU

The present day brickmaker has many things to improve the product of his forefathers in the business, and a large number have availed themselves of the modern methods of clayworking. But, for some time, there has been a desire for a kiln that will give an even, hard burn, and will not use as much fuel as an ocean liner. So with **your** desires and interests before us, we have given to you a kiln, yes, a **real** kiln, that exceeds your wildest expectations. The burn is better than the best and the temperature is so easily and correctly controlled that a child could learn to operate it. Above all is the economy of upkeep, using less than 50% of your former fuel. What's more, we can **prove** it! Let us hear from all live clayworkers who want the best.

## The C. W. Raymond Company

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**



**The Raymond Producer Gas Fired Continuous Kiln**

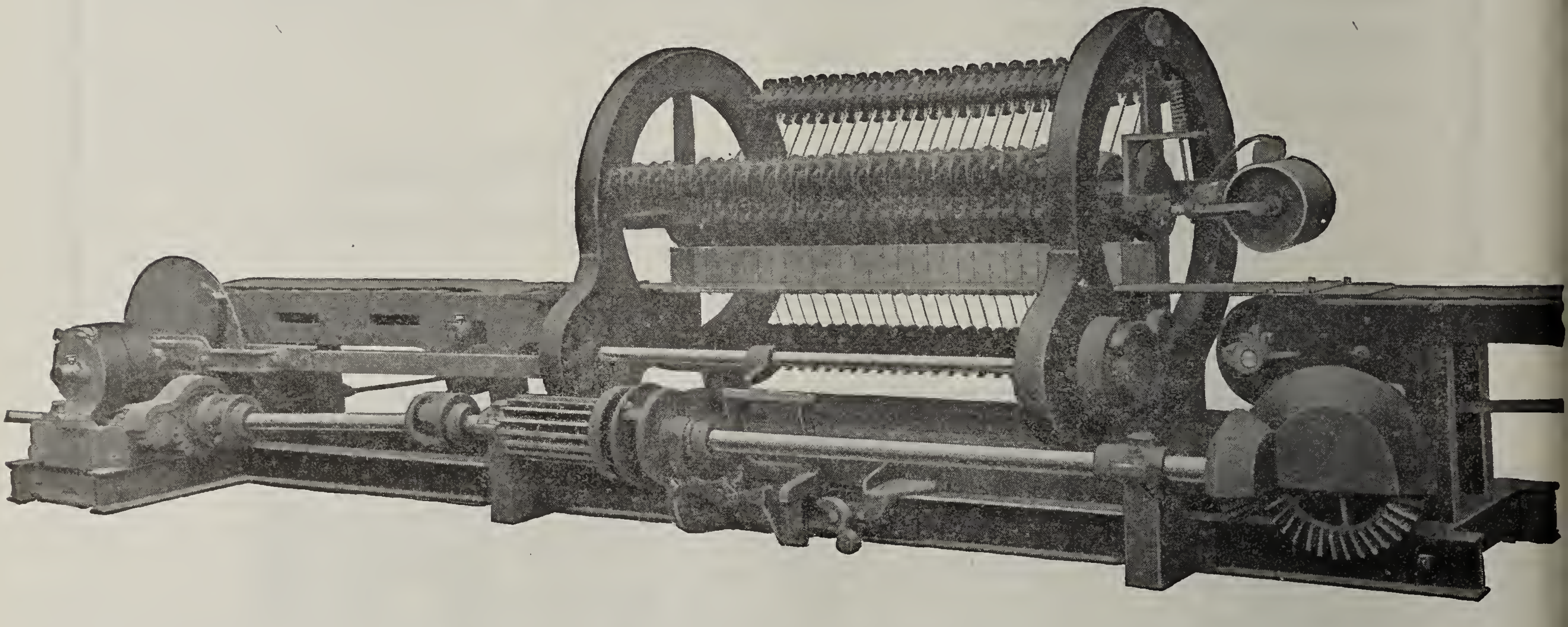
# D. M. OF P. E.

## The Result of a Lifetime Specialization

You know if you're a personal-contact brickmaker—what we mean by **Dependable** Machinery. You know what it means to you--financially and mentally—to keep your machinery going and your plant producing. You know that it's one of the vital points—that it's got to be done if you show results.

You know too, that **"Proven** Efficiency" means more to you than "Efficiency." You never saw a brick machine nor an automatic cutter that was or could be fully tested at the factory; you know it takes years of actual service under different conditions to bring out many of the defects, and you know that it is the brickmaker—the user of the machine--who really pays the expense of finding these defects.

That's why the thinking buyer wants to know **how many** cutters are operating, **how** they are operating, and **how long** they have been operating. It's the **proof** he wants for his guarantee.



Model C 30 Rotating Automatic Cutter

A cutter which has many improvements over the older Freese cutters, but which has the same basic principle of operation—the same positive never-miss mechanism so successful for 25 years.

---

## E. M. FREESE & COMPANY, 140 South St., Galion, Ohio

**Dependable Machinery of Proven Efficiency**

For
Sixty-Three
Years
The Name

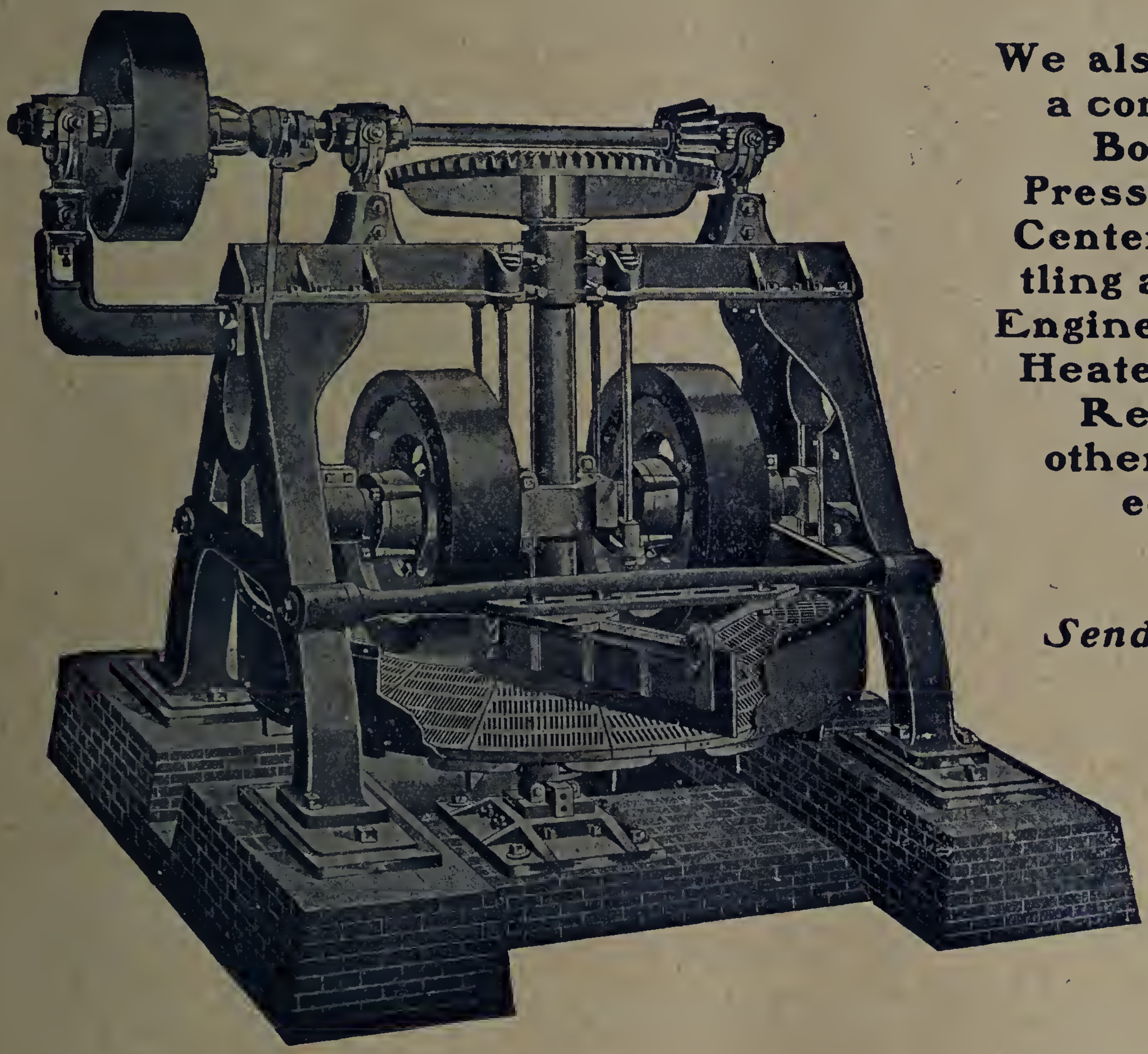
**Frost**

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

**There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.**

**WHY! Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.**



**We also manufacture
a complete line of
Boilers for all
Pressures, Side and
Center Crank Throttling and Automatic
Engines, Feed Water
Heaters, Tanks, Air
Receivers and
other power plant
equipment.**

---

*Send for Bulletins.*

# The Frost Manufacturing Co.

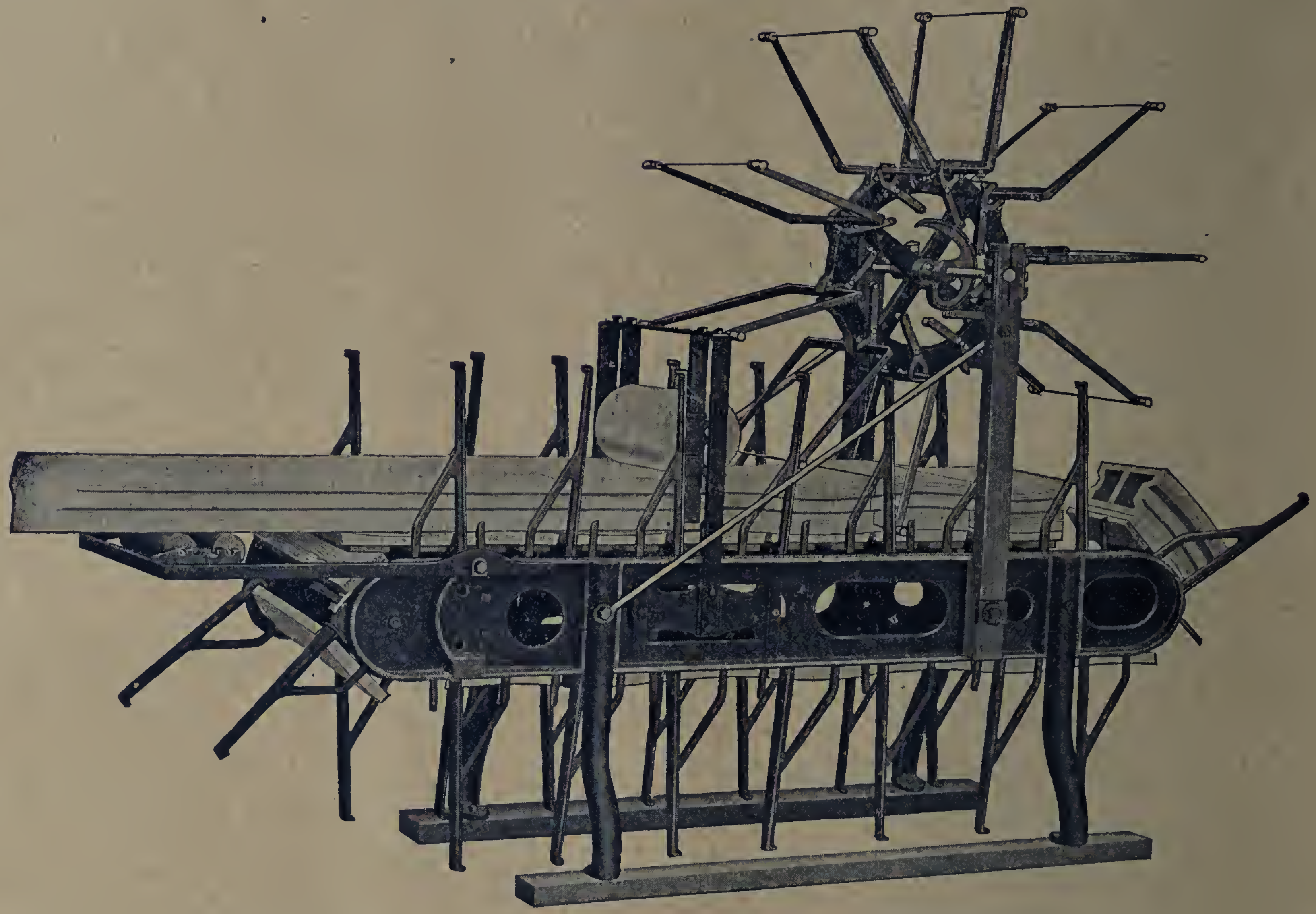
Works at
GALESBURG, ILL.

Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

*These factors enter into the product of the House of Fate.*



AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

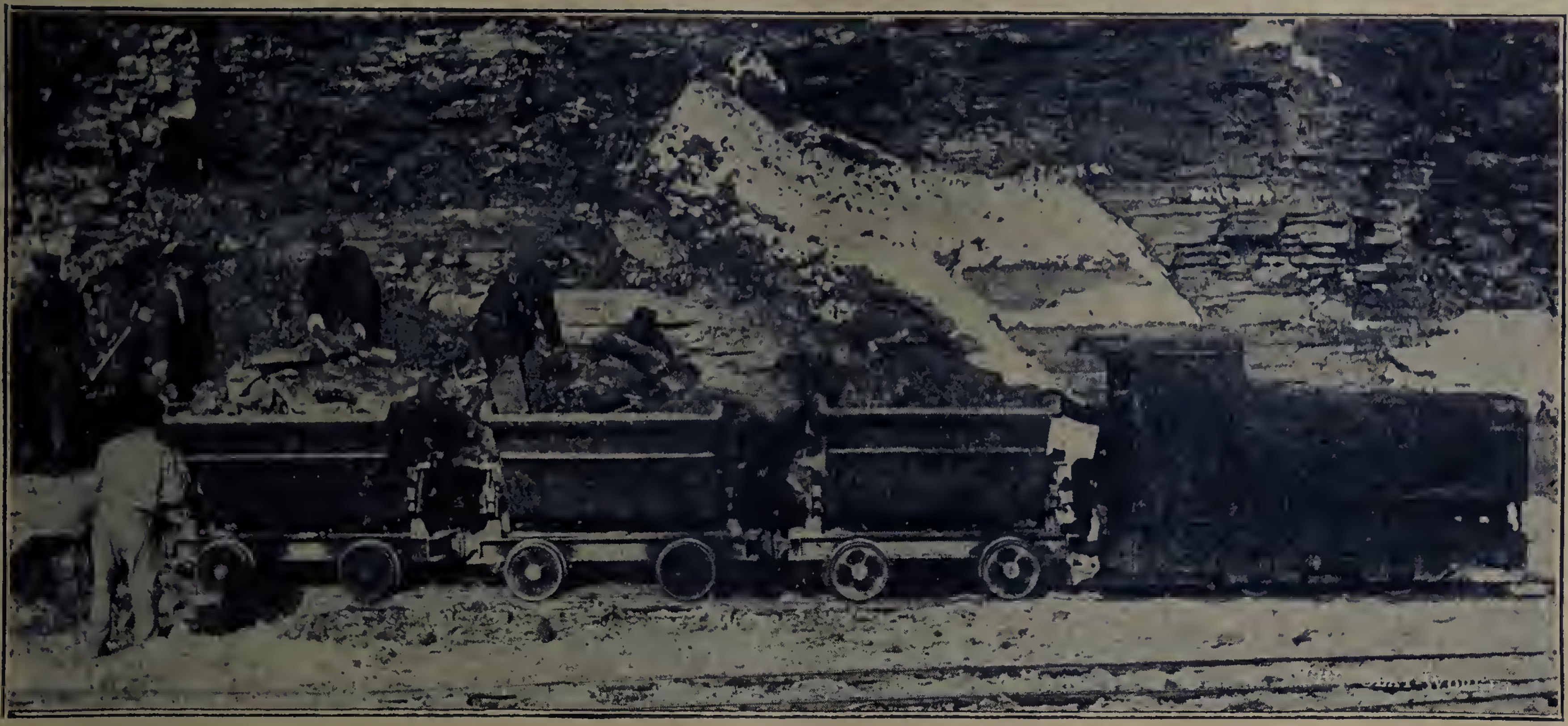
After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

# The J. D. Fate Company

## Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O

The Alliance Clay Product Co.
MANUFACTURERS OF HIGH GRADE
BUILDING, PAVING & FIRE BRICK.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
Plymouth, Ohio.

Gentlemen:--

We are sending you this day under separate cover photographs that we had taken of the gasoline locomotive furnished us by you. Owing to the bad weather we were not able to get this as prompt as we would have liked. The party that took them was here from Cleveland taking photos of our plant for another purpose. The one view was taken in our shale bank, the other one with the cars on the way to our new plant.

The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers.

Yours very truly,

The Alliance Clay Product Co.

J B Wilcox

# The "PLYMOUTH"
is the
## IDEAL HAULAGE for CLAY PLANTS.

Efficient, Economical to Operate, Low in Price and Low in Upkeep.

Any Speed—Forward or Backward—Power Equal in Both Directions.

No Licensed Engineer Required.

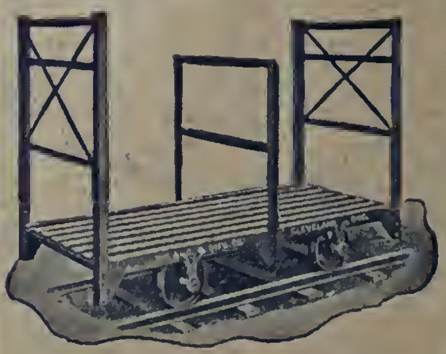
Eats Only When it Works.

Continental 4-Cylinder Motor, Bosch High Tension Magneto, Schebler Carburetor, Hyatt Roller and New Departure Ball Bearings—Power, Brakes and Sand on all 4 wheels, and all parts very accessible. Any Gauge, 20-inch to Standard.

Let us tell you more about them, and how an 8-year old boy operates one in a clay plant at Morrisonville, Ill.

## The J. D. FATE CO.

Eastern Office, Woolworth Bldg., New York City
Western Office, Blake-McFall Bldg., Portland, Ore.



**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives

Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

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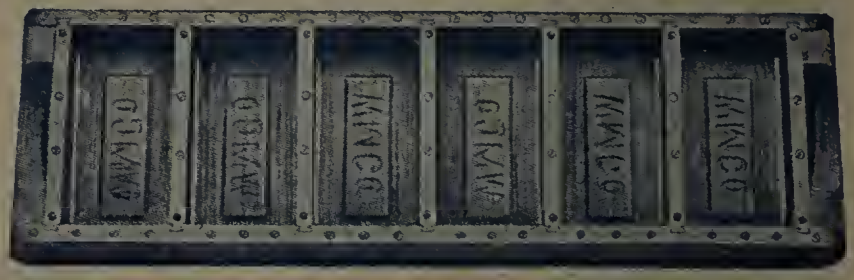
# MOLDS MOLDS MOLDS

## Of Every Description



Machine and Hand Brick Molds Built of Air Dried Stock.

You can't buy a better brick mold. The price is reasonably low.

I have made a lifetime study of the manufacture and sale of brick molds.

Write for catalog and detailed information.

**JAMES W. HENSLEY**
Successor to S. K. Fletcher
Indianapolis, Ind.

---

With Chase Flexible and Reversible Bearing and Folding Deck.

**Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.**

**The Chase Foundry & Mfg. Co., Columbus, O.**

---

# "LAKEWOOD LINE CARS"

LAKEWOOD NO. 166

**Dryer Cars**
**Rack Cars**
**Dump Cars**

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
Cleveland, Ohio

Chicago: 555 W. Quincy St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802
Baltimore: Munsey Bldg. Kansas City: N. Y. Life Bldg.

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MAY, 1915

# THE CLAY-WORKER

Court of the Universe, Looking Toward the Bay, Panama-Pacific International Exposition---See page 634

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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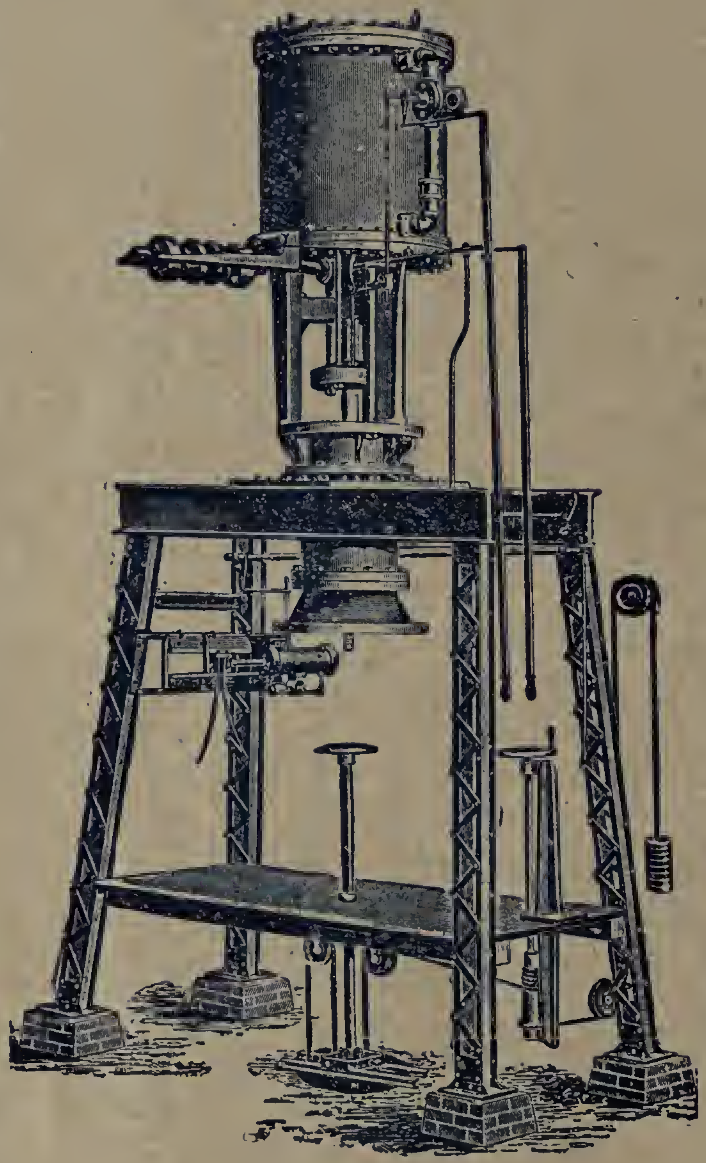
Page 688.

BUYERS' READY REFERENCE LIST
Pages 615, 617, 619 and 621.

INDEX TO ADS
Page 693.

Ask for a Sewer Pipe Press, Dry or Wet Pan, or other Clayworking Machinery, and there is NO TELLING WHAT YOU WILL GET.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC.



Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.

We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

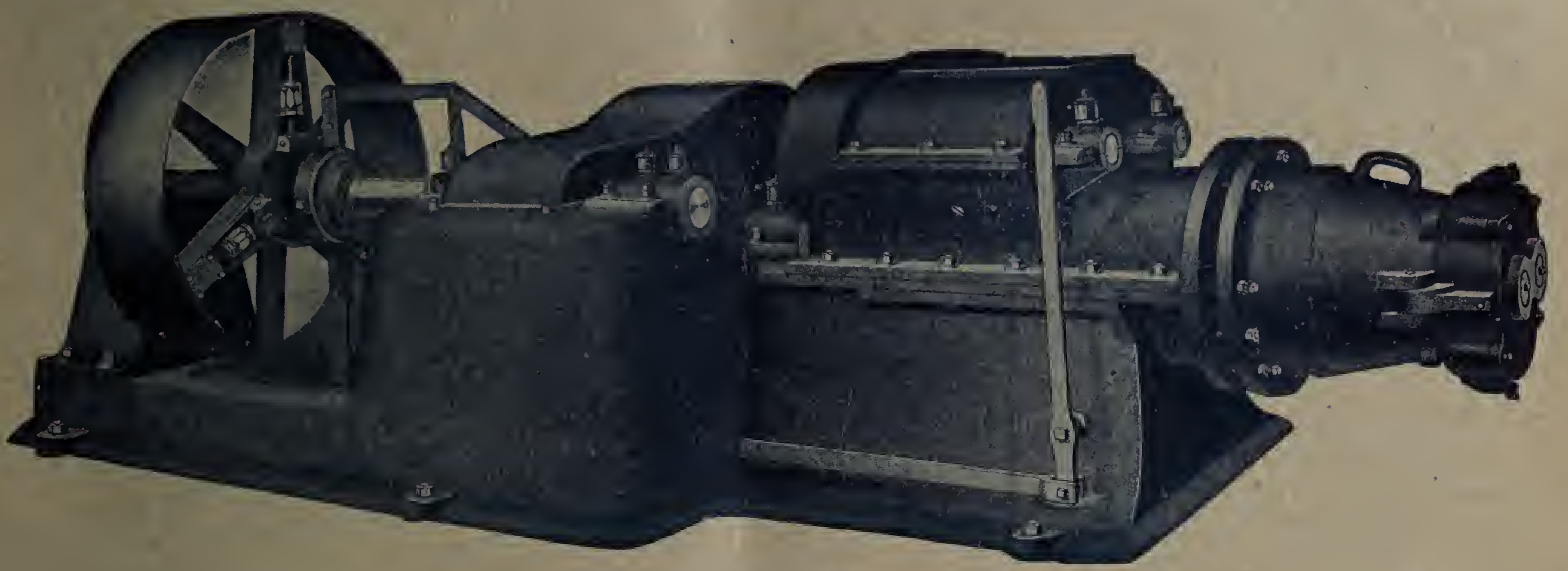
---

## THE TAPLIN, RICE-CLERKIN CO.

**Akron, Ohio**

The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

# MAKING HOLLOWWARE FOR PROFIT



## Bonnot No. 17 Hollowware Machine.

Hollowware is made most successfully on a machine built especially for that purpose. The No. 17 is just such a special machine, and it combines also the very best in design and construction from the standpoint of durability and output.

The Coffeyville Shale Brick Company
CAPACITY: 100 TONS PER 10 HOURS
MANUFACTURERS OF
Hollow Building Brick, Hollow Building Tile
COFFEYVILLE, KANSAS Feb. 23 1914

The Bonnot Company,
Canton, Ohio

Gentlemen:-

Replying to your Query, as to what success we are having with our #17 Tile Machine, wish to state that it is so much better than we expected it would be, that we cannot say too much in its praise.

It is built so massive and strong, runs quiet and smooth and does its work perfectly.

As for capacity, we do not as yet, know its limit. We have made 100 tons of Tile in eight hours and the driving pulley making only 160 R P M while the specifications call for 175 R P M.

We have made 2500 tons of Tile with the one propeller that came with the machine and we believe it is good for much more service.

Trusting this is in line with your expectations, we are,

Yours truly,
The Coffeyville Shale Brick Co.
By

# THE BONNOT CO.

## Canton, Ohio

**Branches**

909 N. Y. Life Bldg. KANSAS CITY, MO.
211 Higgins Bldg. LOS ANGELES, CAL.

(Sign and mail this coupon)

..............................1915

THE BONNOT CO.
Canton.

Please send me specifications and full information on No. 17 Hollowware machine.

..............................
(Signed)

..............................

PERFORATED STEEL SCREENS
FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.
Anything You Want in Perforated Metal.

Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

The Harrington & King Perforating Co.

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

These Men Used to Spend Half Their Time Pushing Empty Wheelbarrows

The other half was the only part of a day's work that was productive.
But the boss had to pay the same price for the empty barrows that he did for the full ones.

This Gravity Conveyer Solves the Brick-Handling Problem

The Mathews Patented Gravity Brick Conveyer is old enough to be well established, but still young enough to be a novelty to those who have never seen it in operation. In another year or two it will be the only method used for handling brick quickly and economically.

Now the men find their work easy and pleasant, and they are making more money because the boss is more prosperous.

Send for detailed information and illustrated catalog.

Mathews Gravity Carrier Co.

BRANCH OFFICES
IN ALL LEADING AMERICAN CITIES

Main Office and Factory ELLWOOD CITY, PA.
Branch Factories:-TORONTO, ONT. LONDON, ENG.

RODGERS

# WET OR DRY?

Is a question widely discussed these days. Of course, EVERY phase of the question under discussion is of interest, but "wet or dry" as applied to clay products interests us most---doesn't it?

How about your product? Is it drying to your entire satisfaction, or have you dryer troubles? Owners of

**RODGERS WASTE HEAT DRYERS**

talk only on the "dry" side of the question, for to them "wet goods" are unknown.

If you'd like to line up on the "dry" side, drop us a line and we will get together and discuss the question of adding your name to the growing list of "Drys".

**L. E. RODGERS ENGINEERING CO.**

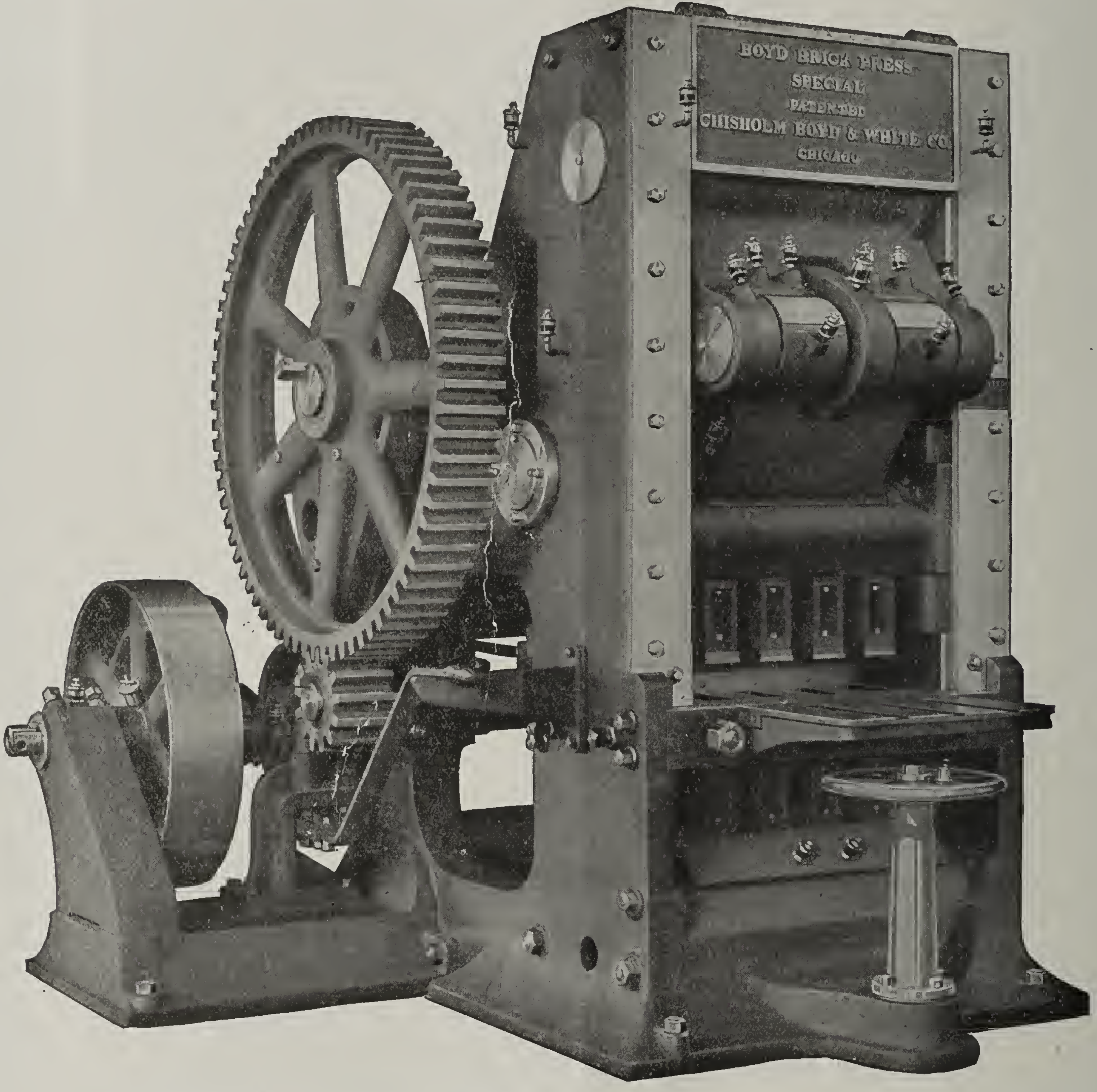
Waste Heat Dryer Specialists
Brick Works Engineers

Largest Manufacturers of Brick Drying Equipment in the United States
30 North LaSalle St. .:. .:. CHICAGO

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED=PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

---

**Ammeters.**
TheBrown Instrument Co.

**Analysists and Chemists.**
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

**Automatic Clay Bin Emptier.**
Fate Co., The J. D.
Raymond Co., The C. W.

**Automatic Cutting Tables.**
(See Cutting Tables.)

**Barrows and Trucks.**
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Barytes, Carbonate of**
Roessler-Hasslacher Chem. Co.

**Bearings, Roller.**
(See Supplies.)

**Belting.**
Gandy Belting Co.
Sawyer Belting Co.

**Belt Conveyors.**
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

**Blowers.**
American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Boilers.**
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

**Brick (Building).**
Bloomfield Clay Co.
Hydraulic Press Brick Co.
Kushequa Brick Co.
Purington Paving Brick Co.

**Brick (Fire).**
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

**Brick (Paving).**
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

**Brick Conveyors.**
American Clay Machinery Co.
Mathews Gravity Carrier Co.

**Brick and Tile Machinery.**
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Brick Machines (Soft Mud).**
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.
Wellington Machine Co.

**Brick Machines (Stiff Mud.)**
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Brick Machines (Dry Press.)**
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

**Brick Recutter.**
Raymond Co., The C. W.

**Brick Setting Machinery.**
American Clay Machinery Co.

**Buffing Machinery.**
American Clay Machinery Co.

**Burning and Drying Systems.**
American Blower Company.
Boss, John C.
Buhrer, Jacob.
Dennis, F. W.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
National Dry Kiln Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

**Cars.**
(See Dryer and Dumping Cars.)

**Castings.**
Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Taplin-Rice-Clerkin Co.

**Ceramic Engineers.**
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

**Clay Crushers and Pulverizers.**
American Pulverizer Co.
Arbuckle & Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Clays.**
Bloomfield Clay Co., The.

**Clay Dryers.**
American Process Co.
Schaffer Eng. & Equip. Co.

**Clay Feeders and Mixers.**
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Marion Machine, Fdy. & Sup. Co.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.
Stevenson Co., The.

**Clay Gatherers.**
(See Scrapers.)

**Clay Steamers.**
Raymond Co., The C. W.

**Clay Technologists.**
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

**Clutches.**
(See Supplies.)

**Coloring Materials.**
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

**Cones.**
Orton, Edward, Jr.

**Conveying Machinery.**
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

**Continuous Kilns.**
American Clay Machinery Co.
Raymond Co., The C. W.

**Contracting Engineers.**
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

**Couplings.**
(See Supplies.)

**Cutting Tables (Brick and Tile.)**
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Cutting Wires.**
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

**Dampers.**
(See Supplies.)

**Dies.**
(See Supplies.)

**Disintegrators.**
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Drain Tile Machinery.**
(See Brick & Tile Machinery.)

**Drums, Hoisting and Winding.**
(See Supplies.)

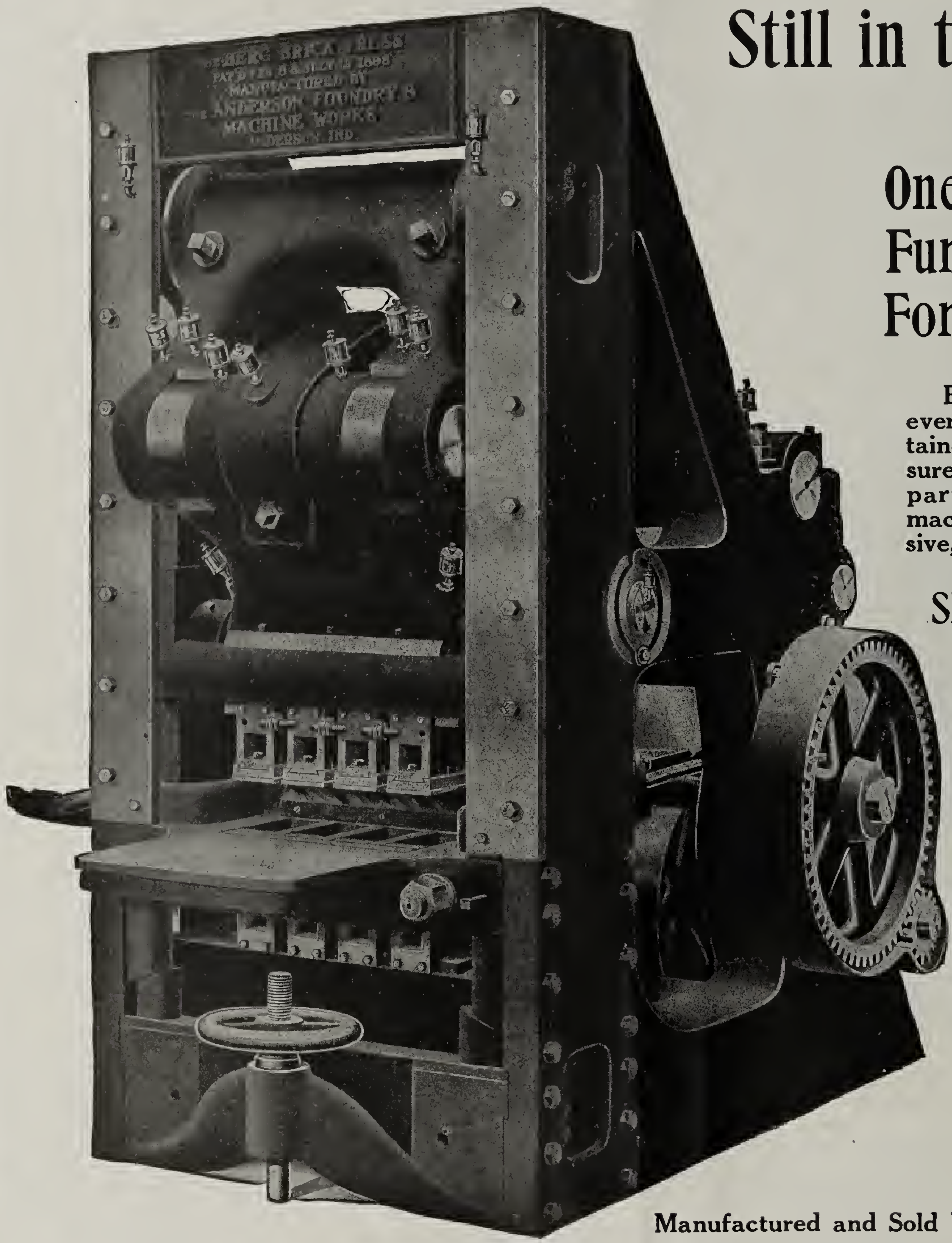
**Dryers.**
American Blower Company.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co., H.
National Dryer Company.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

**Dryer Cars.**
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
National Dryer Company.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.

(Continued on page 617.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

**SHIPPED IN ONE PIECE.**

All Machines Are Equipped With

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

**ANDERSON, IND.**

## Buyers Ready Reference List—Continued.

Standard Dry Kiln Co., The.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

**Dry and Wet Pans.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Dump and Clay Cars.**

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wellington Machine Co.

**Electric Instruments.**

Brown Instrument Co., The.
Thwing Instrument Co.

**Electric Shovels.**

Thew Automatic Shovel Co.

**Electrical Furnaces.**

Brown Instrument Co., The.
Richardson-Lovejoy Engr. Co.

**Electrical Locomotives.**

Atlas Car & Mfg. Co.

**Electrical Supplies.**

American Clay Machinery Co.
Raymond Co., The C. W.

**Elevating Equipment.**

(See Conveyors.)

**Engines.**

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

**Engineers.**

Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

**Fans.**

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Feed Water Heaters.**

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

**Filler (Paving).**

Barrett Mfg. Co.

**Filter Presses.**

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Fire Brick and Fire Clay.**

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

**Fire Clay.**

Bloomfield Clay Co.

**Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Flower Pot Machinery.**

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The.
Taplin-Rice-Clerkin Co.

**Friction Clutch Pulleys.**

(See Supplies.)

**Furnaces.**

Brown Instrument Co., The.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

**Gas Fire Continuous Kilns.**

Raymond Co., The C. W.

**Gears.**

(See Supplies.)

**Granulators.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Grates.**

Marion Machine, Fdy. & Sup. Co.

**Gravity Carriers.**

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

**Gravity Haulage.**

American Clay Machinery Co.

**Grouter.**

Marsh-Capron Mfg. Co.

**Hand-Power Presses.**

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

**Hand Winch.**

(See Supplies.)

**Hangers.**

(See Supplies.)

**Hoists.**

(See Supplies.)

**Hollow Block Machinery.**

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Illustrators.**

Lamb, J. & R.

**Insurance.**

Mantel, Tile & Grate Monthly.

**Jacks.**

(See Supplies.)

(Continued on page 619.)

MUELLER'S NEW AUGER BRICK MACHINERY

Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

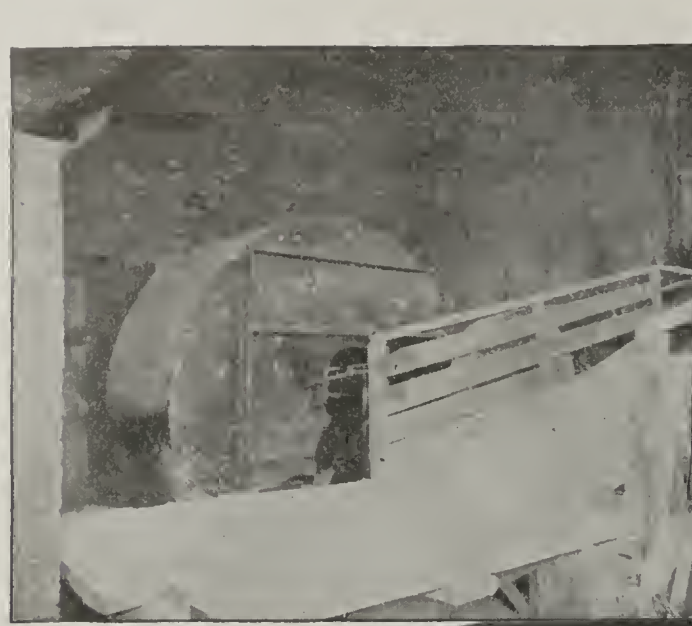
Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

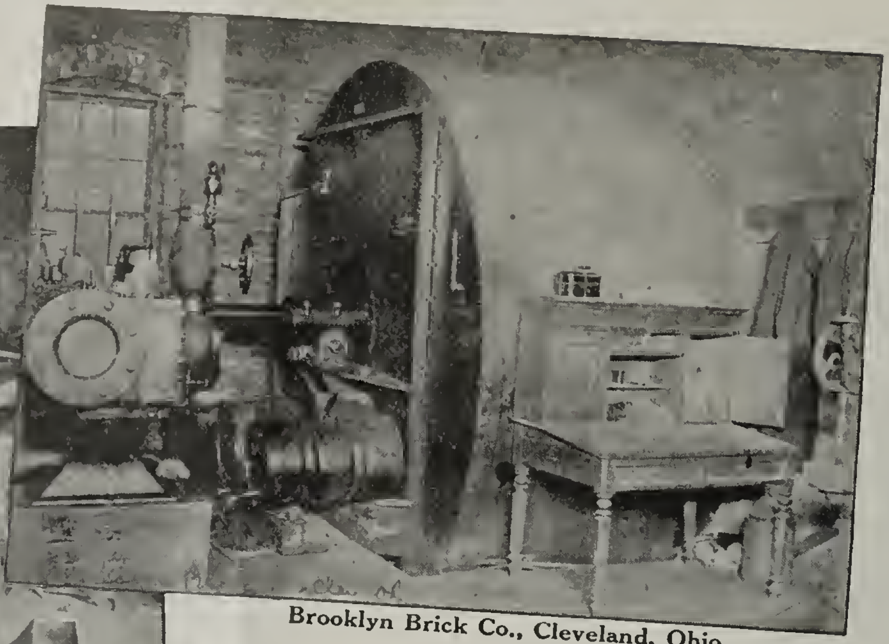
Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

MUELLER BROS.

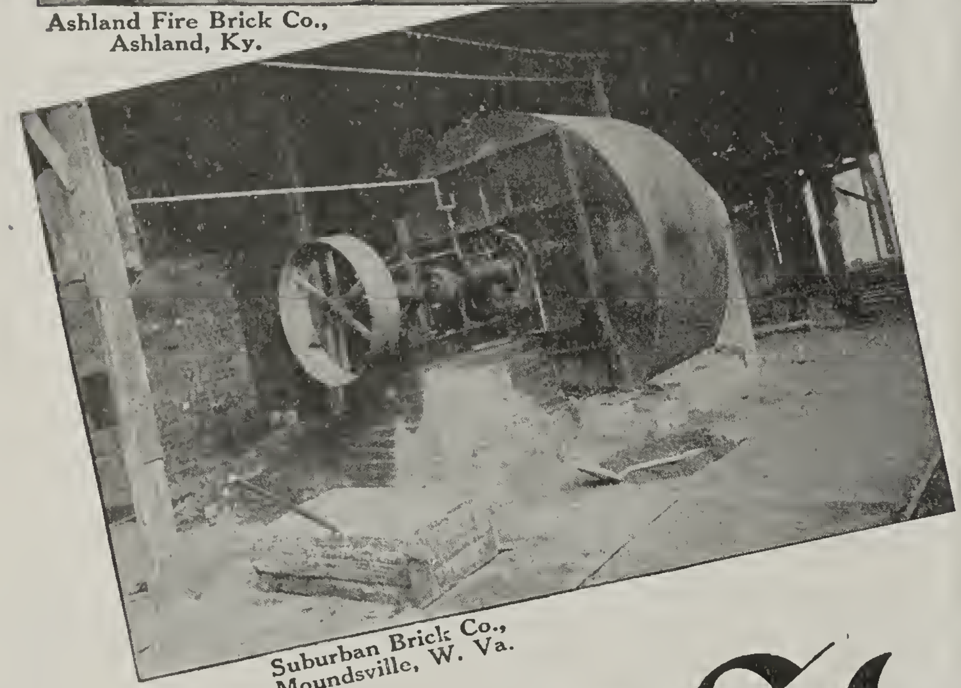
1436 Macklind Ave. (on Frisco Tracks) ST. LOUIS, MO.



Ashland Fire Brick Co.,
Ashland, Ky.



Brooklyn Brick Co., Cleveland, Ohio



Suburban Brick Co.,
Moundsville, W. Va.

# Economy in Drying Clay Products

## Sirocco

TRADE MARK.

Fan Systems use the heat from the cooling kilns to dry the bricks—that's one form of economy—**The other** is in the efficient way in which the Sirocco Fan handles this heat—the **low power requirements** for the amount of air handled—the low cost of upkeep of the Sirocco Fans due to its good mechanical construction.

Any fan will handle some air but the one that handles the **most** air for the **least** expense is the one **you** want and that's **"Sirocco."**

Our Brick Engineering Department will submit a lay-out applicable to your particular requirements—**just drop us a line** and we'll give you all details.

Sirocco
AMERICAN BLOWER COMPANY

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
Dallas, Texas, Southwestern Life Insurance Bldg.
San Francisco, Cal., 667 Mission St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lemcke Annex.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

**Kilns.**

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Illinois Supply & Con. Co.
Klose, A.
Klose, K. W.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred.

**Kilns, Doors, Castings and Frames.**

(See Supplies.)

**Kiln Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Kiln Furnaces.**

Illinois Supply & Con. Co.

**Knives.**

(See Supplies.)

**Locomotives.**

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

**Manganese.**

(See Coloring Materials.)

**Mechanical Draft.**

Boss, J. C.
Rodgers Engr. Co., The L. E.

**Mineral Paint.**

(See Coloring Materials.)

**Molds (Brick).**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

**Mold Sanders.**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

**Mortar Colors.**

(See Coloring Materials.)

**Motor Trucks.**

Fate, Co., The J. D.

**Oil Burners.**

Illinois Supply & Con. Co.

**Paints.**

(See Coloring Materials.)

**Pallets.**

Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

**Pans (Dry and Wet).**

(See Dry and Wet Pans.)

**Paving Brick or Block.**

(See Brick.)

**Perforated Sheet Metal.**

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

**Pitch (Paving).**

Barrett Mfg. Co.

**Plows.**

(See Scrapers.)

**Poidometers.**

Schaffer Eng. & Equip. Co.

**Portable Track.**

Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

**Pottery Machinery.**

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Power Plant Equipment.**

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Presses.**

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

**Pug Mills.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Pulleys.**

(See Supplies.)

**Pulverizers.**

American Pulverizer Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Taplin-Rice-Clerkin Co.

**Pumps.**

Dean Bros. Steam Pump Wks.

**Pyrometers.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E
Thwing Instrument Co., The

**Rails and Railway Equipment**

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works
Fate Co., The J. D.
Lakewood Engineering Co.

**Rattlers (Paving Brick).**

Ceramic Supply and Con. Co
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

**Recording Gauges.**

Brown Instrument Co.
Ceramic Supply & Con. Co
Thwing Instrument Co.

**Represses.**

American Clay Machinery Co
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson & Co.

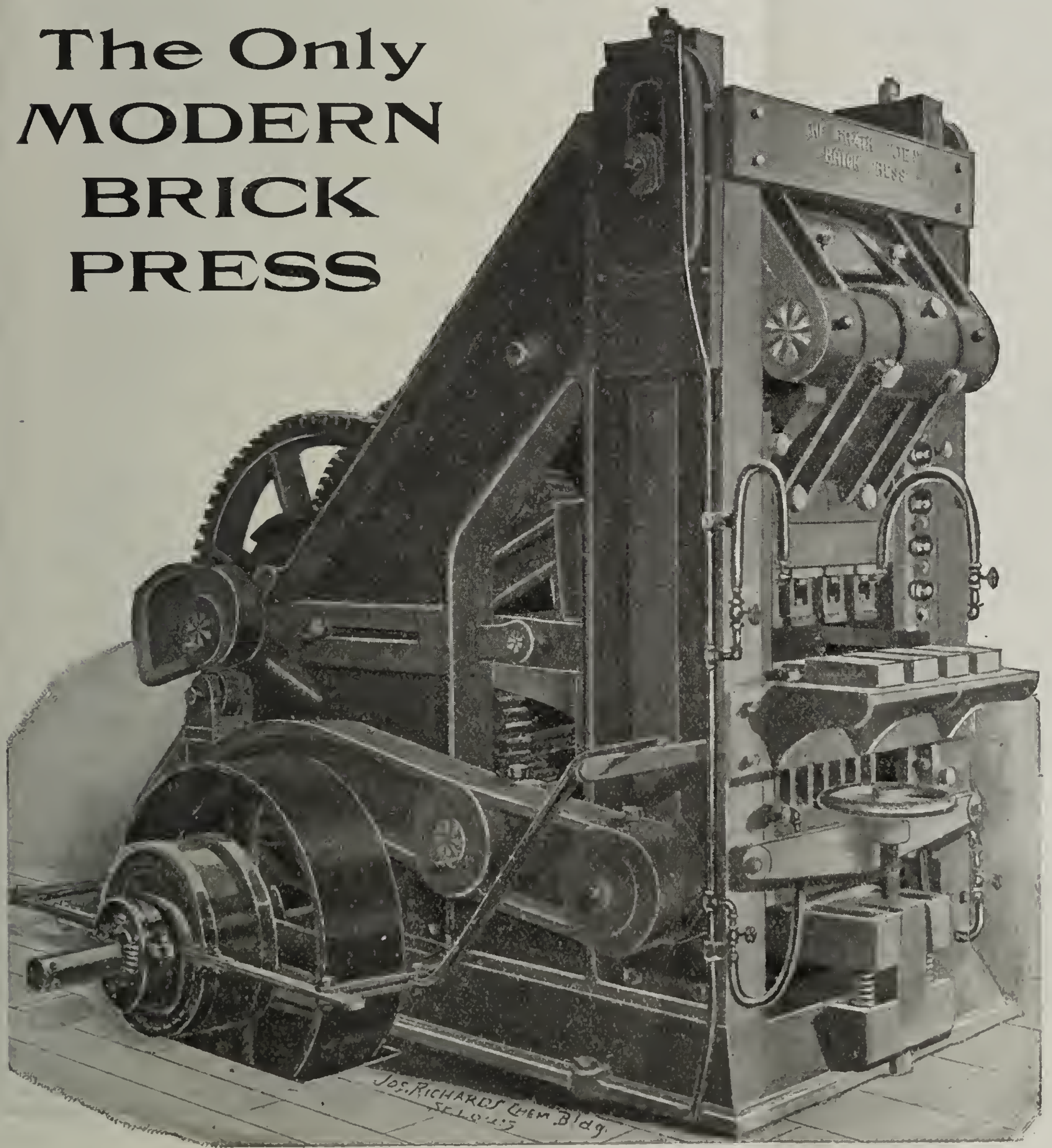
**Revolution Indicators.**

Brown Instrument Co.
Ceramic Supply & Constr. Co.

**Revolving Steam Shovels.**

Thew Automatic Shovel Co.

(Continued on page 621.)



The Only MODERN BRICK PRESS

THE GRATH PEERLESS PRESS

Simplest, Strongest and Most Easily and Quickly Regulated Press ever built.

Thickness of brick changed in one minute's time.

Guaranteed capacity—40% more than any other press.

Capacity on surface clays, 30,000 in ten hours. On shale and fire clay in proportion.

The Jersey Clay Products Co., Newbern, Ill., are turning out over 30,000 per day on this Press.

Ill. Supply & Const. Co.

722 Century Bldg., St. Louis, Mo.

*Chillicothe Street Portsmouth, Ohio Pitch filled*

1895

*Main Street Butler, Pa. Paved*

1891

*Euclid Avenue Cleveland, Ohio Laid*

1883 or 1884

*East Rich Street Columbus, Ohio Pitch filler finished June 22,*

1892

*West 4th Street Newport, Ky. Paved*

1894

# Barrett's PAVING PITCH

## It lasts as long as the pavement

THESE brick and granite pavements are pretty old, but the original Barrett's Paving Pitch in the joints is still on duty and is still maintaining a perfect seal against the intrusion of water and frost.

It still clings to the blocks in every kind of weather, regardless of the expansion or contraction.

Chemically the pitch in these joints is just as good as it ever was, and if it could be taken out, it could be melted up and used over again in a new pavement.

In none of these old pavements is to be found a single crack, for every joint is an expansion joint. The pavements are much quieter than if the joints were filled with cement and the footing for horses is better because a shallow groove is left at the top of each joint.

From the viewpoints of satisfaction and economy, no other filler is equal to Barrett's Paving Pitch.

We point to the illustrations herewith, and to many other streets all over the country with similar records of efficiency, to demonstrate the truthfulness of our claims.

*Booklets free on request.*

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis
Cleveland Cincinnati Pittsburgh Detroit Birmingham
Kansas City Minneapolis Salt Lake City Seattle
The Patterson Mfg. Co., Limited: Montreal Toronto
Winnipeg Vancouver St. John, N. B. Halfax, N. S. Sydney, N. S.

TRADE B MARK

## Buyers Ready Reference List—Continued.

### Rock Crushers.
American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.
American Clay Machinery Co.
Fate Co., The J. D.
Illinois Supply & Con. Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.
(See Supplies.)

### Rotary Dryers.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Wellington Machine Co.

### Sand Lime Brick Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Constr. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.
Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.
Arbuckle & Co.
Central Iron Works.
Eagle Iron Works.
Illinois Supply & Con. Co.

### Screens.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Illinois Supply & Con. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Sewer Pipe Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Steam Gauges.
(See Supplies.)

### Steam Shovels.
Thew Automatic Shovel Co.

### Steam Specialties.
Dean Bros., Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

### Steam Traps.
American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.
Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply and Com. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Steele & Sons.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Switches.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.
Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.
Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., H.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Com. Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.
Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.
(See Rails.)

### Transfer Cars and Turn Tables.
(See Supplies.)

### Turn Tables.
Fate Co., The J. D.

### Unloading Device for Pans.
American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.
Brown Instrument Co.

### Wheels and Axles.
(See Supplies.)

### Wheelbarrows.
(See Barrows.)

### Wet Pans.
(See Pans.)

### Wire.
(See Cutting Wire.)

SCUMMING AND EFFLORESCENCE

BY

ELLIS LOVEJOY, E. M.

This is the finest treatise on the subject ever written. Every angle of the cause and best method of overcoming the scumming and efflorescence on brick is given in detail.

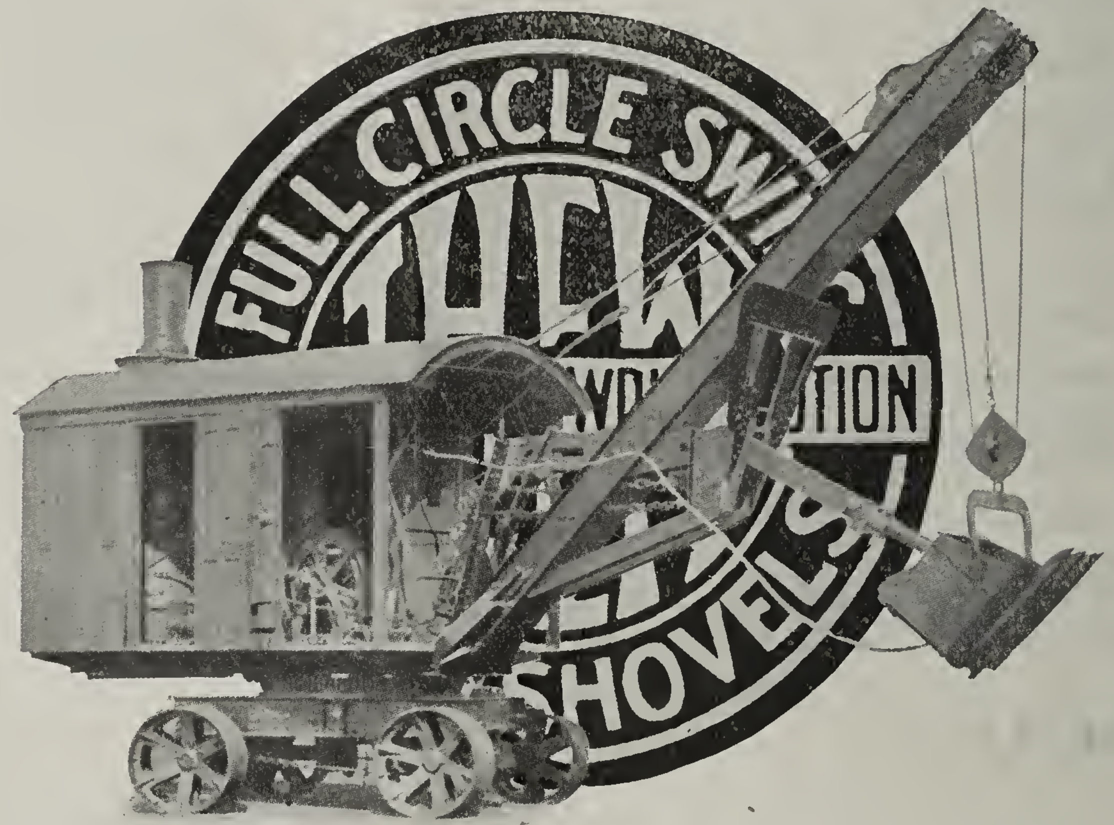
ONLY FIFTY CENTS THE COPY.

Address

**T. A. Randall & Co.** **Indianapolis, Ind.**

# THEW

# Distinctive Features---
## The Crowding Motion and the Full Circle Swing



**The Thew Crowding Motion** makes possible the handling of very shallow or deep cuts successfully and economically and also furnishes a powerful prying motion that is unusually effective in handling shale and fire clay.

**The Thew Full Circle Swing** enables the bucket to pick up material or dump it at any point of the circle. It eliminates the necessity of moving forward to an extent and increases the output of the machine.

**Over 300 Thew Shovels** are in use in clay and shale pits throughout the country.

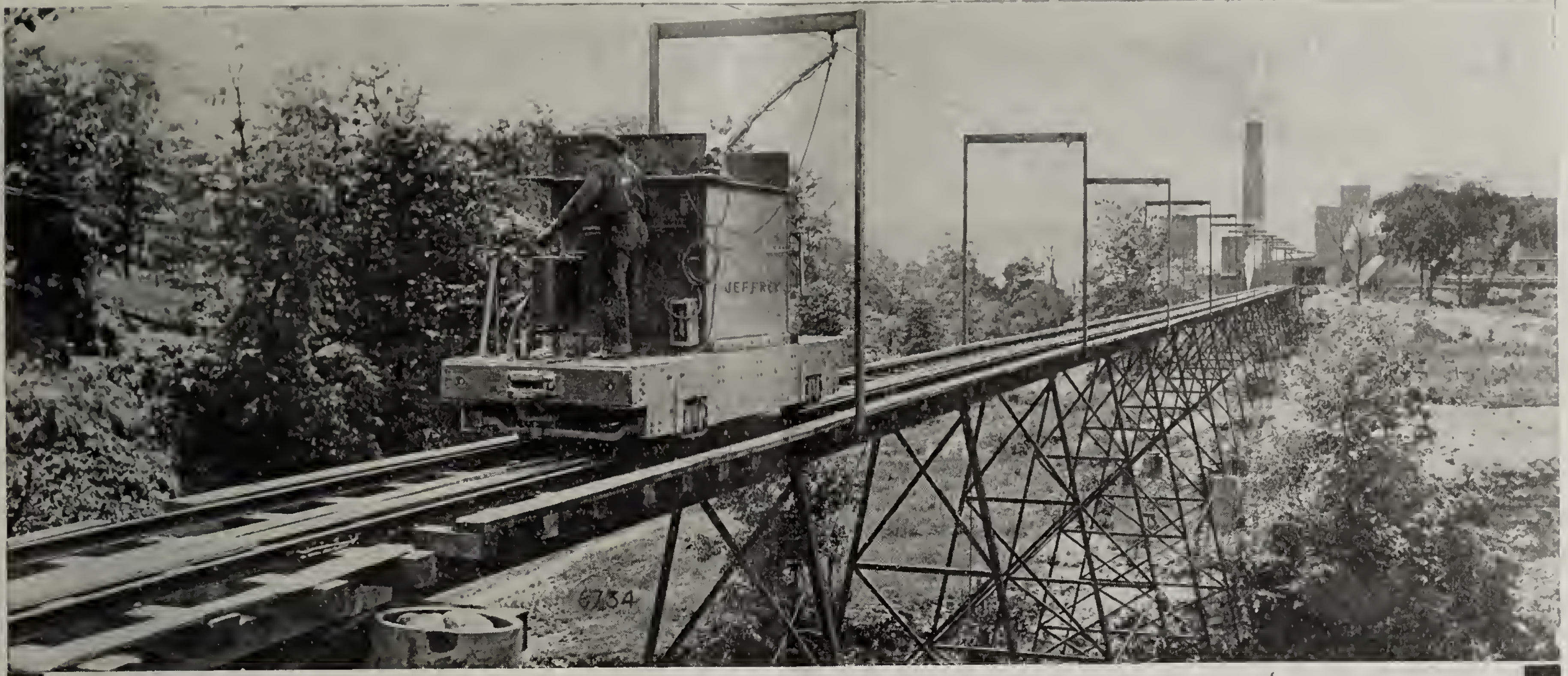
We suggest that you ask us for names of brick manufacturers in your vicinity, and then write them asking their opinion regarding the Thew shovel.

***Write today requesting list of Thew owners near you and Catalog "B".***

FULL CIRCLE SWING THEW HORIZONTAL CROWDING MOTION STEAM SHOVELS

**THE THEW AUTOMATIC SHOVEL CO.** LORAIN, OHIO

POWER SHOVELS FOR RAILROADS, MINES AND CONTRACTORS
SMELTERS, BRICKYARDS AND CEMENT WORKS



Jeffrey Electric Truck hauling clay across an 800 foot trestle at the plant of the Delaware Clay Manufacturing Co.

# Jeffrey Electric Truck Solves the Problem of Conveying Clay Into This Factory

As explained in an article in another part of this publication, describing the works of the Delaware Clay Manufacturing Co., Delaware, Ohio, the clay bank is situated about 2,000 feet away from the plant, and is connected to it by a 40" gauge track. The clay is taken out of the bank and loaded by a steam shovel to Jeffrey Electric Truck, **as shown by the lower right hand illustration.**

**The Jeffrey Truck** has a Frame of Structural Steel rigidly reinforced with steel angles and cast steel pedestals, and is equipped with a Steel Plate Hopper holding 4 yards of clay, and having straight sides and hinged dumping bottom. Motor Equipment consists of two 12 H.P. Ball Bearing Worm Driven Motors, hung directly on 3¼" axles.

**Loaded, the Truck weighs 9 tons, and the round trip of 4,000 feet, one-fourth of which is 2% against the load, is made in eight minutes.**

**The Truck has been in daily operation for sixteen months without costing one cent for repairs.**

A Rotary Drier and a Continuous Drier, built from material furnished by the Jeffrey Company. are also installed in this plant.

**Write for copy of Bulletin 117-57,** and other literature illustrating and describing our complete line of Electric and Storage Battery Industrial and Mine Haulage Locomotives and Trucks.

Works of the Delaware Clay Mfg. Co., Delaware, O. Capacity—44,000 Standard Size Brick, and 50 Tons of Drain Tile, per day.

## Jeffrey Mfg. Co.

957 N. Fourth St.
Columbus, Ohio

Branches:

New York Philadelphia Boston
Pittsburg Charleston, W. Va. Chicago
Birmingham Denver Montreal

Taking the clay from the bank and loading to Electric Truck by means of Steam Shovel.

**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country,"
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

**SHAWMUT VITRIFIED PAVING BRICK WORKS**

Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

PAVING BUILDING · BRICK AND BLOCK · SIDEWALK FOUNDATION

**The Barr Clay Co.**

C. C. Barr, Pres. · Streator, Ill.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

**KUSHEQUA**

Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

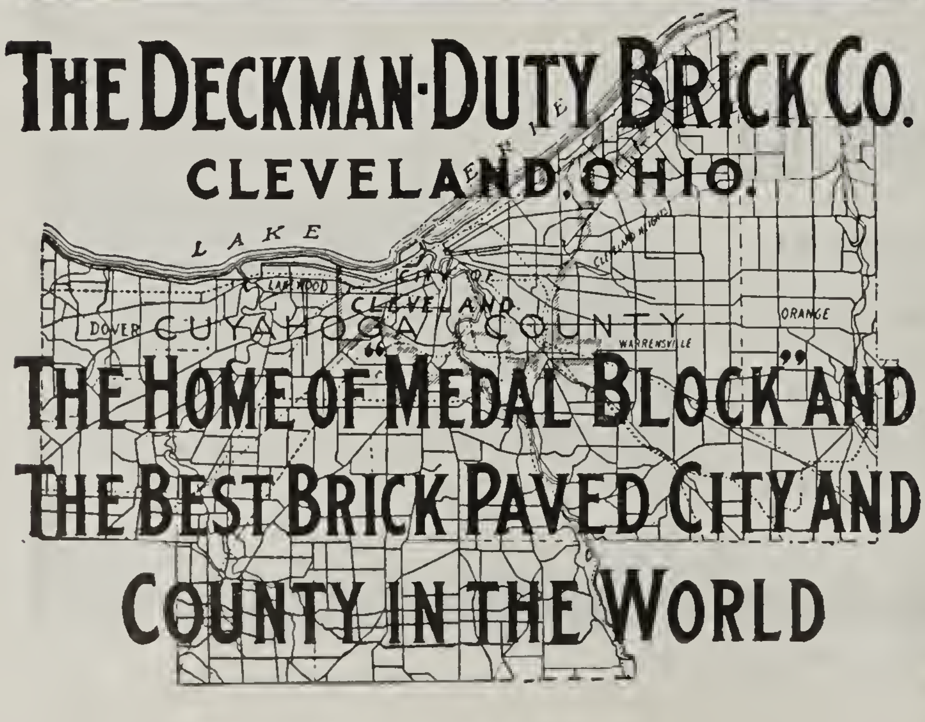
**PROMENADE TILE**

Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

**Tile Underdrainage.**

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.


**THE DECKMAN-DUTY BRICK CO.**
CLEVELAND, OHIO.

"THE HOME OF MEDAL BLOCK" AND
THE BEST BRICK PAVED CITY AND
COUNTY IN THE WORLD

**ALTON BRICK COMPANY**

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

**McAVOY VITRIFIED BRICK COMPANY**

PHILADELPHIA, PA.
*"McAVOY BLOCK"*

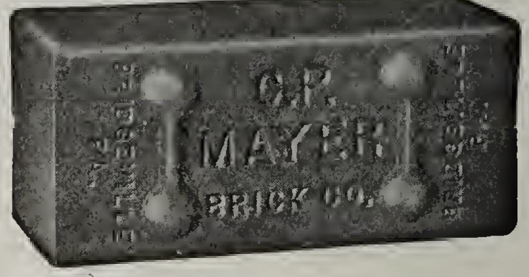
**VITRIFIED PAVING BRICK.**

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of $2.00.

T. A. RANDALL & CO., Publishers, Indianapolis.

**C. P. MAYER BRICK CO.**

BRIDGEVILLE, PA.



The MAYER BLOCK is Unequaled in Abrasion Test.

**"Best Paving Block Made"**

Daily Capacity
500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

**IRONSTONE BLOCK**

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

Terre Haute Vitrified Brick Co.
TERRE HAUTE, IND.

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Murphysboro Paving
Brick Company

Manufacturers of

The Celebrated

**EGYPTIAN PAVING BLOCK**

The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

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**Do You Want Clay?**

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,
(C. A. Bloomfield, Treas. and Manager)
P O. Box 413. METUCHEN, N. J.

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**CLINTON PAVING BRICK CO.**

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

Clinton Paving Brick Company
Clinton, Indiana

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Milton Brick Co.

Manufacturers of

PAVERS, BUILDERS and
ROUGH TEX BRICK

Milton, Pa.

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**Bessemer Limestone Company**

Youngstown, Ohio.

Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

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PURINGTON PAVERS

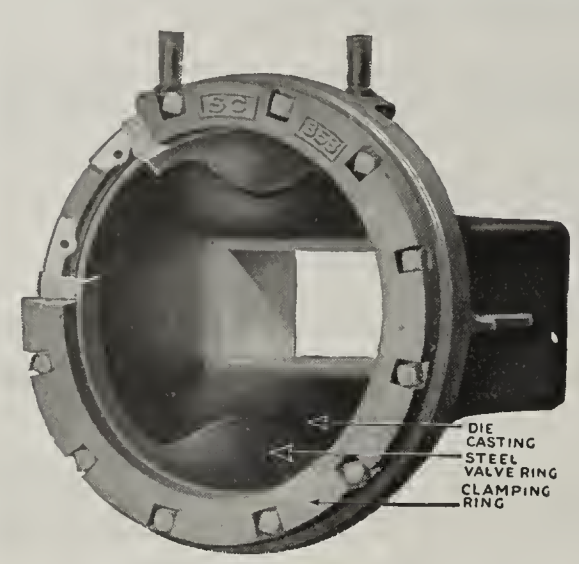
ARE MADE OF

GALESBURG
SHALE

PURINGTON PAVING BRICK CO.
GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

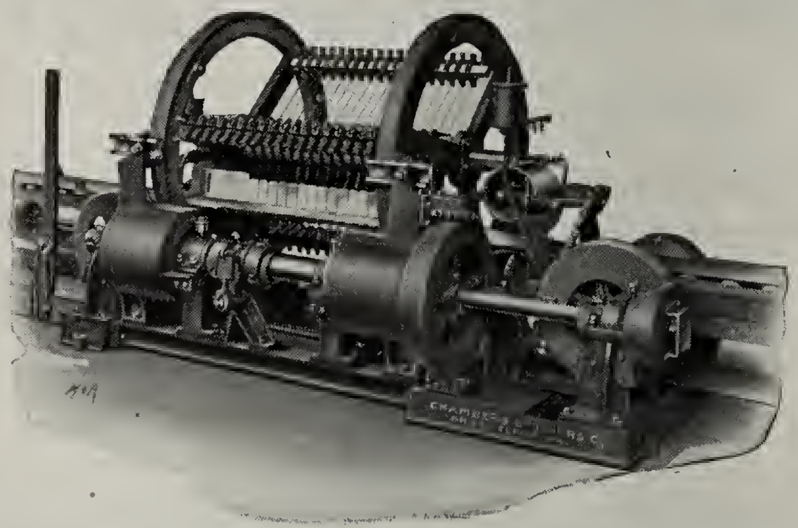
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

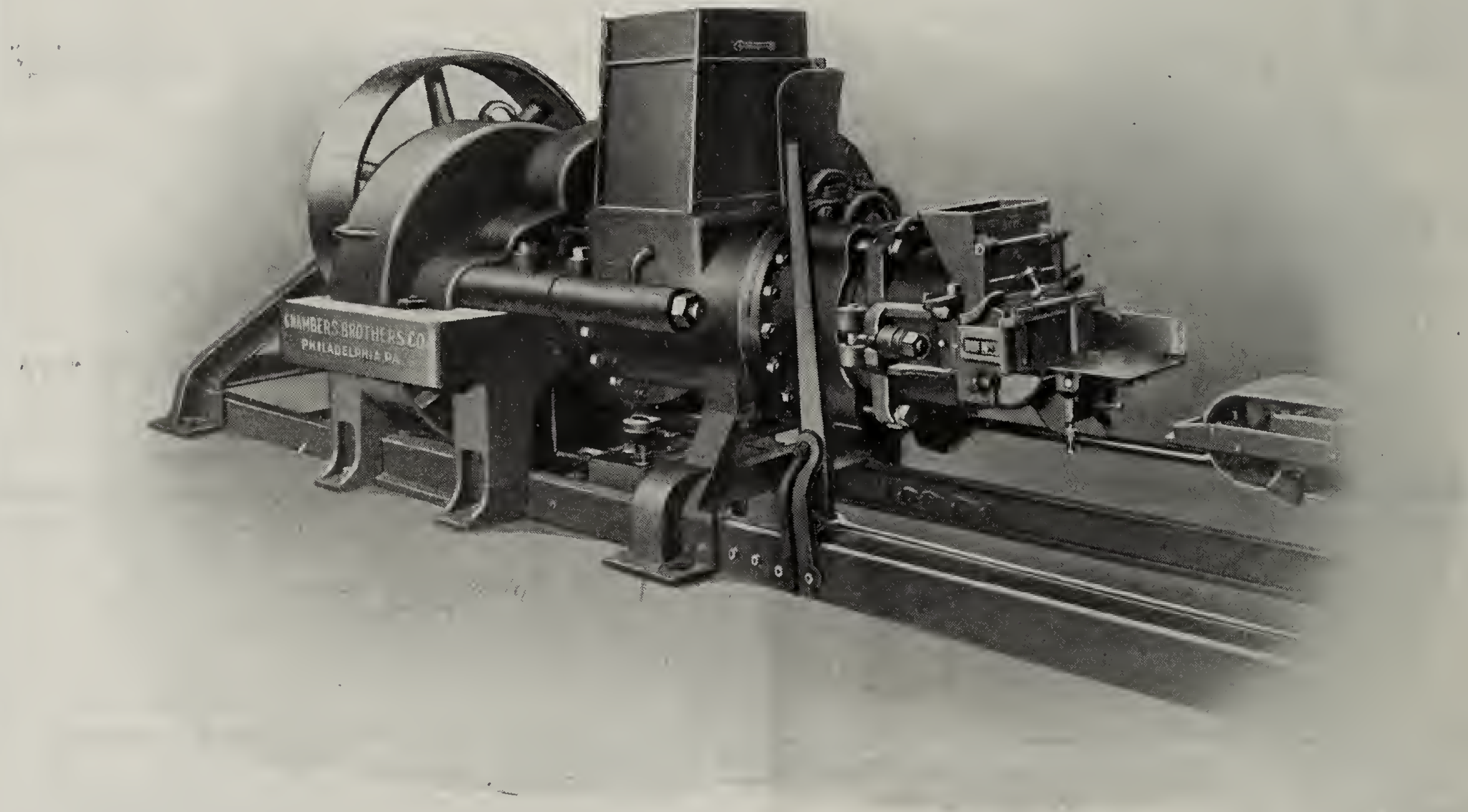
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

**A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.**



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

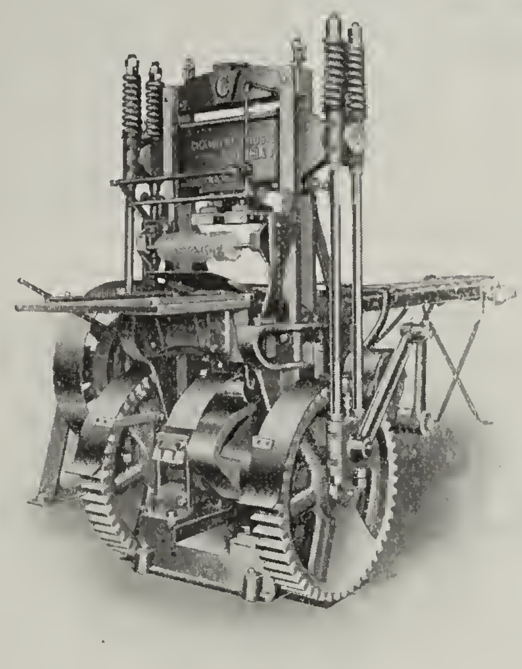
# Chambers Brothers Co., Philadelphia, Pa.

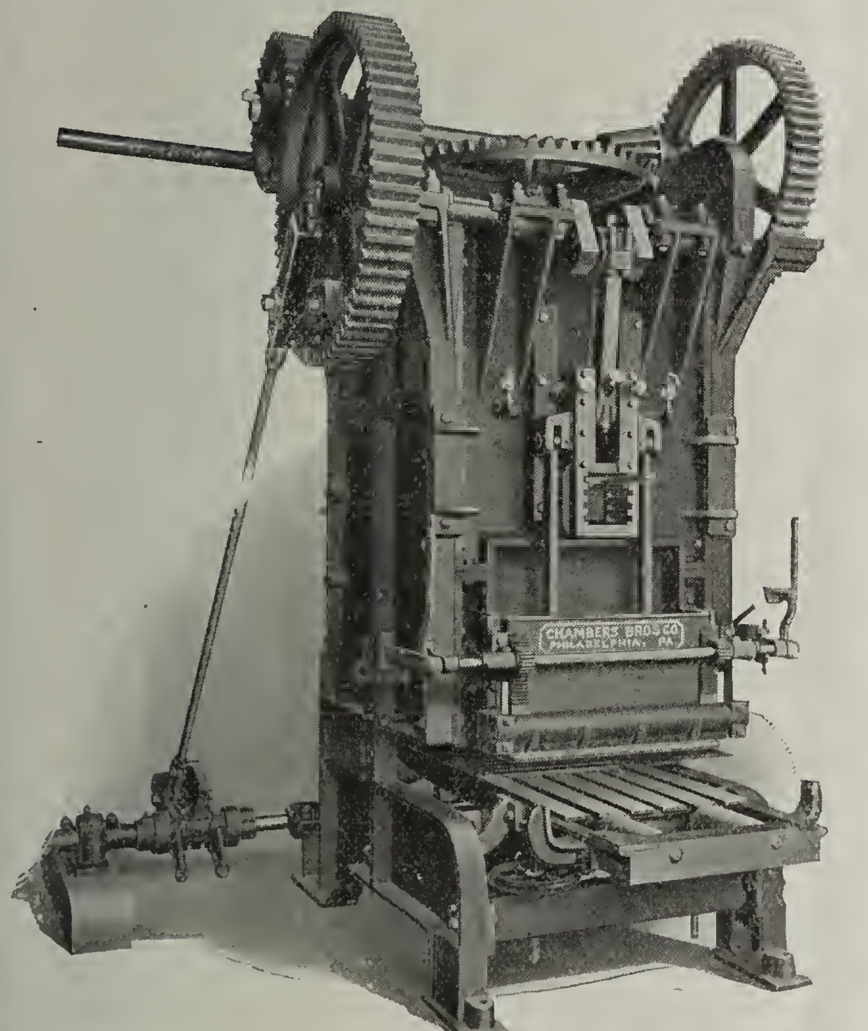
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

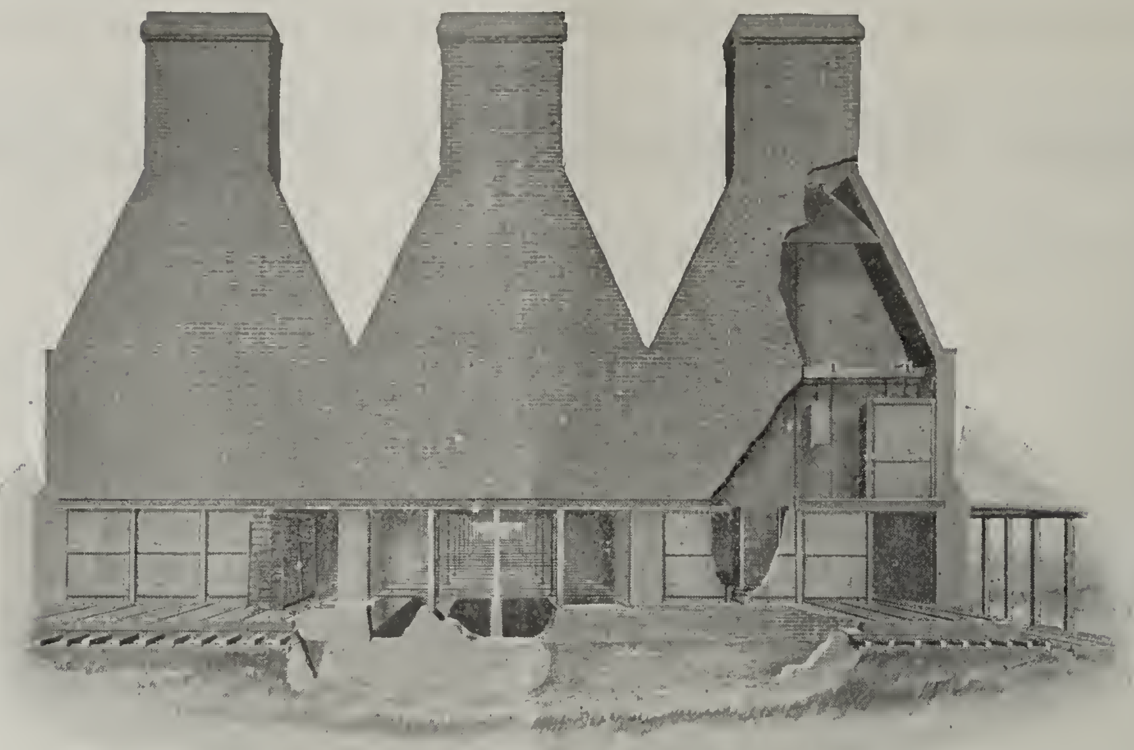
Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

THE BELMONT
SOFT MUD BRICK MACHINE

Molds sharp clean edge brick as stiff as can be dumped from the molds.



Twelve-track Standard Drier of the most up-to-date type of fireproof construction. Timber almost entirely eliminated. Walls and stacks of brick. Roof of brick, concrete or tile.

# Modern Drying Equipment

is an absolute necessity to the *live* brickmaking plant. Up-to-date drying methods will in many cases turn losses into *profits*---by toning up the quality of the product and by the saving of much *time* and *labor* hitherto wasted.

# The Standard Brick Drier

is designed to fit the needs of *any* average plant. The drying elements (heat, humidity and circulation of air) are are so completely under control that it's a simple matter to adapt the drying conditions to precisely suit *your* clay,

Many other brickmakers whose clay is the same as yours have been using The Standard Drier for years with the most successful results. Write us about your clay and we'll refer you to plenty of others who were discouraged by the same problems until they installed The Standard Natural Draft Steam Drier.

Write to them for inside information. We'll send you their names with our catalog, on request.

## The Standard Dry Kiln Co.

**1547 McCarty Street** **Indianapolis, Indiana**

# THE CLAY-WORKER

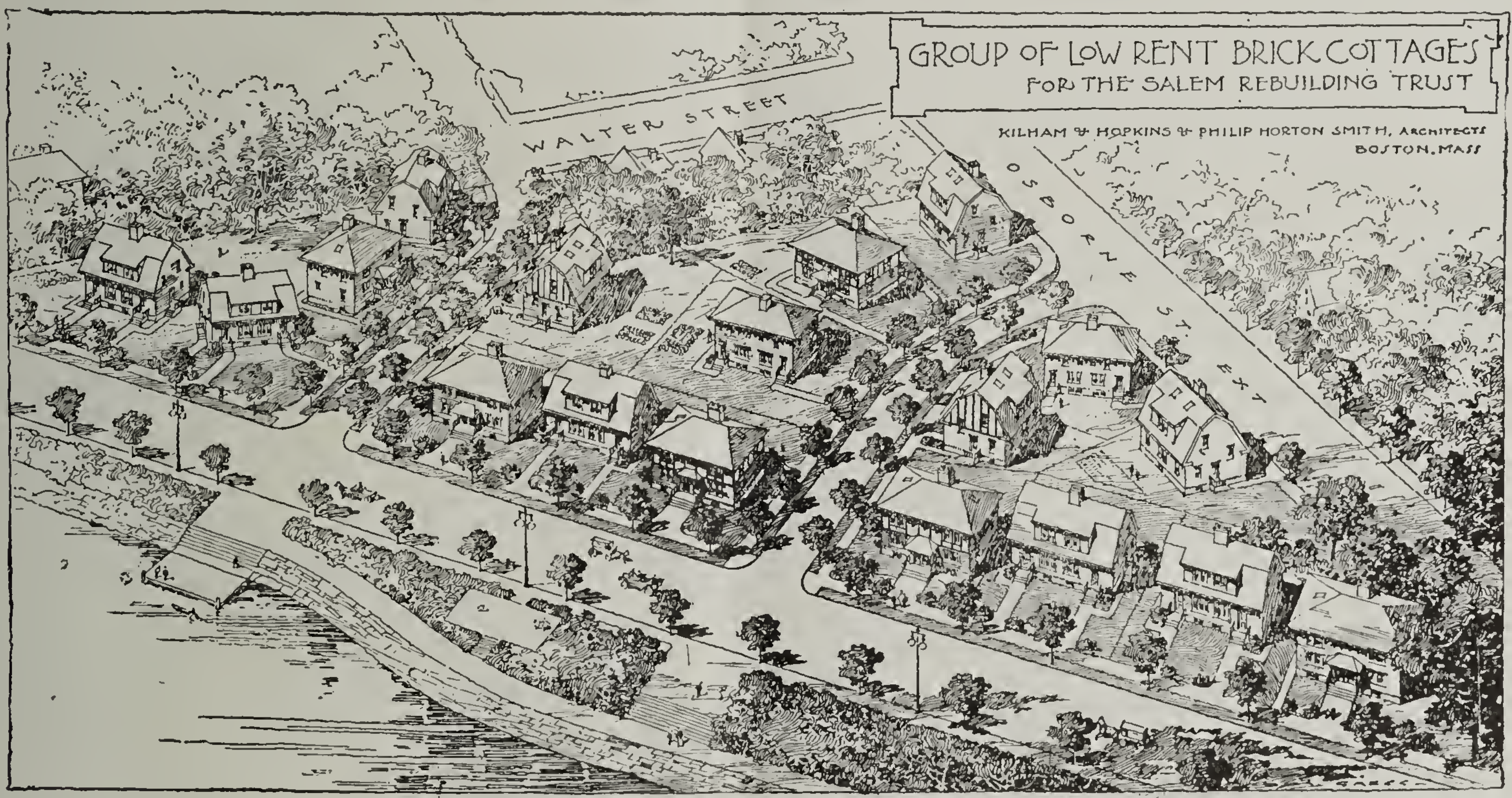
The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIII. INDIANAPOLIS, IND., MAY, 1915. No. 5

## REBUILDING SALEM WITH BRICK.

*The following extracts from an article appearing in the Boston Transcript of April 3, entitled "It Is Cheaper to Pay Rent Than Move and in Such Houses as These," by G. G. Wheat, relate to the splendid work of the Salem Building Trust in promoting groups of low-rent, brick cottages, and gives convincing proof of the many advantages of brick dwellings over the three-decker frame tenements.*

ONE OF THE MOST SERIOUS economic problems of Massachusetts is the housing problem. During the last few years effective efforts have been made to deal with the question intelligently. One of the first difficulties to be overcome was the apathy and indifference of the individuals that make up the public. The public is now so awakened that it recognizes the question as its own to solve.


GROUP OF LOW RENT BRICK COTTAGES
FOR THE SALEM REBUILDING TRUST
KILHAM & HOPKINS & PHILIP HORTON SMITH, ARCHITECTS
BOSTON, MASS
WALTER STREET
OSBORNE ST EXT

—Courtesy Boston Transcript.

A Section of Salem, Mass., Rebuilt with Brick.

It was soon clearly seen that the frame tenement which grew up as the result of uncontrolled selfish private enterprize was a most expensive type of housing; that it is also a serious menace to the welfare of any community, and the decree has been issued, "The frame tenement must go." (How the frame tenement is passing into ancient history is told in another column.)

The next step in progress is to take an active interest in securing good housing whose character shows the good business judgment and the best skill of the architect and builder. In a word, we have awakened to the truth that housing is the most important single business enterprise, and that it represents the largest investment of our wealth. It affects us all and demands our best collective judgment and business enterprise. Once we indifferently thought it was none of our concern. Now we recognize that whether we will or not, we are practically members of a great co-operative housing company which takes our rent moneys and keeps us supplied with habitations. Once we have concluded that we are paying all the bills, we are now demanding that our money be used to provide buildings of a safe and permanent character. We want buildings that give us light and air and outlook, privacy and home life, safety from fire, safety to health, and buildings which will not decay and decline in values and create slums.

The group of cottage homes shown in the little "Garden City" development is Salem's answer to the old claim that frame tenements are an "economic necessity." Salem's answer is, "No, they are not a necessity." They are the worst use any city can make or allow to be made of the money invested in housing. Salem learned her lesson by her own experience. The profound shock of the fire awakened a few minds to endeavor to prevent a repetition of the great mistake of frame tenements, and now Salem is pointing the way which other cities may follow.

### Model Houses for Small Wage Earners.

The Salem Rebuilding Trust is now erecting model houses for the small wage-earner, which prove that he can be housed safely and well. Firetraps are not necessary. High rents are not necessary. Crowding is not necessary. These are some of the valuable suggestions we get from Salem. Homes of four and of five rooms, with bath in each case, are now being built to rent for $15.00 per month. These are real homes and are not tenements. Each family has a separate house and yard and has a home privacy almost equal to the old-fashioned village life in New England. These dwellings are built of brick, with slate roofs, and answer the most rigid requirements of the fire limit restrictions of Salem, which are more rigid than many other cities of the Metropolitan District.

These houses are not a philanthropy but they are, on the contrary a good business investment for the owner. The expenses of upkeep and maintenance are so low that they will prove good income producers at low rentals and will yield a net income of six per cent. after writing off all expenses of taxes, up-keep and sinking or replacement fund.

### Making a Better Salem.

Mr. Walter Trumbull, secretary of the Salem Rebuilding Trust, gave the following statement:

"The Salem Rebuilding Trust has at its disposal $100,000 of the Relief Fund which is to be used for the making of a better Salem. Good business judgment of the trustees and the skill of competent architects combined have produced these model dwellings, which are literally models because they can be duplicated by others profitably and will be better permanent investments than the old style frame tenements. Others are already copying these houses. We freely loan the plans. We are now proving that it is not necessary to rebuild Salem to burn. We also place some second mortgages for those burned out, or to able tenants who can first buy lots. Our whole aim is to use this fund to prove that Salem can be well and safely built, and to point the way.

### The Fire Did Good Housecleaning.

"These homes are the result of applying good business judgment of capable men to the housing problem. The dwellings answer the most rigid definition of any housing code as private dwellings, even to each family having a separate yard. Each family will have unrestricted light and air and be separated from the adjoining family by a fire wall. There will be no other family above or below and, of course, there will be no such thing as closets used in common. I need not comment on what existed in the old crowded frame tenements where dark, unsanitary closets were used by several families. The fire did good housecleaning of those conditions.

"It would now seem a well established fact that the landlord of cheap frame tenements has been exploiting the tenant and doing it at a profit. And, at the same time, doing it by means of a really expensive type of housing, housing which, in the long run, is really more expensive to build and maintain than those which are now building for the Salem Rebuilding Trust.

"The congestion of tenants on the land, the increased land values and further congestion are all so interdependent that argument will not successfully prove which comes first. At any rate, we are not congesting population or inflating land values and we will not exploit the tenant. Rentals in the old type of tenement were from $3.50 to even $5.00 per room per month. Our rentals will be no higher than $3.50 per room per month. Yard space and garden room are all included, of course. These were unknown in the old tenement districts and the street was the child's only playground.

Viewed broadly from a city planning standpoint this is a most vital work for Salem, or any city's future. Buildings and developments of this character are real assets to any city and will never become liabilities, for they will maintain their character and value."

From Kilham & Hopkins, the architects of the development, data were obtained which show that the amount of room in one of these houses is equal to any average four-room apartment, or about 900 square feet. In one style of cottage it is divided into four, and in the other style of cottage it is divided into five rooms, with bath room in each case.

The vital question from the investment standpoint is the initial cost per family for the dwellings. The cost of each double dwelling is $3,775, and the land is $280, making $4,055 for each two-family dwelling. This is $2,027.50 per family and is not more than the usual cost of housing for the small family. The average frame three-decker costs more than this amount per family, being often as much as $2,700 to $2,800 per family. The three-decker offers some conveniences and accommodations which are not found in these dwellings, yet these dwellings furnish much that is lacking in the three-decker. Especially in the yard for lawn and garden, and the privacy that make for a real home life for a family with children. And lastly, these buildings are not firetraps, nor are they in any sense fire spreaders, whereas the three-story frame tenements that burned in Salem were proof that they were and are the very worst type of conflagration spreader.

The first purpose of these dwellings is to provide a real home at a rent within the worker's income. It seems perfectly clear that on any basis of comparison it is now possible for a man to be better housed in brick cottages on the ground than in three-flatters at the same rental. * * * * * * * * * The Transcript has several times shown that the rentals of frame and brick apartment buildings in the same locality are identical. Several members of the Chamber of Commerce fire prevention committee visited many sections of Dorchester, South Boston and Chelsea, and by inquiring of tenants learned the same truth conclusively.

### Improvement in East Boston.

In East Boston a most interesting example of better housing was found. Much is said about the "North End," and the criticisms are usually just. This East Boston "little city" is peopled by those who have graduated from the "North End." Over 600 families live under conditions of all outside rooms, no building over three stories high, fire-proof stair walls, buildings ten and twelve and sixteen feet apart. These buildings are all brick, though they were built outside the fire limits as they then existed. Cottage Street Playground lies in the center of this section, and, looking from the playground, one gains the impression of being in some substantial European city. The conditions are all controlled by those who bring their ideas with them from Europe.

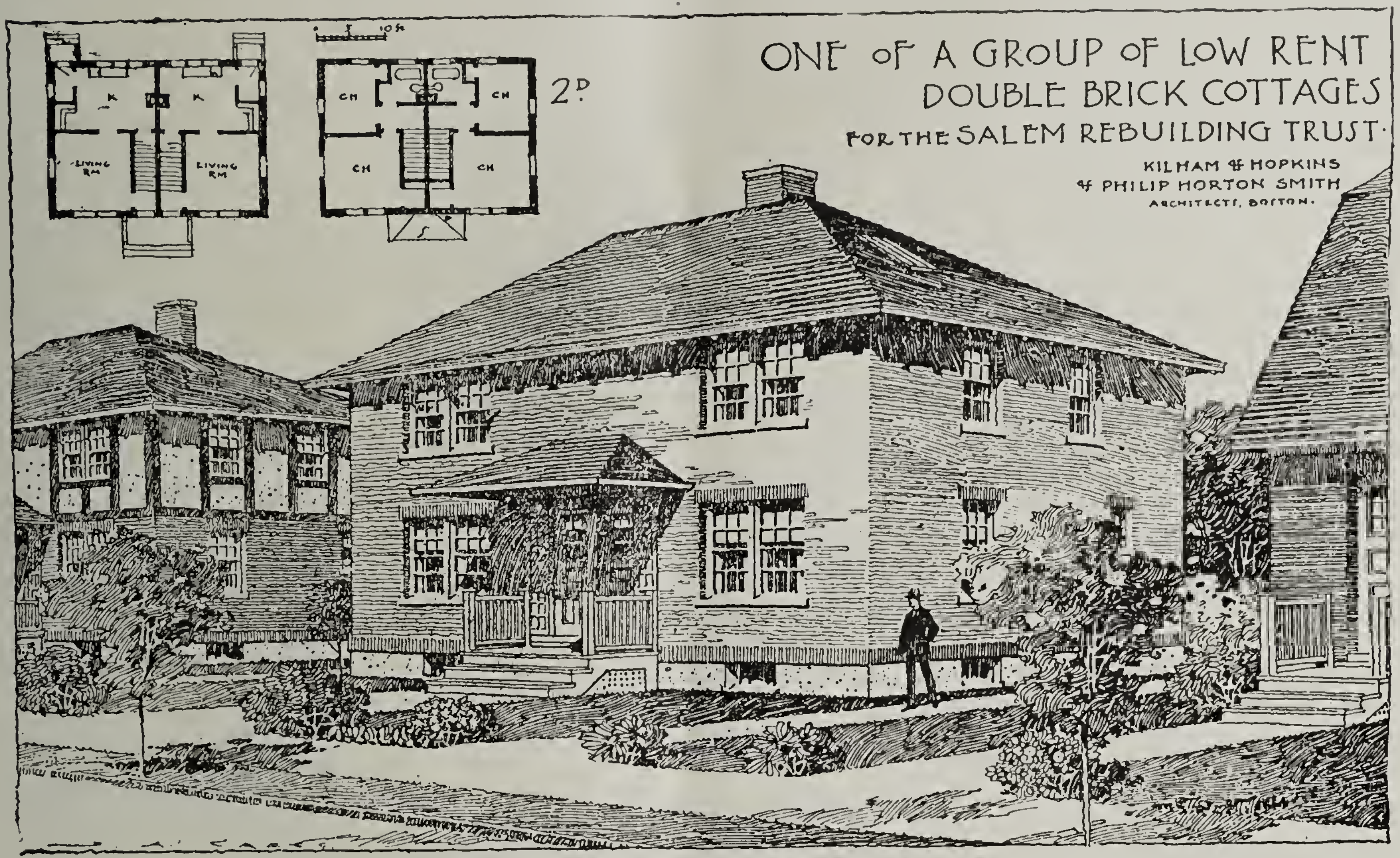
Surrounding or adjoining this section is a wilderness of old, decrepit wooden tenements, unpainted now and decaying rapidly. There may be more striking examples of the decline and decay of a residence district than these old wooden tenements, but it is doubtful.

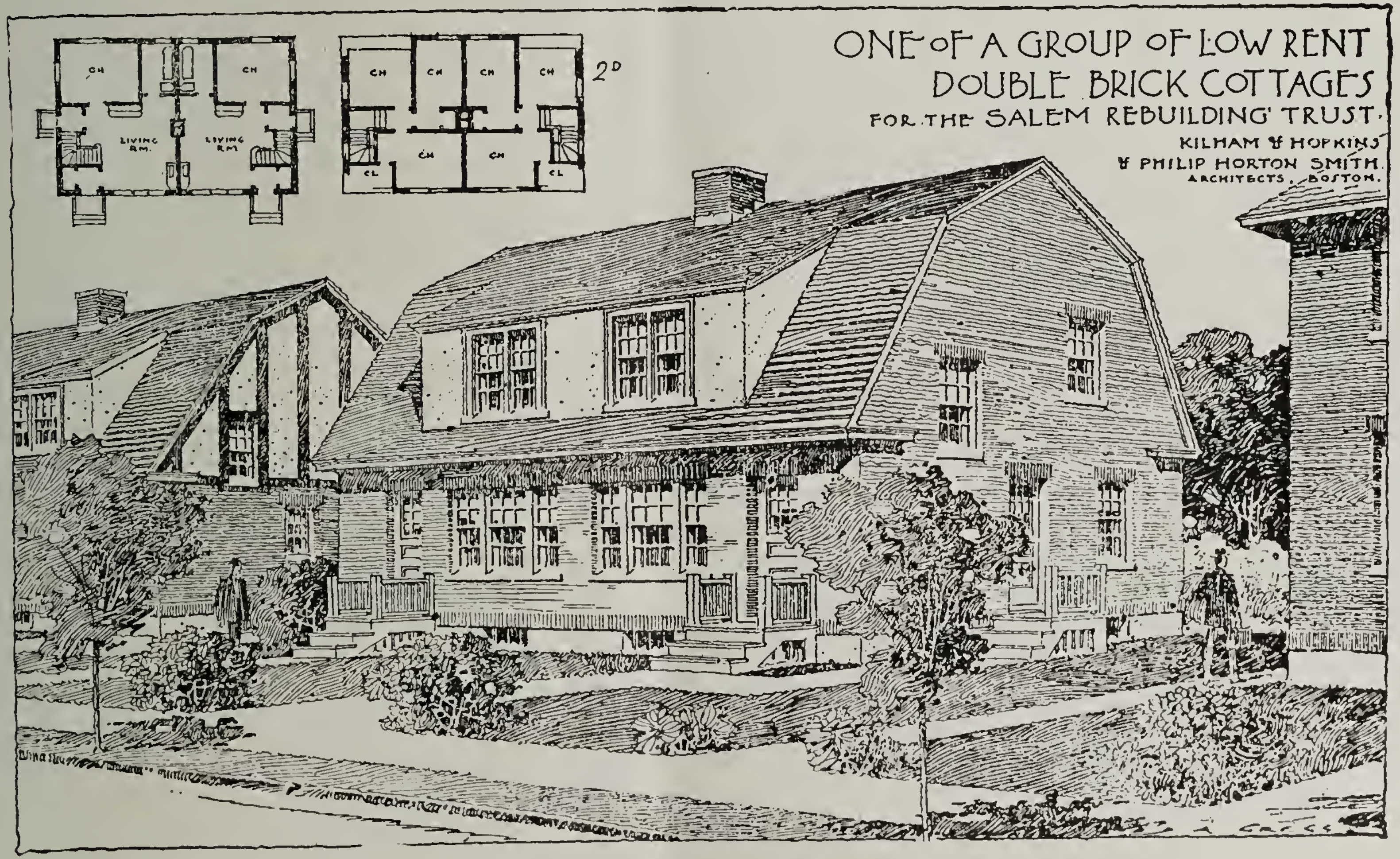
The tenants of the new "little city" have modern conveniences—built-in cupboards, china closets, etc., terrazzo bathroom and entrance doors. Rentals are $3.50 per room per month. The usual apartment is four rooms, with floor space of 800 square feet, at $14 per month, which is very moderate when compared with the usual rental of frame apartments. No heat in either case.

### The Frame Tenement.

The whole question of the frame tenement as solution of the housing problem is well summed up in the words of C. H. Blackall, architect, speaking as chairman of the fire prevention committee of the Chamber of Commerce. He said:

"The three-decker is not an economic necessity. It has grown up almost wholly through the efforts of the speculative builder, who is more interested in building and disposing of a poorly constructed house and getting his money back on the land than he is in any real study of the housing problem, and wherever this problem has been worked out in a scientific manner, the wooden three-decker has never received serious consideration, and, in fact, the three-decker in any material has been superseded in nearly all scientific solutions of the problem by group planning or individual houses, and it can be shown beyond a question that, given a certain area of land and the desire simply to build in the most economic manner, a wooden three-decker is the last resort; and the best solution, both from the point of money, of sanitation, of comfort and individual self-respect can be obtained without recourse to such indiscriminate crowding as is implied in the three-decker. So that if it is desired to house people of very moderate means, who cannot afford to pay more than $20 a month at the outside, and most of whom can pay only $15, we would be conferring a great boon to just that class by making it impossible for them to be exploited by the builders of wooden three-deckers, who, under the guise of helping the poor people, are really their worst enemies from the housing standpoint.





—Courtesy Boston Transcript.

Danger of Fire Loss Greatly Reduced in These Houses.

"Nor is the cost of the wooden three-decker a determining factor in the discussion. The Chamber of Commerce has presented to the Common Council repeatedly figures of cost which show that the excess of proper construction over the sham wood which is now used so indiscriminately is less than 7 per cent., and in some cases which I have personally investigated less than $140 extra on a building costing $6,000. This slight excess is more than counterbalanced by the annual saving in upkeep and by the increased life of the structure, so that again, by insisting upon a better construction, you are not increasing the burdens of cost, but in the course of a few years you are distinctly lessening it.

"Another consideration which I would ask you to most urgently consider is the effect of the wooden three-decker on a neighborhood. Such a building begins to depreciate the moment it is finished. With the utmost care it will get shabby in less than a year. The policy under which these three-deckers have mostly been built has been to rush the construction, economize in every possible way, mortgage the property for all it is worth, fill it up with tenants, sell it for as slight a cash payment as possible, taking back only a second mortgage, and then trust to luck the purchaser will be able to pay the price. The result is, when the mortgages come due the property has depreciated so that it will hardly bring more than the first mortgage, with the result that the original purchaser is frozen out and loses all he puts in. Meanwhile the tenants who have moved into a new building, move again into another new structure, repeating this process indefinitely, so rarely do tenants remain in the same house for any length of time, and the building which may have started in a self-respecting manner is each year leased to a poorer class of tenants, and the neighborhood in a few years is ruined for anything but the cheapest kind of property. This means that the very poor, who ought to have our intelligent help, who are least capable of helping themselves, have to take the neglected leavings of the class above them, instead of being intelligently housed as they should be within their means. It means also that a neighborhood is ruined for any permanent improvement."

The third other important objection to the three-decker is a social one. Your Honor, I am sure, will admit that anything which tends to raise the self-respect of the working classes, to increase their love of their home, to make them feel a part of the soil, to give them a sense of ownership in the city and a desire to contribute to its prosperity, should be welcomed by every reasonable means. The three-decker encourages migration and thereby substitutes a shifting population for one attached to a locality, thereby incidentally also checking civic pride and destroying a sense of district citizenship. Also, the wooden three-decker obliges every man to live in the face and eyes of his neighbor by substituting the cheapest, most unintelligent scheme of planning in mass for a scientific solution of the general housing problem; and a reasonable privacy is admitted to be one of the best guardians of civic virtues. The wooden three-decker discourages any attempt of the final and just solution of the housing problem, because it allows the speculative builder, whose interests are only in turning over his money quickly, to do as he pleases, unit by unit, without any consideration for a general plan that would give poor people what they want without calling for so great a sacrifice of the personal relations.

(To be continued.)

### A HIBERNIAN.

Mr. Cutler, the promising young artist, was making a call on Mrs. Dillon, a new member of society.

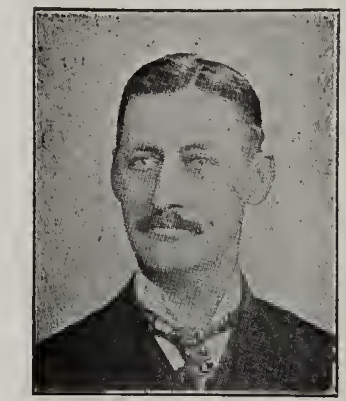
"I do not expect to go out in society much this winter," said the young man, in response to some question of his hostess, "I am going to hibernate."

"Indeed, are you really?" exclaimed Mrs. Dillon, with evident pleasure. "Well, you will enjoy your trip. I was over to Ireland last summer."

## BUTTON-HOLE TALKS.

### JOGGING ALONG—No. 4.

"THE Man with the Plastered Hair" had been with us on the train also. Now he was sitting there opposite me with the same far-away look in his eyes that he had worn in them all those days in the journey across the continent. He had given his order, evidently, and was simply waiting, not asleep, not dead, but just quiescent. He had been conspicuous on the trip across for his hair, and for his hair only. He had spoken to no one, he had done nothing but sit listlessly, looking vacant and empty, as he now looked sitting opposite me at the table. So far as any of his traveling companions knew his personality was all in his hair. It was the only thing that impressed any of us, the only characteristic of him that we retained. It was plastered so slick and smooth. It was so evidently a wig, was so absolutely and immaculately artificial, that it held our attention all the time of the journey, wondering what he did with it nights and fearful that he wouldn't get it on right in the morning. Every morning we looked, dreadingly and apprehensively fearful that it might be on crooked, or worse yet, wrong side front.


W. D. Gates.

It had always been a mystery to me how men could wear their wigs in the bold manner that they did. When they put them on they see the front side only, of course, and have no idea, or little idea, of the appearance at the back and around the edges. Bald headed men, or men approaching baldness, of course, are in the same class. They carry the parting lower and lower, using great judgment as to the amount of hair they need carry up over their dome, to cover and hide it, but always being too stingy with it and not carrying enough. The thin, transparent effect they thus produce only makes the baldness the more apparent. As long though as they are ignorant of this, even though they are the only ones ignorant, they seem perfectly content. Were they as easily convinced about the other things of life as they are about their hidden baldness they would be, indeed, lovable citizens. But this supreme confidence is most pronounced when they reach, at last, the surrender stage of putting on a wig. Then their confidence is supreme, they are fooling everybody. I remember, in the days of my boyhood, a good old deacon who was very bald and yet was "looking round," who, when he set his heart on winning a rather mature, red-haired spinster, went into the city and reappeared wearing an auburn wig, to match hers. I regret, sincerely, also that my memory recalls that he lost out in spite of his heroic effort.

Looking across at my wig-topped companion, and bearing in mind the adage that there is good in all things, I was comforted by the thought that there was no danger of his dropping any hairs on the table anyway. They were all rivetted on, so to speak, "bought and paid for," and there to stay, thanks to the conscientious manufacturer.

Well, just then, his waiter appeared loaded with the eatables he had ordered, and spread them out over the table, even having to trespass far out on my side. The man of the wig sat and looked at the array. Looked at it disparagingly. Then he began to criticise. The steak was overdone, the baked potato underdone, the tea was cold. This attracted my admiration. In this tea drinking country this was a bold body blow to them, to find fault with their tea. I myself had been timid as to tea, so to speak. They had me bluffed. This man, however, bluffed back and put it over them. Really, I think, the tea business was what fixed the haughty waiter and sent him back humble and subdued. When he returned with new food, or possibly the same after carrying it through the kitchen, the wig man proceeded in a dignified and gratified manner to get acquainted with his food. Suddenly he stopped as he was buttering his roll, called the waiter to him and guided him to the butter plate in which he had located a hair. Then he put on the loud pedal and expressed his views until he had the waiter grovelling. He held the waiter personally responsible, held the owner of the hotel personally accountable and the Canadian government liable for the outrage. Of course, I had gathered that he was a very particular man on the hair question before this incident, but I had no idea that he was so very particular as all this indicated. Evidently, he was one of those that believe that "The hairs of your head are all numbered," and that this particular hair didn't have his number. For a man with so little hair himself he seemed rather emotional on the matter. He was fixed on the idea that this wasn't his hair; that he had all the hair he wanted or if he wanted more he knew where to go to get it and would make his own selection. As far as I was concerned, and particularly as this wasn't my hair nor in my butter, I could be calm and dispassionate. The bare fact of the hair in the butter rather went to indicate that the butter was indeed butter. It suggested the presence on the scene of the milk maid. Testified of her presence somewhere in the life history of this particular dab of butter. True it told little of the character and attributes of the girl, except that it indeed tended to the impression that she was careless though probably generous and free. One hair, more or less, didn't trouble her. She had more than he had anyway and this may have tended to make her more prodigal with it.

Following this train of thought, and absorbed in it, I had taken no notice of the happenings in the room until now, looking up, I saw, coming toward us and wearing a happy smile, the "Man with the Square Toed Shoes." He was just reaching for his chair at our table, when his eye fell on the "Man with the Plastered Hair." He stopped; his expression changed to one of wonder, as he looked inquiringly at me, then he stood making a survey of the entire room in a calculating manner, sizing up each individual, one after another. Then there came a sudden change in his features, a grin spread itself all over his features, broadening and growing until it crowded his ears, then turning he walked directly to another table and seated himself opposite the solitary occupant of that table, at the same time turning to me with a grin, broader than ever, if possible, and a decided wink. Wonderingly, I looked to see the man opposite, whose company he had chosen so hurriedly in preference to ours, and behold it was the "Man with the Lavender Spats."

Determined to make the most of the situation, I went to it to make this silent man opposite me talk. I would learn his life history and thus astonish this man with the shoes when he saw how I had gotten this silent man to talking. So I went to it determinedly.

"Were you not on the train with me in the long ride across the plains?" I asked as a starter. Just glancing over at me, for a moment, he answered, "Yes." Much encouraged at this auspicious start, I continued:

"What an event such a trip is in a man's life anyway. The relaxation from business cares that comes to him, at the very start of the trip, as he settles himself in his seat. All the hurry and bustle of the cleaning up of business matters is now in the past and, as the train pulls out, he settles down in his seat with a sigh of relief, for he is, at last, able to give himself up to a rest, to a real rest. Isn't it wonderful to have a real, quiet, reposeful rest?" I asked him, pausing and looking over to him awaiting his reply. Barely glancing at me, he answered, "Yes, I wish I had one."

Charmed that he had so thawed out I continued, "Then when rested a bit one can enjoy the society in which he finds himself. Strangers to one another, at first, but rapidly becoming acquainted and finding common points of interest." Talking in this vein, I was surprised and delighted to hear him call out BILL. How in the world had he discovered that my name was William and how charming for him to drop into the familiarity of calling me Bill.

Looking over at him, however, I discovered that he was talking to, and paying the waiter, after which he left the table without giving me a look. Passing out of the dining room, the Man with the Shoes ranged alongside and said, "Isn't it chilly tonight? Why did you tackle it? Haven't you heard about 'Twilight Sleep?' That's him. He's it."

"Nonsense," said I, "I had a delightful evening. Some time I'll tell you the history of his life." GATES.

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Written for The Clay-Worker.

## BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.

IT DEPENDS SOMEWHAT on the time of day and the appearance of the weather as to just how optimistic a brick man may chance to be at this time. Some feel optimistic, some pessimistic. As a matter of fact, business is a little slow just now in the common brick lines. This is partially due to a somewhat backward season, somewhat to the more free use of hollow tile where common brick were formerly used exclusively. Pressed brick business is fairly good, although reported a little off of last season's records. All of the local yards are running, but are operating at about only one-third capacity.

There are in Toledo at this time about 10,000,000 brick in stock, although at this time last year there were practically no brick to be had here. The demand for brick has really been heavier from outside sources than right in Toledo proper. The call from Northwestern Ohio is rather lighter than usual at this season of the year.

The paving brick concerns are working hard to fill their orders and are finding difficulty. Ohio is still working hard at road building, as was the case last season. Brick is a favored material and has been, even for the country roads. Paving brick are bringing from $14 to $15 at the factory. Common brick are selling at $7.50, delivered in the city.

Several new buildings are under construction here at present, which will make use of a large number of brick. The Harvester building, a new five-story structure being erected for the International Harvester Company, will be constructed of common red brick for interior and red shale brick for the exterior. About a million brick will be used in this structure. A million brick were used in the immense addition to the Willys-Overland automobile plant, 350,000 in the Northern National Bank building, half a million in the new Reformed Church structure, while many other business and residence structures are being planned or are now under way, using considerable brick.

Lauder Bros., burlap manufacturers, are planning a $20,000 factory building at 841 Buckingham street. The building will be of brick construction.

Several thousand dollars' worth of street and sewer contracts were recently awarded by Service Director Boardman.

The Home Fuel and Supply Company is now dealing with wholesale and retail builders' supplies. The company has leased 1,000 feet of ground between the Wabash railroad and the river, which gives full trackage over the entire grounds and also dockage for sand and gravel. The company has well-equipped yards on the Michigan Central tracks at Monroe street. The firm is a jobber of fire clay and shale pipe, manufactured in Ohio. F. R. Cornell, traveling freight agent of the Wabash railroad, is president of the concern. Mr. Cornell will be more actively connected with the firm in the future. Vice President M. E. Taylor will have charge of the Broadway yards. Secretary and Treasurer R. W. Taylor is general manager of the company, with main office on Monroe street. The officers, with H. L. Rakestraw and J. W. Smith, form the board of directors. T. O. D.

# Will the Panama=Pacific International Exposition be an Architectural Influence?

BY GEORGE WILLIAM KELHAM

CHIEF OF THE DEPARTMENT OF ARCHITECTURE, PANAMA-PACIFIC INTERNATIONAL EXPOSITION
SAN FRANCISCO, 1915

IT has often been said that one who has to do with the creation of any form of art should be the last to deal with its criticism, and while there may perhaps be merit in this contention, as indeed there are many subscribers to it, I am not among them. An able designer (using the word in its broadest creative sense) should be, and I believe is, the most severe and searching critic of his own work.

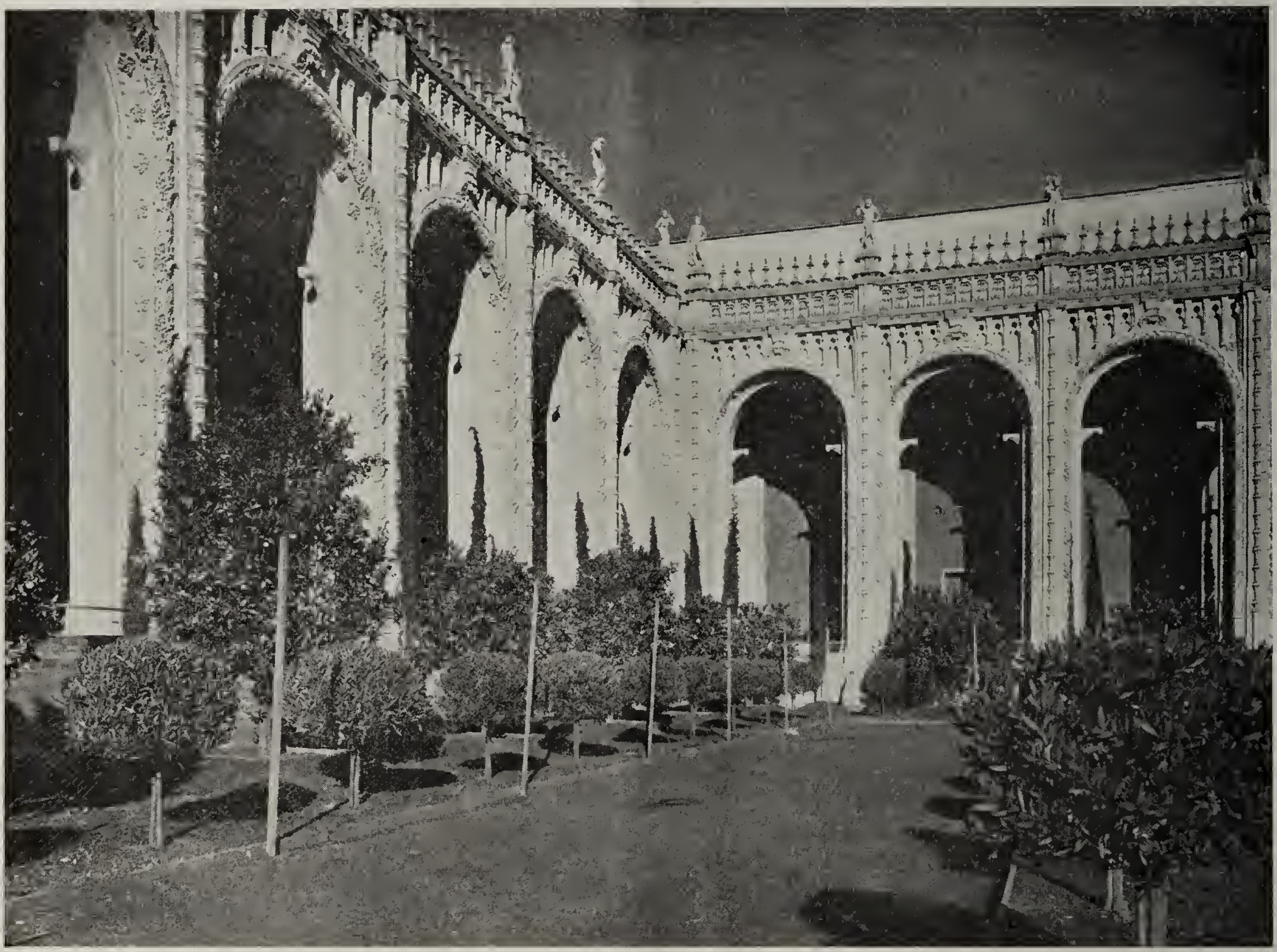
This thought is reminiscent of an idea which has been long in my mind, and which I hope still to realize: That some day before the buildings of the Panama-Pacific International Exposition shall have become only a memory, there may again gather round the drawing board, the group of men who created them, and with the same spirit of frank and helpful criticism that pervaded our former meetings, each of us would state his more mature judgments; where we have perhaps realized our aims or in like degree, missed the mark. I can imagine no more interesting meeting from an architectural point of view, nor one more instructive. Certainly, too, no one could judge with more fairness, since to properly criticise any achievement, one should first of all have full knowledge of the conditions and limitations surrounding it.

But after all, few are concerned with the troubles that beset any undertaking, so let us to the real subject in hand; does this Exposition present a new impression viewed from the standpoint of the designer, the trained Exposition man and the people at large?

It seems to me in judging a work of this kind, all of us are too prone to be impressed by details of one sort or another and fail to take a sufficiently broad viewpoint; as when a well-known writer recently expressed the thought "that color was the soul of this Exposition and its real message to the American people," an equally well-known eastern artist selected several groups of sculpture (and they are masterly compositions) as being the things that would live, whereas a third could not see beyond the architectural motives—and so on.

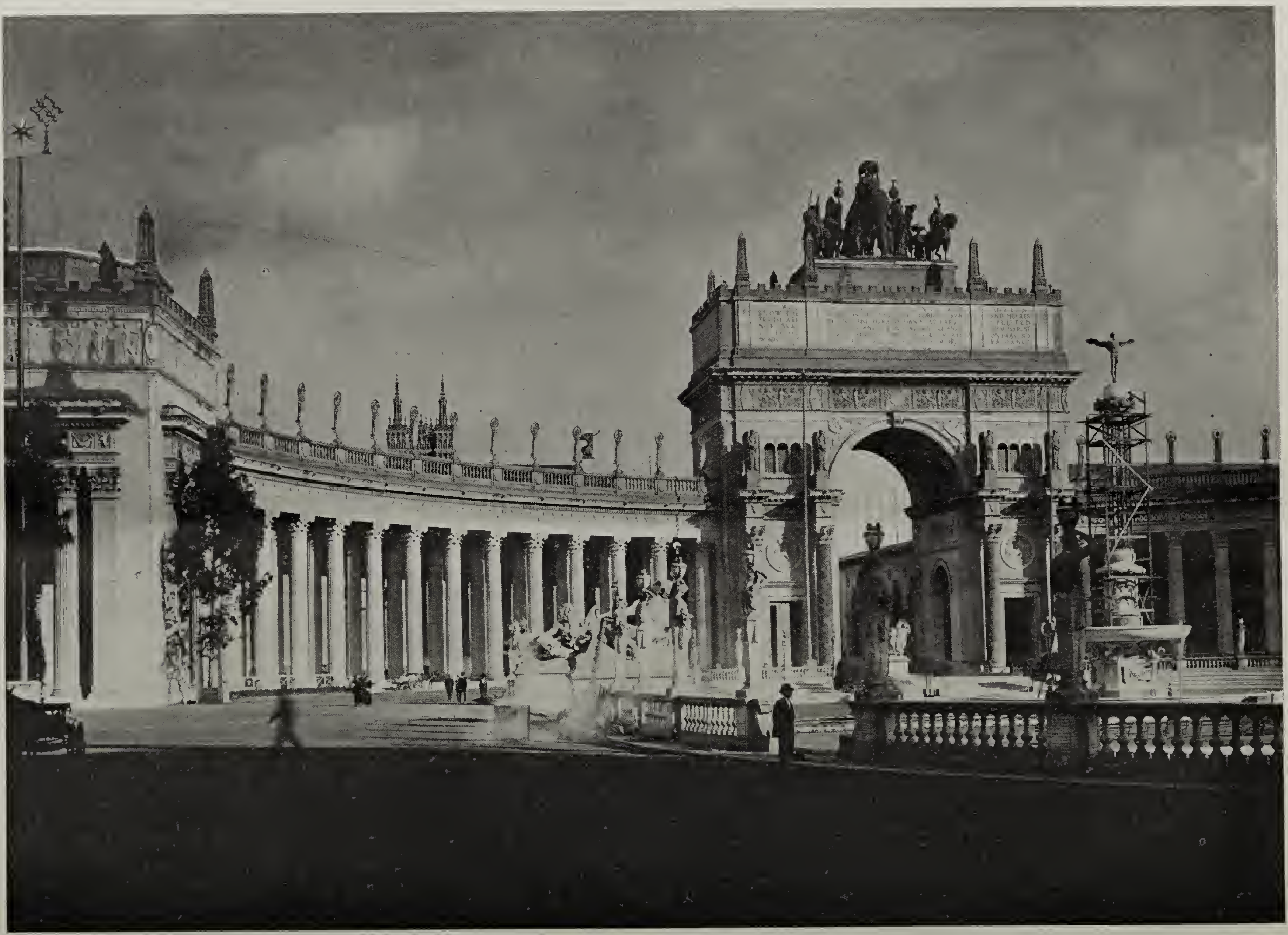
Now while nobody admires much of our sculpture more than I do, and while I have from the first urged the freest use of color where possible, I cannot help disagreeing frankly with those various views, and confessing to a sense of disappointment when I hear them expressed, for to me none have the real meaning which the architectural scheme of the Exposition should convey.

It has been often charged and with truth, that as a people



—Courtesy The Pacific Coast Architect.

Detail of Arcade, Court of Abundance, Panama-Pacific International Exposition.
Louis Christian Mullgardt, Architect.



One of the Triumphal Arches, Court of the Universe,
Panama-Pacific International Exposition.

McKim, Mead & White, Architects.

—Courtesy The Pacific Coast Architect.

we are inartistic and have failed time and again to take advantage of great opportunities in our attempts to create things artistic. Some of this is, no doubt, due to our own profession and some of it to our clients, but more than all to our inability to appreciate beauty at its true value. It is even not too much to say that we have looked upon our workers in art as of little real importance to the community and have treated them with good natured tolerance.

In proof of this we need only remember that both the Atlantic and Pacific coasts started in life with splendid types of architecture which fitted happily with nature, and both have spent the past hundred years in disregarding these worthy models and in creating buildings that had neither character, meaning nor charm. Happily, all this has changed much in the past few years, and America is now advancing and creating a new period in her artistic life, as surely as it is evolved in any European country. If we cannot yet walk, we have certainly learned to creep, and are beginning to know beauty and to appraise it at its true worth. It is in the hope and belief that the present Exposition will be a factor and a help in this growth, that we have worked to create it.

Beginning with the general plan (the work of the entire Architectural Commission) and going on to the last detail, we have tried to show that such an undertaking can be carried out in harmony and beauty, and have realized from the first that we must make of architecture, painting, sculpture and landscape a composite mind that should work as one, if we were to realize our conception, and this has been, I believe, carried out more fully than in the past. No one of these elements has been allowed to dominate, nothing has been "starred," each has been treated as one of the four wheels of the coach, no more, no less important than its neighbor. I think it is this fact that has given to our buildings and grounds whatever quality they may possess, and which recently caused Mr. S. S. McClure to remark after viewing them, "I have the most extraordinary feeling that all this belongs here and has always been here." No finer compliments could have been paid the Exposition, as well as those who have worked to make it, and Mr. McClure struck the real heart of the thing. If we have succeeded in combining art and nature so that each seems a part of the other, in bringing the wonderful Bay of San Francisco and the mountains beyond, into our picture, in making our great group of buildings nestle in their surroundings, both in form and color, then we have indeed made a large part of our early dream a reality, and the real meaning of what we have tried for is made clear. That is the impression which I hope the great throng of visitors will receive and with it a growing sense and understanding that in taking up the problems which each of them as individuals or communities may face, there exists the same chances to work along lines of harmony and the general "fitness" of things. Each one will doubtless see many individual notes to criticise, perhaps many to admire, but it is as a whole that our work should be judged and its educational value measured.

I have never, and shall not now attempt to discuss the architecture of the Exposition in detail. That "one man's meat is another's poison," was never truer than in our own profession. Such compositions, however, as the Court of the Universe and the Fine Arts building, to mention only two, will surely be long remembered by all of us, and the fact that one gets a constantly changing picture, both in architecture and landscape, in passing through the grounds has already proven a delight to visitors.

Each of us who have designed parts of the work has been actuated solely by a desire to make his work a fitting part of the general scheme and at the same time as much an expression of beauty as in him lay. That all these different motives, different both in scale and style, can be made to dwell together so happily, is of constant interest to me and will perhaps be an object lesson to some of our American cities—that less depends upon what we do than upon how we do it.

In this connection it is with the greatest pleasure, that I pay a just tribute to the men who have contributed so largely to the work as planned by the members of the Architectural Commission. The help we have received from Karl Bitter and A. Sterling Calder in sculpture, and from Jules Guerin in color, has been invaluable, while John McLaren, who promised us much in the development of landscape, has even exceeded what we have asked of him.

That the general tone and texture of the buildings and statuary is a notable advance over what has been done at previous expositions, I know all will agree, and for helping us to get away from the monotony of white staff, we are indebted to Paul Denivelle, who conceived our present material and has most ably carried out its execution.

That this whole undertaking has been brought to a successful termination is due, in a tremendous measure, also, to another factor which is often lost sight of—the client. I can hear somebody ask right away what has that to do with the architecture, and I should answer them—almost everything. No work of this kind could conceivably be a success without the warmest sympathy and confidence between architect and client, and the fact that we have had this sympathy and support at all times, and have been left wholly free to carry out the scheme as our judgment dictated, is something that touches our profession closely, and is in the truest sense an "architectural influence" that will leave its mark.

In this respect, and as one who has been closely connected with the work, I feel a personal sense of gratitude to the president, the buildings and grounds committee and the director of works.

If the exhibits of an Exposition of this kind are great educational influence—which few will question—then the architecture should certainly walk hand in hand toward the same goal and the same influence.

It is of slight importance whether some individual part is of greater or less merit, or whether certain individuals do or do not admire them, but it is of vast and vital moment that the people who visit this Exposition shall receive an impression of a monumental composition in which everything takes its proper place, and above all, one that shall make a lasting impression, if possible, in their minds. In just the degree that this occurs, the exposition will be a real architectural influence on those viewing it, and our work as a body of architects will justify the effort that has been put forth.

We are, as things go, a young country, and our people, as a whole, have not had the same opportunities for viewing great works in art which some older civilizations enjoy, so the more important it becomes to our profession that such opportunities as this should count to the fullest degree.

I, for one, am hopeful enough to believe that were the ruins of this Exposition to be discovered by some group of searching archeologists two thousand years hence, they would regard us as having been a highly civilized people.

Let us hope, too, that those viewing it as it now stands may feel that we have in some degree measured up to the very wonderful setting and opportunity which nature provided us.—Reprinted, by permission, from The Pacific Coast Architect.

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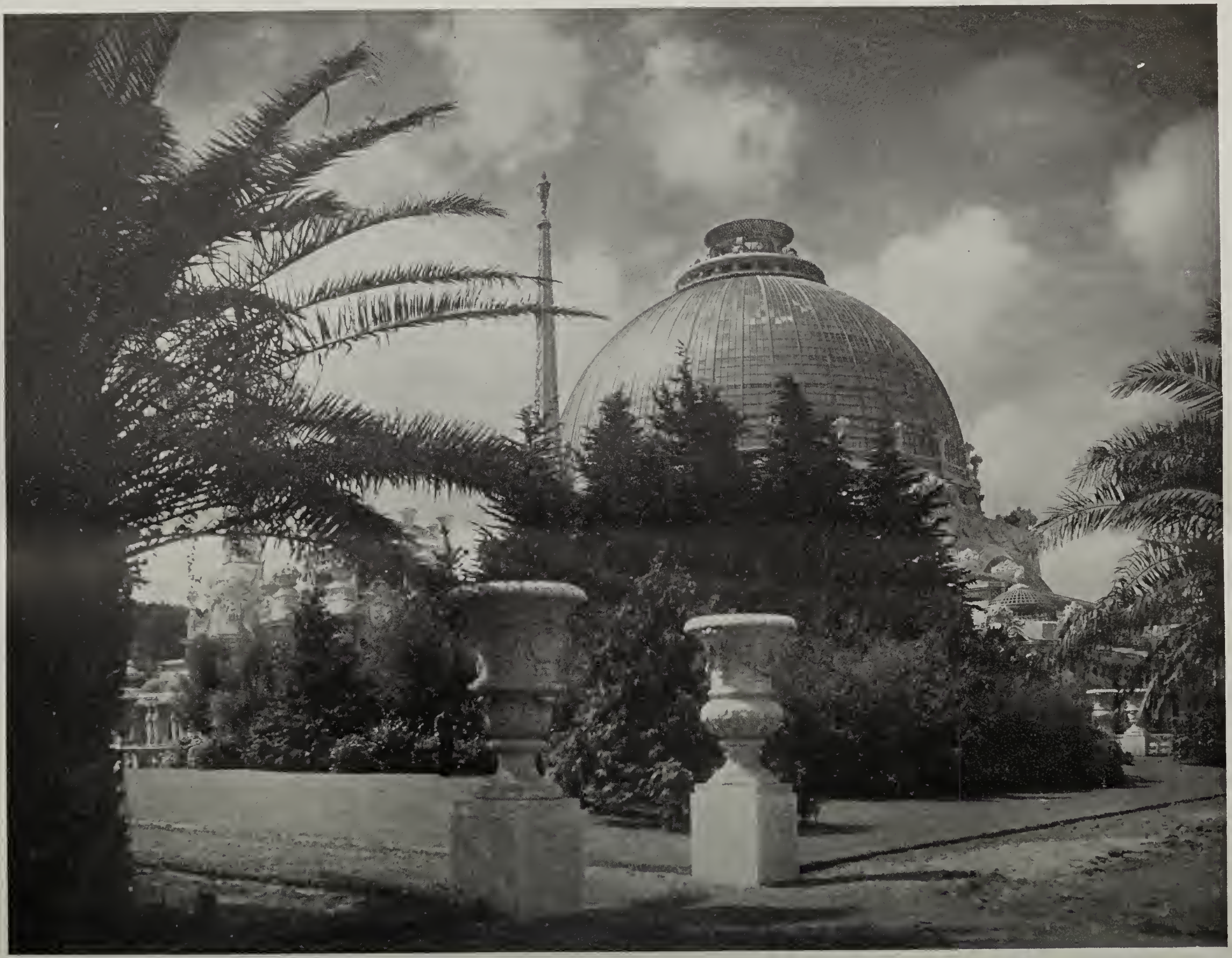
**The Imperial Brickyard at Cadinen**—The brickyard at Cadinen, operated by the German Emperor, has been very busy of late. The plant has been largely rebuilt, and an art department has been established, and many lawn vases and other articles are now being made. The plant secured a large order for about 75,000 mark, but one of the terms were that the Emperor should pay a visit to the firm sales rooms placing the order, after the goods were on exhibition. The management declined the order on that account.

Tonwarenfagrikant No. 7, 1914.



Building for Horticulture, Viewed from the South Gardens,
Panama-Pacific International Exposition.

Bakewell & Brown, Architects.

—Courtesy The Pacific Coast Architect.

# REASON VS. FANATICISM

## The Edison Fire and What it Means to the Building World.

The startling news was flashed to the press of the country, December 9, that the great Edison plant at Orange, N. J., had been destroyed by fire. At first, it was announced that the loss would be $7,000,000. This was an exaggeration, but the loss did total a fabulous sum. The building world stood aghast; that a modern plant supposedly fireproof should be wiped out and go up in smoke in the hours of the night was indeed startling. With commendable enterprise, The Clay-Worker gave its readers first-hand information as to the fire and its results, its representative going to the ruins and taking pictures of same. He was handicapped, in that admission to the grounds was denied, but the photographs and description present an accurate, clear, truthful record of what could be seen and learned at that time. Now Mr. Edison claims that these statements are untrue and unfair. We emphatically deny that statement, and that the building world may judge for itself as to who is right and who is wrong, we submit Mr. Edison's letter and our reply to same, and challenge refutation of any statement made in The Clay-Worker in this connection. Mr. Edison believed in concrete with the faith of a fanatic. He has advocated its use persistently for years. He proved his faith by constructing his building of that material, and he lost. The incident proves that he is a game loser, but a poor judge of structural efficiency, and therefore not a safe adviser in such matters.

### MR. EDISON ON CONCRETE.

### Inventor Criticises Statements About Recent Fire at His Plant.

To the Editor:

The Detroit Brick Manufacturers' and Dealers' Association is distributing throughout the United States a pamphlet entitled "The Edison Fire," the contents consisting of a reprint of an article appearing in a trade journal, The Clay-Worker. The entire purpose of this publication is to discredit, and, if possible, retard the use of reinforced concrete in the construction of fire-proof buildings.

The results of the fire at my plant on December 9, 1914, are used in an entirely false and misleading manner. Of the seven reinforced concrete buildings none were destroyed. A small section of the upper floor of one of the buildings fell in, but was supported by the lower floors. The pamphlet referred to presents three views of this, the suggestion being that they were three different buildings. The brick administration building to which they refer, which remains standing, was protected by an adjacent concrete building and was not subjected to the fire.

Every brick and steel structure which was attacked by the fire was completely destroyed, together with all the machinery they contained, while the damage to the concrete buildings amounted to about 12½ per cent., and of the machinery contained in the concrete buildings 98 per cent. was saved and is now in operation. Manufacturing was resumed in some of the old concrete buildings within a few weeks after the date of the fire.

Temperatures were far in excess of those in the ordinary fire, but reinforced concrete showed its superiority over any other fire-resisting material.

I regret that any representative of the brick interests should have seen fit to sponsor this publication, the evident purpose of which is to deceive. The millions of dollars of fire losses in this country annually make it a matter of moment that the superiority of reinforced concrete for fire-proof structures should be thoroughly understood, and it is for such purpose that I have written this letter.

THOMAS A. EDISON.

Orange, N. J., April 28, 1915.

### THE TRUTH ABOUT THE EDISON FIRE.

### A Reply to Thomas A. Edison.

To the Editor:

In a communication to the press Thomas A. Edison claims that a pamphlet entitled the "Edison Fire," being a reprint from The Clay-Worker, is false and misleading, a statement not justified by facts. The pamphlet is an account of just exactly what the writer of the story saw when he visited the Edison plant soon after the fire. The writer was denied admission to the property, and so had to confine his photographs and description of the fire wreck to what could be seen from the street. Admission to the grounds was refused, guards being stationed at every approach to prevent anybody but employes entering.

Mr. Edison is a noted authority on all matters relating to electricity, but the destruction of his plant proves conclusively that he is not an authority on fire-proofing. It is a matter of common knowledge that his plant was not equipped with any of the modern safeguards against the spread of fire. There was no sprinkling system, no water curtain, no wire glass, NO ANYTHING to prevent the spread of fire, which of itself proves that Mr. Edison is not a SAFE BUILDER. Had the fire occurred during working hours, in all probability there would have been a deplorable loss of life, due to this lack of intelligent methods of construction which should characterize every modern plant, especially one filled with inflammable materials, as was the Edison plant.

Now, as to concrete being fire-proof, I think I am safe in saying that even a casual investigation will show that it is not. Concrete is an artificial stone, and even natural stone is not a good fire-proof material, for it spalls and goes to pieces under extreme heat. For this reason it is not as good a fire-proof material as brick or other clay products. Common building brick are subject to a temperature of about 2,000 degrees F. in burning, and hence is a much better fire resistant than stone.

It was a brick wall that saved what was left of Salem. It was the brick buildings in the path of the fire that saved Baltimore. Such instances can be multiplied indefinitely, but these are sufficient to prove what nearly every one knows and concedes to be a fact, namely, that brick and tile are the SAFE FIRE-PROOF BUILDING MATERIALS.

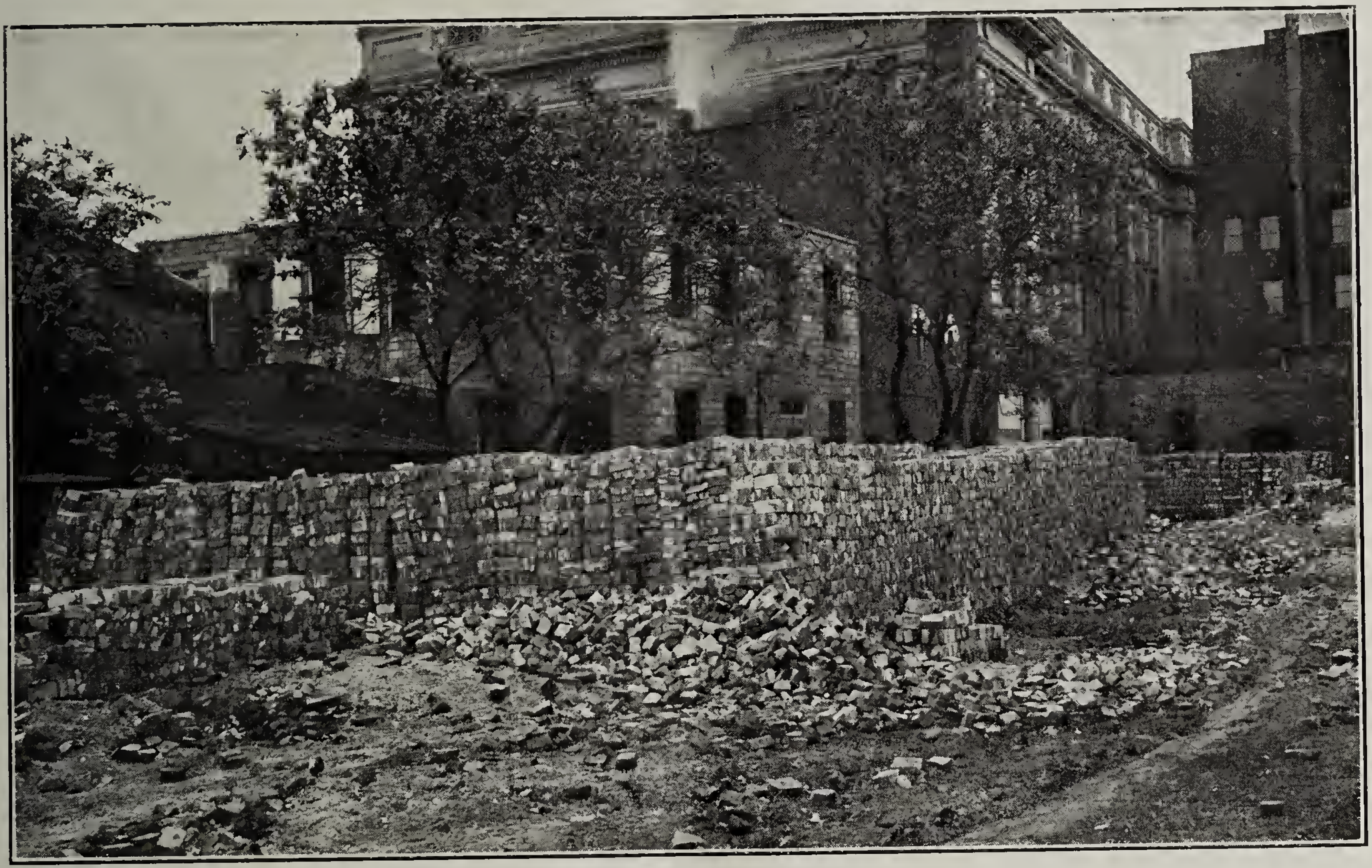
Mr. Edison further says that the brick buildings within his property were utterly destroyed. Has any mortal man ever seen a brick destroyed by fire? You cannot burn up a brick in a conflagration. Not so with concrete. The writer saw with his own eyes at Baltimore the remains of concrete buildings, of which little or nothing was left but the bent and twisted bands and rods of steel, convincing evidence that concrete is not a good fire-proof material, and that is what the pamphlet referred to proves.

THEODORE A. RANDALL,
Editor The Clay-Worker.

Indianapolis, Ind., May 3, 1915.

## ANOTHER ARGUMENT FOR BRICK.

BRICK HAS so many advantages over other building materials that it is difficult to enumerate them all. A few of the splendid arguments for the use of brick in the erection of the home or the office building are: great durability, unlimited range of colors and artistic effect, ease of adaptability, satisfaction to the individual taste, most sanitary, vermin-proof, dampness-proof, element-proof, fire-proof, most economical, requires no painting or repairs, secures low insurance rates, reduces the fuel bills, cool in summer, warm in winter, etc. These are well-known, well-proven facts. No other building material can compete successfully when these features are desired. There are many other reasons why well-burned brick should be used. One of particular importance, one which we wish to emphasize at this time, is the fact that the true value of the brick is never lost. Brick lasts for ages and can be used over and over again. This can be proven in any city, for brick are saved from buildings torn down to be replaced by sky-scrapers, cleaned and used again in new structures. Especially is this true in Indianapolis, where vacant lots are frequently leased for the temporary storage of brick secured from old landmarks and structures which have become out of date in the growing city. We show herewith a snap shot of one of these yards, which has been completely covered several times within the last year. This is but a few steps from the center of the downtown district.



Brick the Everlasting Material—A Huge Pile of Old Brick to be Reused in New Buildings.

A fact of interest in this connection is the use of brick from the monumental buildings of Babylon, nearly 6,000 years old, in the building of modern cities to-day.

Brick is the everlasting material and has a great asset in its form and adaptability, which is another great advantage over concrete, for once the concrete is in place it can never be used again in the building of other structures.

**The Advantages of Making Hollow Tile in Brick Plants—** The use of hollow tile in buildings is getting more and more pronounced, and therefore brick plants should turn their attention to hollow tile manufacturing. It has been shown that buildings and residences can be built 20 per cent. cheaper with hollow tile than with brick, and that the value increases 100 per cent. By changing brick plants to hollow tile plants the clay business can be materially increased again. In handling hollow blocks in the manufacturing plants it is easy to handle same as compared with brick, and, in fact, those brick plants which have changed over to hollow tile manufacturing have found a profitable investment.—Deut. Topf & Z. Z. Nos. 84-85, 1914.

### BRICKS WITHOUT CLAY.

Making bricks without straw is a familiar quotation, but making them without clay, or its equivalent, which from time immemorial has been the essential ingredient, is a novel suggestion. This, however, is what is now proposed, and a plant is being built in Illinois. According to the "Railway Age Gazette, the process consists in chemically combining any coarse material containing silica with a binder of finely divided particles of silica, alumina, potassium, or sodium in suitable proportions to insure a binder with a low fusing point, as compared with the coarse body material. The bricks are molded under high pressure, preferably in a dry state, and are fired in a manner similar to that used in making ordinary brick, but the time required is not nearly as long. Bricks made by this process have been tested and have shown very satisfactory absorption qualities, and have withstood a temperature of 2,900 deg. Fahr. without cracking or showing damage. They have undergone crushing tests of 20,000 pounds per square inch without failure. The samples examined show a texture capable of taking a high polish, and the grain is so fine that clean-cut carving is possible, but these qualities evidently depend on the character of the material of which bricks are made. It is proposed to use the tailings from coal mines at the new Illinois plant, and it is stated that, on account of the wide variety of materials that can be used in the new process, including many waste products, these bricks can be profitably made in localities where ordinary brick cannot be produced on account of the absence of suitable clay.

# RESEARCH IN BRICK CONSTRUCTION.

*This is the third installment of a series of articles boosting a campaign which goes hand in hand with that of the "Build with Brick" movement and will prove of vital interest and importance to the clay trade in general. We ask the co-operation of the clay product manufacturers in compiling data and statistics for publication, in order that every angle of the subject may be treated in a thorough, comprehensive manner.*

IN THIS, the third installment of a series of articles on different types of brick construction, there will be found interesting and valuable matter for the brick-boosting bureau, as it contains a study in modest home building and comparative cost of construction in this type of building as well as a study in what is termed eight-inch walls.

What is known as the eight-inch wall presents an interesting study in brick construction, because this is a type of wall that enters into a pretty wide range of modest homes. Moreover, it could be more extensively used in two-story houses, as well as in the bungalow type of construction, if due regard were given the matter of cross-bonding.

It may be recalled in this connection that among the pictures shown in the preceding articles of this series was that of an English house that had been bombarded. This was a two-story house, yet it was only two widths of brick thick in the wall. The brick, however, were cross-bonded in the good, old-fashioned way, making a structure with more wall strength than is obtained in the same thickness when cross-bonding is eliminated and the face brick is practically a veneer being held to the wall merely with wall ties.

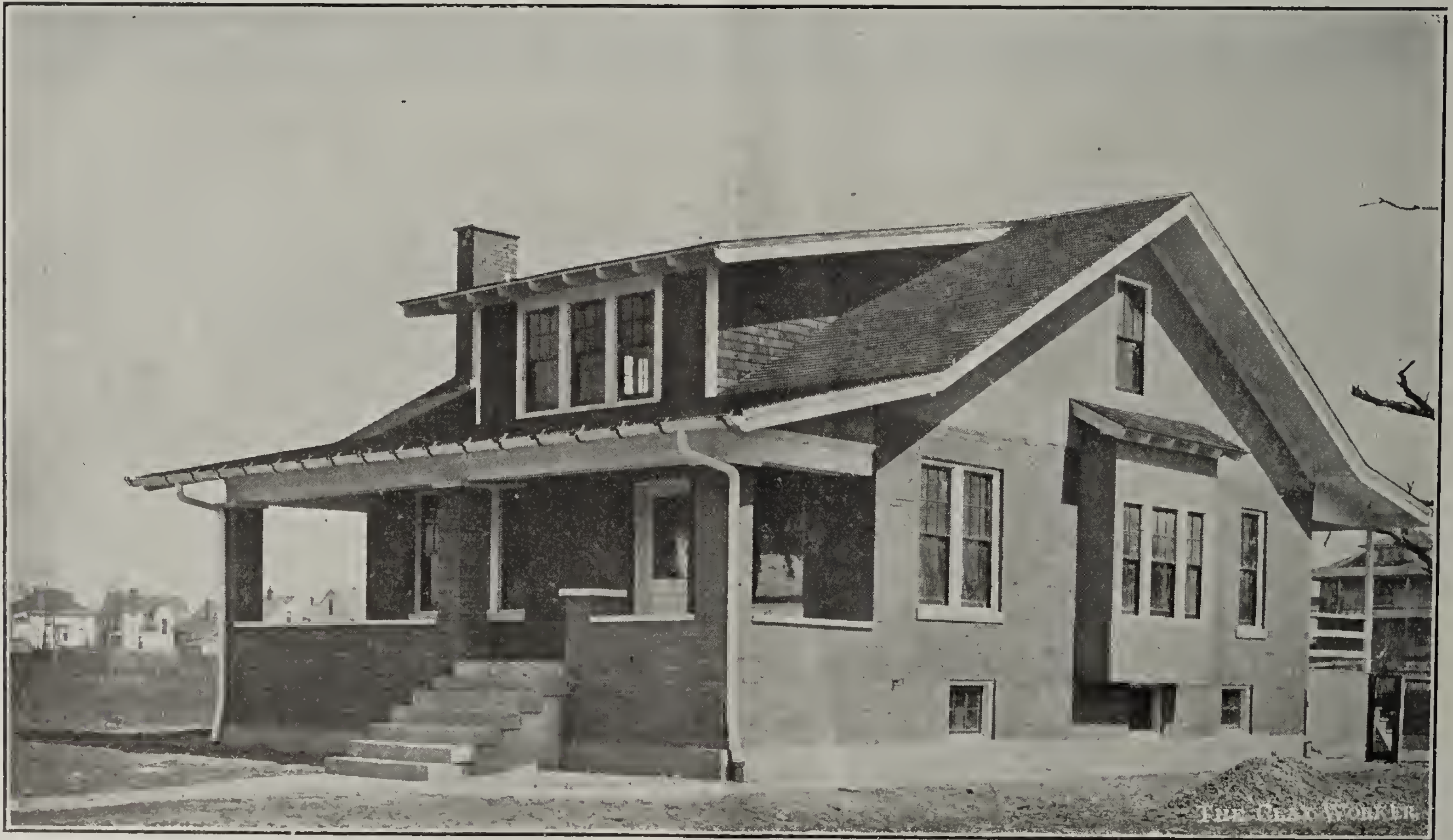
The average nine-inch or eight-inch wall, as it stands today in brick bungalow construction, is practically nothing more or less than a brick veneer proposition. Two types of houses are illustrated herewith as typical of one form of this construction; the form used here is an outer course of brick and an inner course of four-inch hollow tile. The brick is all laid in stretcher courses, and the bonding between the brick and the hollow tile is effected by using the regulation galvanized bond in the mortar joint between each course of tile.

If the same walls were built of brick, the construction would be practically identical, if the usual practice were followed, with the exception that common brick would take the place of the four-inch hollow tile for backing up on the inside. In fact, many houses of this type are to be found, in which there is very little, if any, cross-bonding in the brick construction itself, the wall being tied together mainly with galvanized wall ties and the outer course of face brick laid in stretcher courses.

This makes a wall that will stand up under all ordinary conditions and is of sufficient strength to meet the requirements and to pass muster under practically all city building ordinances. The wall construction might be materially strengthened, however, without greatly increasing the price by a return to some one of the old familiar methods of bond work, which were illustrated in a previous article. Not only that, but even the beauty of the outer wall might be enhanced by a systematic handling of the bonding idea to produce pleasing effects.

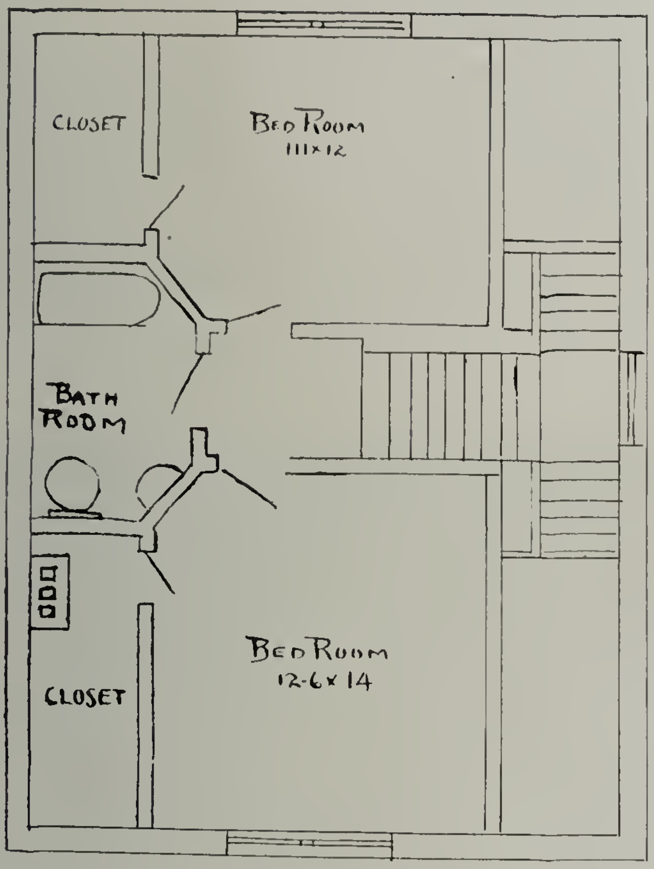
One of the most interesting features about a study in eight-inch walls, however, is in that this is the type of brick construction that is more commonly compared in the matter of cost to frame construction. In the building of the bungalow type of houses it has been pretty thoroughly demonstrated with figures presented by both sides that the cost of a house with an eight-inch brick wall, as compared to one entirely of frame, ranges from a minimum of 5 to a maximum of 10 per cent. higher.

The lumber people did some research work along this line the past winter by getting an architect in Chicago to prepare plans and specifications for a number of one and two-story buildings and obtained bids on these. These buildings were typical of low and medium priced bungalows and cottages,



House No. 2—Five-Room Bungalow. Note Extension of Brick at Bottom of Basement Window.

such as are illustrated in connection with this article, and included a type of flat building used some in Chicago, and the bidders were responsible contractors. In each case the specifications were identical in the brick building and the frame as to the size of rooms, plumbing, interior, trim, finish, etc. The one difference appearing was in the roof; the frame building specified shingles, while the brick building specified a non-combustible roof.

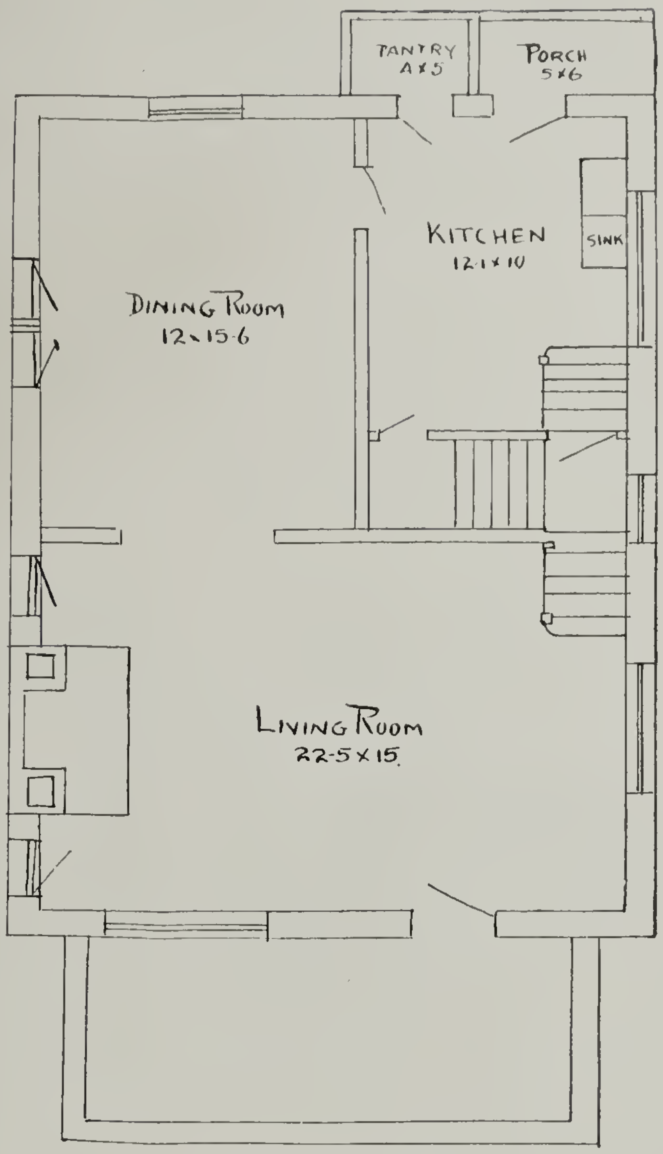


First Floor Plan.

The result of making these plans and securing the bids was as follows:

—Average Bids on Brick and Frame Buildings—

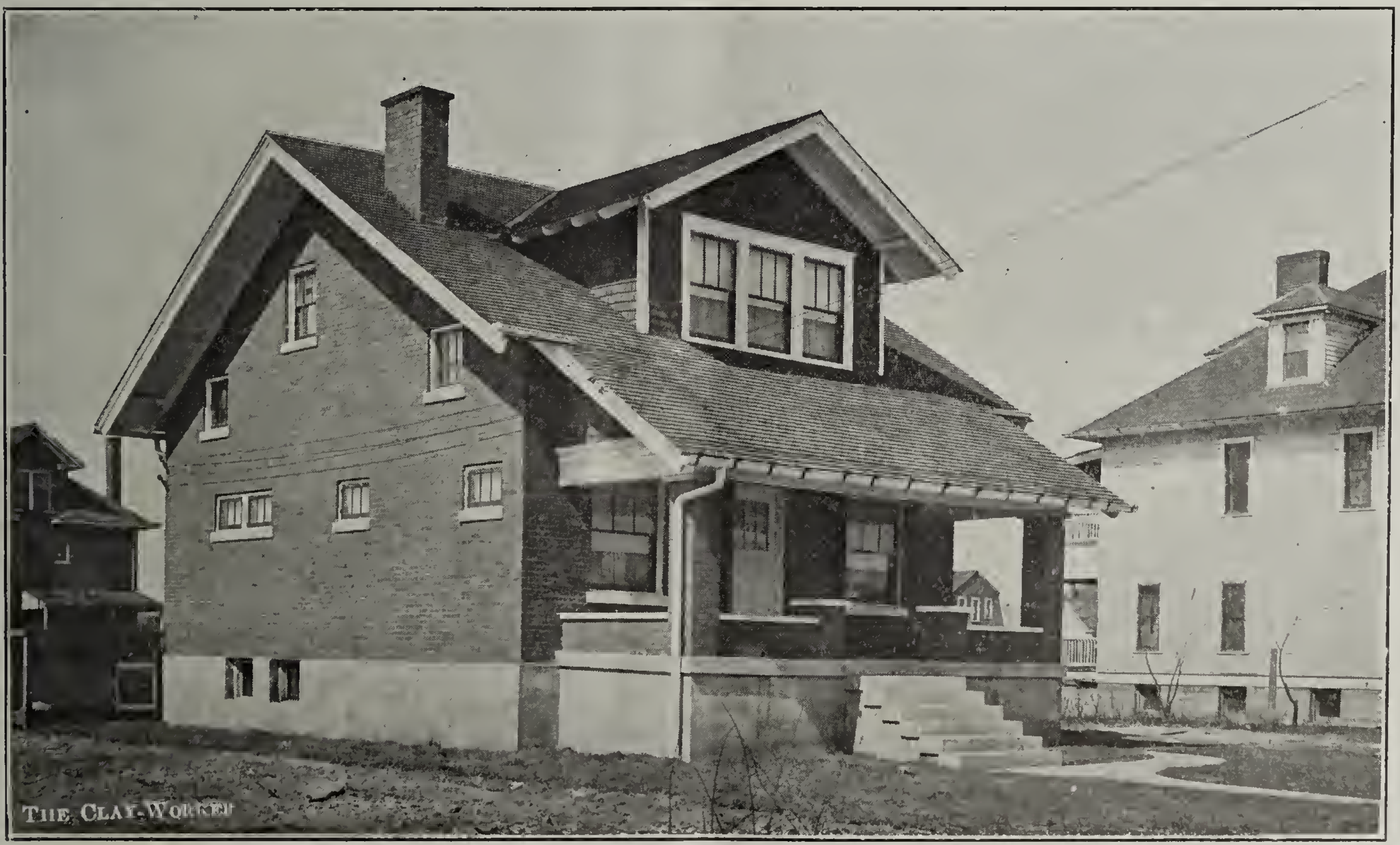
| | Frame. | Brick. |
|---|---|---|
| One-story cottage, 22x30 feet | $1,719 | $1,823 |
| One-story cottage, 20x36 feet | 2,394 | 2,684 |
| One-story cottage, 21x48 feet | 3,419 | 3,906 |
| Two-story flat, 24x34 feet | 4,185 | 4,564 |



Second Floor Plan.

The conclusion from this investigation was, that to build a bungalow or modest type of home with an eight-inch brick wall added practically 10 per cent. to its cost, as compared to the same built of lumber, the basis for the figures being those furnished by conditions in Chicago, both as to cost of brick and lumber and cost of carpenters and bricklayers.

Making a more detailed comparison as to the cost of wall



House No. 1—A Complete Brick House Costing $3,200, construction itself, it was shown by this compilation of figures that frame wall construction costs on an average 18 cents per square foot, divided as follows:

| | |
|---|---|
| 2x4 studding, 16-inch centers | 5 cents |
| 1x6 sheathing, one layer paper | 5 cents |
| Siding or weather-boarding | 6 cents |
| Painting | 2 cents |
| Total | 18 cents |

On the Chicago basis for brick and bricklayers, it was figured that an eight-inch wall of common brick, such as is ordinarily used for side walls in buildings, costs from 21 to 22 cents per square foot. Front walls when made of eight inches common brick and four inches of face brick cost from 45 to 50 cents. This deals with a type of construction that takes an eight-inch side wall and a twelve-inch or thirteen-inch front wall. In most of the bungalow and cottage buildings of modest cost, the front and side walls are of the same thickness, and the tendency today is to make them of the same brick, though there are some using a higher priced brick for the face and a common brick for the side walls.

In considering these figures of comparative cost between the so-called eight-inch brick wall construction and frame construction in home building, it is impressive to remember that they are figures obtained and presented by lumbermen themselves in organizing a campaign to boost lumber for this very work in competition with brick. It goes without saying, therefore, that they represent the maximum of the conditions given, and that often under varying conditions the actual difference may be less, and in some instances may reach a point where the actual first cost of brick wall construction is no greater than the first cost of frame construction. When we think of this matter seriously, it should drive home the conviction that the time is ripe and the opportunity is here for a much wider extension of the use of brick in building operations and the developing of a trade in building brick that will be greater than was ever dreamed of by even the most enthusiastic brick booster in the business.

In connection with the types of houses illustrated herewith it is desired to call attention to some opportunity to enlarge the quantity of brick used without in any way increasing the cost of the structure.

In the lower and more distinctively bungalow type of these houses it will be observed that the brickwork extends down nearly to the grade line, to the bottom of the basement windows, whereas in the other the brickwork starts at the top of the basement windows.

The builder of this house had a particular reason for extending the brickwork down to practically the grade line. He used stucco on the gable above, and to have extended his concrete basement wall up to the floor line would, as he stated, have made his building look something like a sandwhich, because there would not have been enough brickwork showing.

In extending his brick wall down, he changed the form of construction a little, using brick both inside and outside below the floor line instead of hollow tile for the inner backing. He also made a soldier course of brick standing on end as a decorative feature. He could have improved the appearance and included the use of more brick by getting down a little farther with his brick wall and letting this soldier course come below the basement windows, making the base line on which to rest them.

If the brick men bestir themselves right, the time is coming when well-burned brick will enter much more extensively into foundations and basement walls. The brick men have simply stood by too meekly and let the concrete people run away with this work, when, in fact, brick is a better material for it.

A comparison of the brick houses shown here, with the concrete foundation extending to the floor line, and those with the brick extending to the grade line will easily demonstrate that a better appearance is obtained and more beauty of structure secured by extending the brick wall down to the grade line. This will help some, but there is really no need to stop there. Make the fight for the entire structure of brick, foundation and all; and, if you make it persistently and intelligently, a lot of this foundation trade can be regained for brick.

## WHAT IS THE MATTER WITH THE UNITED STATES?

By Herbert N. Casson,

In Associated Advertising.

"What is the matter with the United States?"

As I have been residing in London since the beginning of the war, I have been hearing this question asked on all sides. I have never heard any satisfactory answer. No one seems to know.

Why are the American factories not running night and day? Why are the railroads not opening up new territories and getting ready for the millions of immigrants who have already made up their minds to leave Europe as soon as the war is over?

Why are there not fifty American drummers in London right now, trying to sell $200,000,000 worth of American goods in place of the goods that were bought last year from Germany and Austria?

Why have the advertisers become quitters, just at the time when their advertisements were most needed and most effective in cheering on the business forces of the United States?

From the European point of view, the United States is a haven of peace and security and prosperity. It has no troubles that it dare mention to Belgium or Austria or France or Germany or Servia or Great Britain or Russia.

Every tenth Briton has enlisted. Every tenth Frenchman is at the front. Every tenth Belgian is dead. What does the United States know of trouble?

If I could afford it, I would charter the Mauretania and Lusitania, and convey a party of 5,000 American advertisers to Europe for a trip of education. I would give them a week in London, a week in Paris and a week in Antwerp.

I would let them look at the United States from the scene of war. I would give them a look at real trouble. I would let them see trains, ten at a time, five minutes apart, packed with the maimed and the dying.

I would let them hear, from fragmentary survivors, the incredible story of battlefields, 150 miles wide, and armies that are greater than the entire population of Texas.

I would let them see graves 100 yards long and full, and Belgium, the country that was nothing now but 12,000 square miles of wreckage.

Then, when they began to understand, to some slight extent, the magnitude and awfulness of this war, I would say to them:

"Now go back and appreciate the United States. Realize your opportunities Don't start digging trenches when nobody is firing at you. Don't fall down when you have not been hit. Don't be blind to the most glorious chance you have ever had in your life.

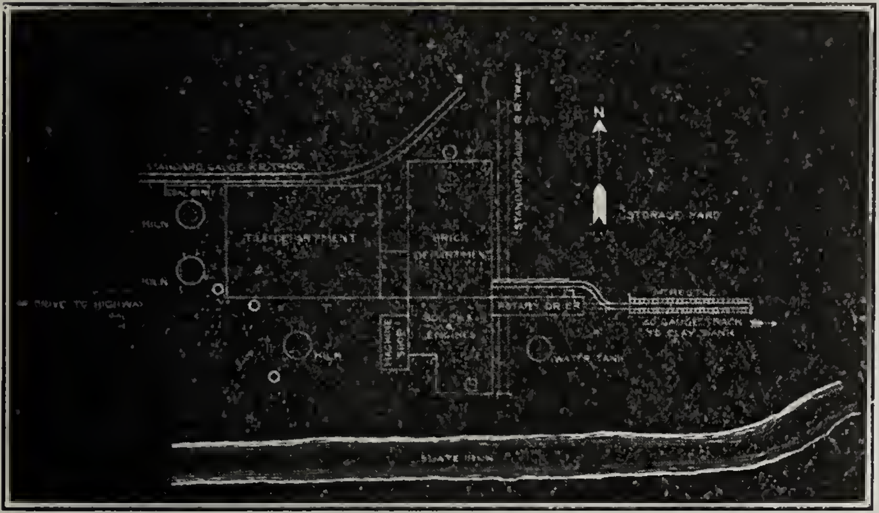
"Go back and advertise. Get ready for the most tremendous business boom that any nation ever had. Build your factories bigger. Train more salesmen. Borrow more money. Go ahead, and thank God that you are alive and that your family is alive, and that you are living in a land that is at peace, at a time when nearly the whole world is at war."

The average citizen not only cusses the stamp tax, but also has to lick the stamps.

# PLANT OF THE DELAWARE CLAY MANUFACTURING CO.

F. E. Miller, Columbus, Ohio.

TO ENUMERATE the products of clay and describe its various uses would necessitate the covering of a vast field, for it plays a most important part in the progress of all countries. To pick out the two most useful applications of this material, one would undoubtedly choose brick and tile, and to have these, one must start with clay. The brick structures that dot every part of the globe, the mile after mile of brick paved roads, the vast network of sewers that mean so much to the sanitation of every city, the long snake-like lines of tile that traverse all good farming communities, owe their possibility mainly to this one thing.



Layout of Plant.

View of Dump House.

The making of brick is as old as the history of building, and the product is almost as endurable. There can be pointed out as examples, brick work erected in the fourteenth century, which is standing today in an excellent state of preservation, as a monument to man's foresight and a tribute to his belief that he was building for the generations to come.

However, the manufacture of tile is not so old. Drain tile were made and used in Europe many years before its introduction in America, and Ohio was one of the first States in the Union to begin its manufacture and use on a large scale.

The late Dr. N. S. Townsend had observed its use for soil drainage in England when he was a boy, and in the year 1832 he caused tile to be made, which he placed in use on his farm located near Avon in Lorain County, Ohio. This is believed to be the first installation in Ohio, and among the earliest made in this country. This tile was hand made, and with a cross section in the form of a horse-shoe, and with the opening down, but it was soon found that the soil would wash in through this opening and close the drain, so a flat slab was made of tile and used as a base, and as "necessity is the mother of invention," a machine was built that would make closed tile of the shape in use at present, and this gave impetus to the industry, as it is said that shortly after the Civil War there were more than our hundred "yards" in the United States, mostly small concerns supplying their own locality, but the aggregate of the output was large.

The small tile and brick mill now view the setting sun of their day, as most of the business is now in the hands of a few large, moderly equipped factories, and by the aid of new methods, automatic machinery and increased demand, the production is larger than ever before, and the quality is better.

View Across Ravine.

General View of Plant.

The object of this article is to describe a plant of this kind, operated by a man who, by actual experience, knows the business from every angle.

The Delaware Clay Manufacturing Company, of Delaware, Ohio, offers a fine example of an installation of this kind, and through the genius of the president, Mr. L. L. Denison, presents an interesting method of manufacture.

The plant is located at the outskirts of the city on a spur track of the C., C., C. & St. L. R. R., and the product is hollow brick of the "Standard," "Jumbo" and "Denison" patent sizes, and drain tile from 3 to 30 inches in diameter.

At a normal rating the capacity of the brick department is 44,000 standard size per day of 10 hours and the daily output of tile is about 50 tons. The surface clay bank they are working at present is about 2,000 feet from the plant and is connected by means of a 40-inch gauge track. To lay this it was necessary to cross a creek in a wide ravine, which was accomplished by the erection of an 800-foot steel trestle.

The clay is taken out of the bank and loaded by an "O" size steam shovel which was built by the Thew Automatic Shovel Company of Lorain, Ohio.

The usual problem of conveying raw material into the factory was easily solved in this case by the installing of an electric truck equipped with a steel plate, 4-yard hopper with a hinged dumping bottom and straight sides, to facilitate the discharging of the load. The truck has a frame built of structural steel and has two 12-horsepower ball bearing, worm drive motors, hung directly on the axles. The wheels are cast iron, 16 inches in diameter, mounted on 3¼-inch axles, and are set for 98-inch wheelbase.

On the platform is a railway type controller which is used for starting the motors through a grid rheostat which is located within the frame. The brake wheel, fuse box and trolley plug are within easy reach of the operator.

With a load of 4 yards of clay the truck weighs about 9 tons, and during the 1,000 feet of haul the grade is 2 per cent. against the load. However, a round trip is made every 8 minutes, which is at the rate of 11 miles per hour.

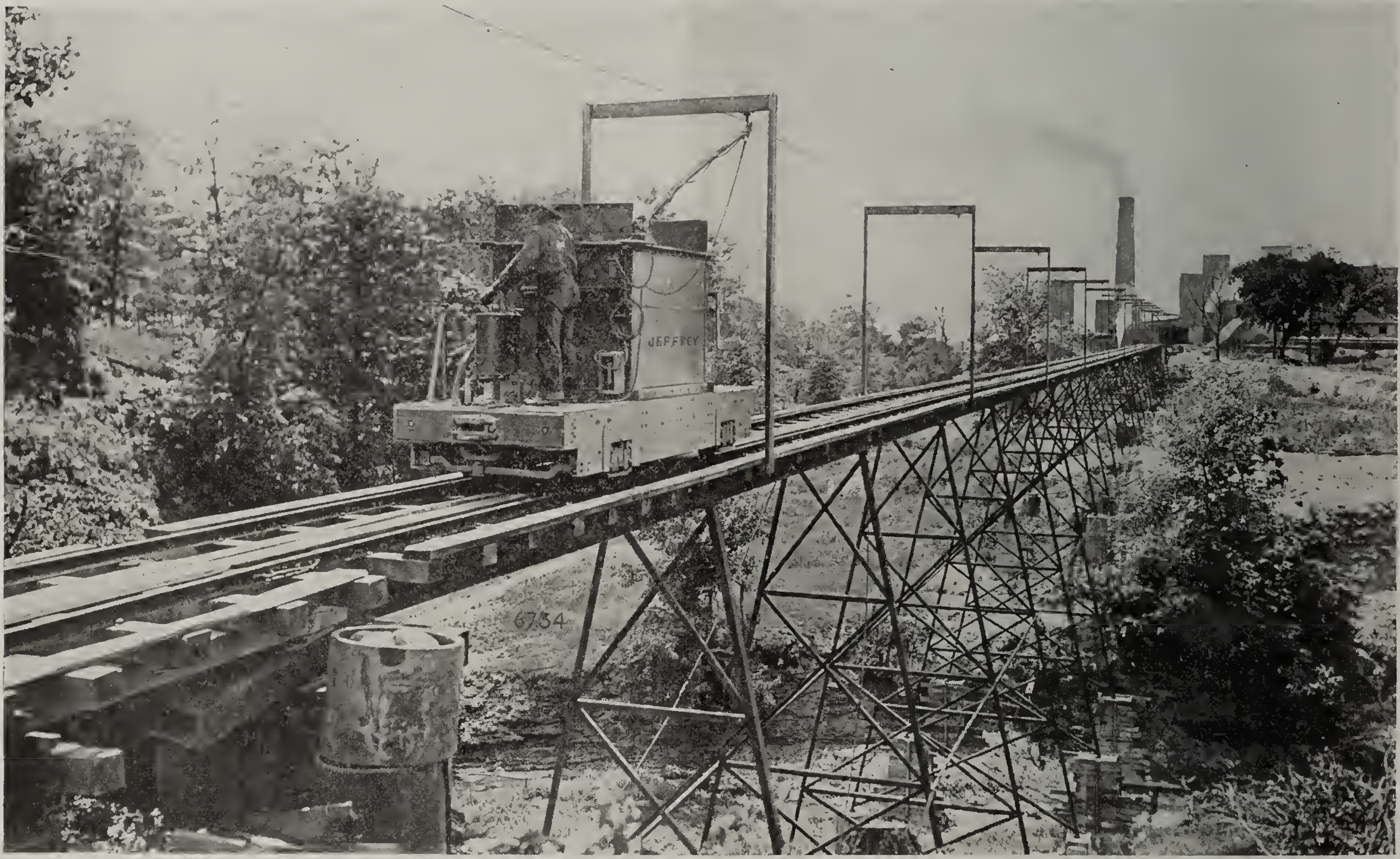
This machine has been in daily operation for 16 months, and not one cent has been spent for repairs, a record that can be referred to with pride by the builders, the Jeffrey Manufacturing Company, of Columbus, Ohio

After being hauled inside the clay is dumped into a hopper and by means of a drag chain conveyor is fed into a coal-fired dryer which is 40 feet long and 5½ feet in diameter. This large drum is revolved slowly, and being set on a slight angle, provides a gravity discharge. An exhaust fan draws the heat through in the same direction as the material, and aids in getting the dust through, as angle iron projections on the inside reduce a large proportion of the clay to dust.

After passing through the dryer, the material is raised by a chain elevator to the screens, these excluding all stones larger than a hen's egg, these passing by a chute to the outside of the building, the finer material being fed into 9-foot dry pans and crushed. From here it is elevated and passed over a series of fine mesh screens, through which nothing but dust will go, this being fed into a storage hopper ready for the 8-foot tempering pans.

The dust covered gravel that is excluded is passed through a washer and sold as a by-product, while the clay-laden water is utilized in the tempering pans.

After being tempered, the clay is apportioned to the two separate departments, the tile and the brick. The clay is gravity fed from the second floor into the tile press on the ground floor, and after being moulded, is loaded on trucks and raised by a steam elevator to one of the drying floors which occupy the upper three stories of the four-story department. The ground floor houses the kilns, and the heat rising from these through the slat floors, acts as a drying agent. After drying, the tile are lowered to the ground floor by means of a band brake controlled gravity elevator, and here they are fired in beehive kilns and are then ready for shipment.



The Jeffrey Electric Truck on Trestle Leading to the Delaware Clay Manufacturing Company's Plant.

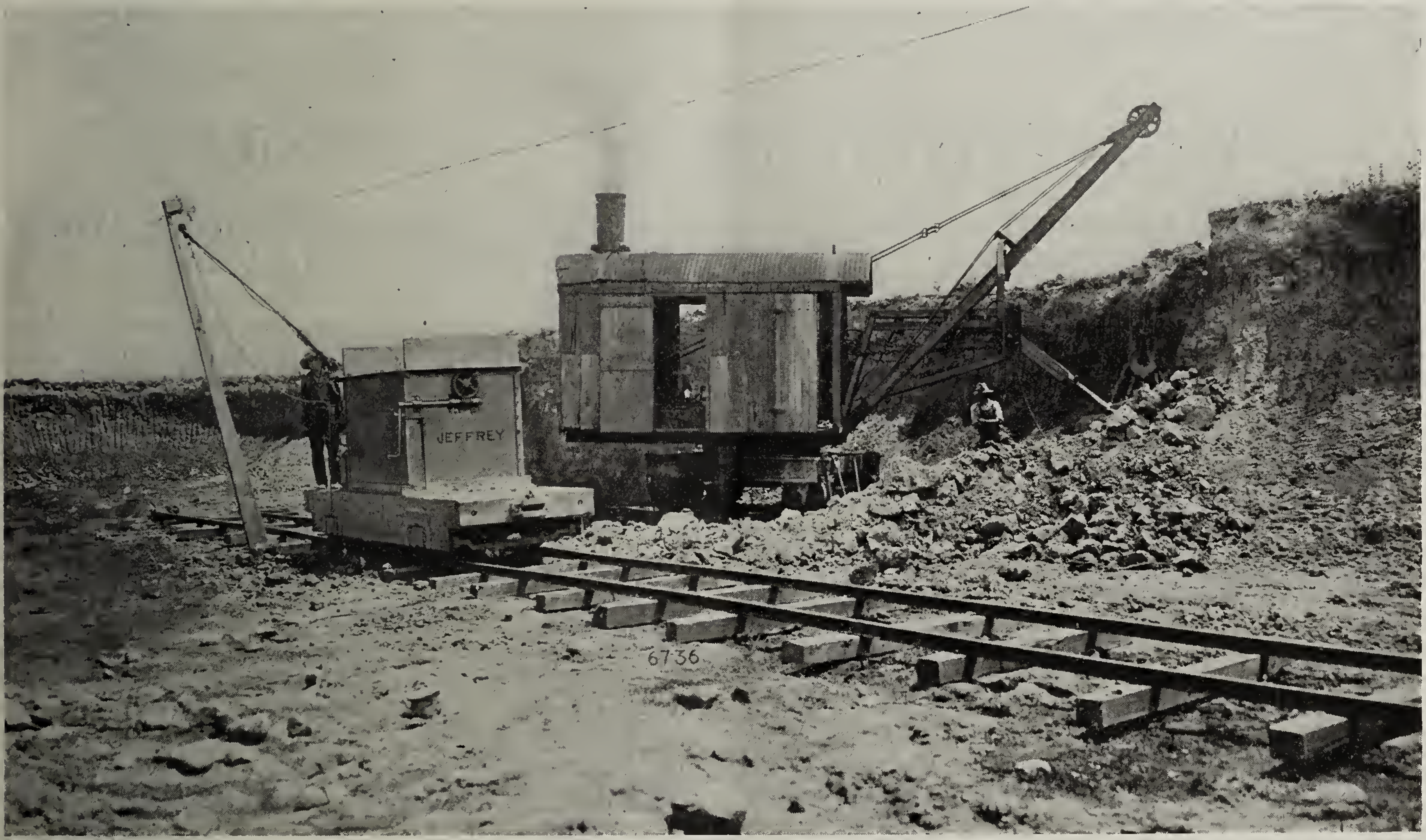
The procedure in the brick department is somewhat different, as the gravity-fed brick press is located on the second floor, and after the brick are pressed and cut they are placed on a tray about 10 feet long which forms a flight of a chain conveyor which passes upward within reach of the man who offbears the press. Each time the press squeezes, the same power moves the conveyor one flight. By the use of this, the brick are elevated to the third floor, which is used as a dryer room, and by a series of sprockets placed at both the ceiling and the floor, over and under which the chain passes, the brick travel in a vertical direction alternately up and down, thus moving the entire length of the room and then to a place on the first floor directly under the empty press where they are taken off, which allows the trays to ascend empty to the second floor to be loaded again.

The cycle through this dryer required ten hours; the capacity is about 48,000 standard brick. In addition to the heat from the kilns below, pipes have been installed on the walls of the drier room, using the exhaust steam from the presses, thus raising the temperature of the room to about 100 degrees Fahrenheit, this varying with the weather conditions outside.

This continuous drier, as well as the rotary drier, were built under the personal supervision of Mr. Denison from material furnished by the Jeffrey Manufacturing Company. The brick are then ready for the kilns which are of the top-fired, continuous type.

The pans and presses described above are built by the Taplin-Rice-Clerkin Co., Akron, Ohio.

The two departments are each served by separate switch tracks, which are located close to the buildings and which greatly facilitates the handling for shipment. The same tracks serve to bring in coal for boiler and kiln fuel. A well-equipped power plant is included in the make-up of this efficient factory, and ample power is provided at all times. A battery of 100 horse-power fire tube boilers furnishes steam for the engines, presses and pumps. The grinding and tempering pans and the elevators are driven by a 150-horse-power simple slide valve engine, and the rotary drier is driven by a 60-horse-power automatic cut-off engine. The boilers and engines were built by the Atlas Engine Works, Indianapolis, Ind.



Steam Shovel and Electric Truck at Clay Bank.

Electric current for the haulage truck and for lighting the plant is produced by a 25 kilowatt, 250 volt, direct current generator, built by the Ideal Electric and Mfg. Co., Mansfield, Ohio. The generator is driven by a 35 horse-power two cylinder vertical gas engine built by the Cook Motor Company, Delaware, Ohio.

A hollow-brick water tank with a capacity of 10,000 gallons provides storage for the boilers and washers, and is supplied from the adjacent creek by a steam pump that is housed within the tank foundation. Another tank holding 5,000 gallons is located on the roof and serves as protection in case of fire.

For taking care of all ordinary repairs, the company has fitted up a machine shop equipped with a line of tools that are not usually found in far more pretentious works. The outfit consists of a 24-in. swing lathe, shaper, drill press, emery wheels and power hack saw, and by the use of these they are relieved of the delays incident to having work of this nature done outside of the plant.

The efficient method of handling the problems arising in this class of work speaks a glowing tribute to the management and to view this industry at close range, is to believe more firmly in the national slogan, "Build with Brick."

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Written for The Clay-Worker.

## PACIFIC NORTHWEST CLAYNOTES.

IN SPITE of the fact that the impression has gained ground in Eastern papers that the Pacific Northwest is booming, no such a thing has happened, for business is very irregular, particularly with the clayworking establishments. In building permits Seattle maintains its lead since the first of the year over all other Pacific Coast cities as the following list will show for March 1915:

Seattle 697 permits, valuation $353,880.
Portland 347 permits, valuation $311,740.
Spokane 21 permits, valuation $21,725.
Vancouver 68 permits, valuation $191,997.

However, the general situation is much improved, and the clayworking plants are all getting ready for some operations this summer.

Mr. Blaine R. Smith, who was formerly secretary of the Western Clay Manufacturing Co., of Portland, Ore., has resigned his position as general manager of the Denny-Renton Clay & Coal Co., of Seattle, and taken up his residence again in Portland, Ore.

The Pacific Highway between Tacoma and Seattle is now open for traffic. The last three miles of brick pavement have been completed, and the Denny-Renton pavers can now be found on the whole 32 mile stretch between these two cities. The Denny-Renton people make another shipment of 500 tons of paving brick by steamer to San Francisco recently, which will be used in paving some of the principal streets in the Exposition City.

The Idaho Fire Brick Co., Troy Idaho, has just completed their new fire brick plant, and one of the first shipments made was for the Pacific Coast Condensed Milk Co., at Everson, Wash.

The Sheridan Pressed Brick & Tile Co., of Sheridan, Wyo., has secured an order for a million and a half brick to be used for the new beet Sugar factory, which will be erected near Sheridan this summer. Sidetrack connection are now being made with the Burlington railroad.

Mr. P. O. Duclos of Little Falls, Minn., has leased the brickyard of J. N. Brown at Bozeman, Montana, and has installed some new machinery, and expects to operate the yard all through the summer.

The Salem Tile & Mercantile Co., of Salem, Ore., is the first clay plant on the Pacific Coast to make clay silo blocks. They have installed a Fate Bensing Automatic silo cutter and dies, and their silo blocks have been tested and proved to be all right for that purpose. This same firm has also concluded a test on hollow building tile for government purposes, and the results were that this test stood more than 625 pounds per square inch and the architects have accepted their Salem material as being fully within the specifications.

The Geijsbeek Engineering Co., of Portland has designed and constructed the new brick plant for the State of Montana at the State Penitentiary at Deerlodge. The equipment for this plant was furnished by the J. D. Fate Company of Plymouth, Ohio, and consist of their new Special Imperial machine with all cutting tables, dryer and dryer cars.

The Weston, Oregon Brickyard of which T. P. Harbour is manager has started up again, and Mr. Harbour secured a large contract for brick at the Walla Walla round house. The present brickyard crew is well above par, since it includes a number of ball players. One of the best ball games in Eastern Oregon in former years was made up of the Weston Brick yard boys, and they could deliver the goods on both yard and diamonds without a hitch.

In order to stimulate the use of draintile, the Southern Pacific is contemplating the advisabilty of allowing mixed carload lots of brick and draintile in the Willamette Valley territory.

SIWASH.

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# PRIZE COMPETITIONS IN THE SCHOOLS.

## Decatur Brick Company Sets Good Example in a New Method of Publicity, Which Creates Much Interest, Has a Lasting Effect and is Very Inexpensive.

SOME MONTHS ago there appeared in the columns of The Clay-Worker suggestions for prize competitions in the graded schools. We advocated the institution of contests for nominal cash prizes to the student presenting the best essay on the subject, "The Advantages of Building with Brick." We believed and still believe that contests of this kind will be of much assistance in stimulating the trade, for they create a great amount of discussion and widespread interest.

Can you think back to the time you made your first dollar? Isn't it with a great deal of pride that you realize those first dollars were well earned? You'll never forget the incidents; will you?

Suppose the first dollars made by the boys and girls today are in competitions in essay writing upon the subject of, "Why You Should Build with Brick," or "Why You Should Drain Your Farm with Tile." Don't you believe that it will have a lasting effect, that more than a score of years from now the boy or girl of today will be strong advocates of well-burned clay products in their older days, because of the sentiment connected with the past and the knowledge they have learned in studying the advantages of our materials?

Not only does the boy and girl become interested, but the parents do likewise, for the children take their problems home with them, and such competitions naturally create great interest. The boys and girls and their parents and friends are brought into the discussion, the question is analyzed and facts worth while knowing are gleaned and stored away in the brain forever.

For these reasons every clayworker in the land will find it worth while to institute such contests in the public and country schools.

These suggestions were made by our representative at the Illinois and Wisconsin convention, and we are naturally more than delighted to learn that some of the wide-awake clayworkers have taken up with the idea.

Just recently we received a page clipped from the Decatur (Ill.) Review of April 25, in which the announcement was given of the results of a prize competition offered by the Decatur Brick Manufacturing Company, together with the prize-winning essays. There were two prizes, the first for $15.00, the second for $10.00.

There was a large number of contestants, the majority of the essays being of universal merit. The subject selected was, "Why Build with Brick." The company was well pleased with the interest shown. The contest was for the purpose of obtaining material for use in an advertising campaign. The judges were four architects and two newspaper men. The two prize-winning essays are as follows:

### Why Build with Brick.

Why should we build with brick? Because brick is the one material which satisfies all the demands of the modern builder—endurance, safety, comfort, health, beauty and economy.

Of the materials offered for building, which is the most permanent? Wood decays in the course of ten or fifteen years. The stone generally used for building purposes will last longer than wood, be prettier and look more imposing. But stone will gradually decay and crumble away. Brick will not decay, because it is now so made that it resists the action of water, heat and cold. By "the ultimate test" of everything, time, the durability of brick has been proved.

After being baked for days at a white heat, the modern vitrified brick is wholly unaffected by the heat of fire. Thus we see that by using brick we can help lessen the disgracefully large per cent. of loss by fire in America; for, according to government reports, the larger per cent. of the losses is due to wood structures.

The walls of the brick buildings are thicker and less penetrable than those of a wood structure, thereby being cooler in summer, warmer in winter, and deadening to sound. Because of the composition of brick no decay, which is injurious to health, takes place.

The beauty of brick buildings is almost unsurpassed in modern architecture, for the possibilities which the many shades of brick now obtainable afford in pattern work and artistic touches are almost unlimited.

Many of the best examples of brick architecture in England, Holland and Belgium are noted for their pattern work.

Though a building is durable, safe, comfortable and beautiful, we can possess it only on condition that we are rich, if it is not an economic proposition. The first cost of building with brick is about 10 per cent. more than the first cost of building with wood, but is much less than that of a stone one. When the first cost is paid, the cost of a brick building is complete, whereas the wood building must be repainted and repaired frequently. In about ten years the continual cost of painting and repairing would pay the 10 per cent. difference. Why not pay more once than to be continually dropping a nickel in the painter's hat, and have a building that is always in repair and just as valuable, if not more so, twenty-five years hence as it is now? The brick structure will command a higher price any time than the wood building, and will not so deteriorate in value as it grows old. The insurance on brick buildings is another economic advantage of brick, for the insurance rates on structures of brick are always lower than the rates on buildings of wood.

Wood has just one weak argument in its favor, stone has about two stronger ones, but brick outshines them both when they are at their best, and fills all six requirements: everlasting endurance, safety, comfort, health, beauty of design and decoration, and comparative economic value.

### Why Build with Brick?

Why build with brick? This is a question which every man who intends to build anything, be it a garage or a factory, should ask himself. It is an important and serious question, and one that deserves your attention. Here are some of the reasons why you should build with brick:

First of all, you demand comfort, especially in a dwelling house. Certainly this may be obtained by building with brick. It is cooler in summer and warmer in winter than a house made of any other material.

Next you demand beauty. A brick house built on artistic plans is certainly as beautiful as any other. The day has passed when a house must be made of that staring red brick.

But, of course, with beauty and comfort must come durability. Nobody cares to build a house, factory or business building of any sort that isn't durable. The most conclusive evidence of both the durability and safety of a brick building is—the rate of insurance is lower. You can readily see that there is less danger of fire. If you wish other evidence of durability, take a drive with me through the residence district of our city. Here is a concrete house, built only a few years ago. Do you see that large crack on this side? That shows the durability of concrete. We see the same thing is true of the plaster house in the next block. Do you wish to spend your money for this sort of material? Here is a frame house. Do you see those loose boards and notice how the paint has washed away? That is evidence of a frame house. In the next block is a brick house. Do you see any of these defects here? No; even though it has stood longer than any of the others, it looks as well as ever. You may go to this or any other city and you will find that the oldest houses and the ones that have best stood the tests of weather and time are made of brick.

But, you may argue, it costs more. We admit that it costs more in the beginning, at least more than a frame house. But this is not the only expense you must consider. As we have said before, a brick house is warmer in winter and cooler in summer. This saves fuel in winter and ice in summer—small items, perhaps, but nevertheless important ones. Then the cost of painting may be subtracted, and the difference in insurance. So you see the brick house is not so much more expensive after all.

After carefully considering these points, you will surely come to the inevitable conclusion that brick is by far the best building material, and will build with brick.

Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

THE SPRING SEASON is under way, and is showing only a modest volume of building as yet. There is a good reason for conservatism, since that is the rule in all lines of business, manufacturing and commercial. However, the situation is fairly satisfactory to the brick interests since they seem to be getting their fair share of the business. There is a decided falling off in reinforced concrete construction, due possibly to the lesser number of large buildings. The volume of smaller structures seems to be holding its own.

With the opening of May comes the usual mutterings of strikes and demands from labor. In the Twin cities, the electricians have sought to secure higher wages and the closed shop. As there are ample men for all work available, the demand, especially for the closed shop has been received with a raucous hoot from employers, who find themselves able to carry on their work with non-union help and without difficulty. Plasterers have also made some demands which have not been given any serious consideration. These have not been regarded as serious, because of the supply of labor available. In the brick trade, there has been no difficulty at this writing, but this is a harder problem to handle, since the supply is limited, and non-union men are scarce. There is no question but brick would be used a great deal more, but for the difference in wages on handling this material with other materials which compete with it.

James H. Brown Company, general contractors of Minneapolis, have moved their offices from the Lumber Exchange to 511 South Third street, where they have yard space in connection. This is one of the newer contracting firms of the city, and has done a great deal of good brick and other construction work.

Warm weather during April prompted some of the interior brick yards in the Northwest to get early preparations started, ready to make brick early, should the weather continue favorable. There was the usual reaction in weather, which left some doubts about the freedom from late frost, but no damage was sustained from frost as far as had been learned. Some yards have not been desirous of starting work as they had sufficient stock on hand to serve their needs until warm weather was assured. Some yards have been able to clean up fairly close and desire to start preparations for the new season without any delay.

The new Colburn-Murray Brick Company, 630 McKnight building, Minneapolis, has an elaborate set of panel displays laid up in the different kinds of brick which they handle, making a very effective display.

A modern addition, brick construction, is planned for St. Luke's hospital, St. Paul, to cost about $100,000. C. H. Johnston, of St. Paul, is the architect.

The Holding Realty Company, of St. Paul, proposes to erect a brick building on Selby avenue near Dale street, to accommodate a bank and stores, with apartments above. It will be 42x60 feet and will cost about $35,000.

A six-room brick grade school building will be erected at Anoka, Minn., on plans by S. A. Wager, architect, of St. Paul. Cost, $20,000.

Woodbury F. Andrews, of Minneapolis, is starting work for the erection of a brick warehouse at Fourth street and Sixth avenue South, to cost about $25,000.

Kirby T. Snyder, architect, of Minneapolis, received the commission to plan a modern brick high school building for Milaca, Minn., to cost $70,000. The old school house was burned and the district wants one that is really fireproof.

Richard Billingsley, Kasota building, Minneapolis, received the general contract from the W. L. Harris Realty

Company, to erect a modern brick store building at Seventh street and Marquette avenue, Minneapolis, to cost complete, about $200,000. It will be occupied by the New England Furniture & Carpet Company, of which Mr. Harris is president.

Kirby T. Snyder, architect, of Minneapolis, has completed plans for a modern brick store, office and apartment building to be erected at Lake street and First avenue South, for Harry Kennedy. It will have foundations for ten stories, but only three will be erected now. The cost will be $75,000.

The Elson-Williams Construction Company, of Minneapolis, received the general contract for the erection of the building at Thirteenth street and Marquette avenue, for the Nevens Laundry.

A four-story addition to the top of the Reid Block at Ninth street and Nicollet avenue, is to be built. The J. & W. A. Elliott Company, which built the original block, will erect the addition.

The Standard Construction Company, of Minneapolis, received the contract to erect a brick school house at Kenyon, Minn.

S. M. Klarquist & Co., of Minneapolis, received the contract to rebuild the sanitarium for Mudbaden Spring Co. at Jordan, Minn. It will be structural steel and tile construction, fireproof.

The Haglin-Stahr Co., of Minneapolis, received the general contract to erect the Sumner branch library building on Sixth avenue North, in Minneapolis. Cost, $30,000.

The Standard Construction Co., of Minneapolis, received the general contract for the erection of the new building for Bethel Academy, on Snelling avenue, near Como, St. Paul. Cost, about $50,000. T. WIN.

Written for THE CLAY-WORKER.

## GOOD ADVERTISING.

SOME EVIDENCE of the awakening of the clayworking industry to the need for more extensive advertising and the benefits to come from proper exploitation is being furnished this spring by a number of examples of good advertising.

One of the most conspicuous of these coming to hand lately is a full-page advertisement of the Trenton Potteries Company, Trenton, N. J., in McClures for May. Other example of good advertising are found by Fiske & Co., of New York, in Everybody's for May, and by the Ludowici-Celadon Company, Chicago, in Everybody's.

The advertisement of the Trenton Potteries Company, somehow, makes a special appeal to The Clay-Worker as being the right thing at the right time, and it fits in with editorial arguments that have been set forth in these columns periodically for a number of years. The Clay-Worker has persistently pointed out that there is an enormous field for expansion in sanitary ware and bathroom equipment generally, and that proper exploitation ought to multiply the volume of demand in this line. This seems to be the idea that the Trenton Potteries Company have gotten into their system and worked out in the way of some elaborate and expensive advertising.

They make their appeal both to men and to women on the point that woman calls for beauty, while man calls for wear, and that the customer gets them both in the Trenton Potteries Company sanitary fixtures. The advertisement is well written and splendidly illustrated and should be productive of results.

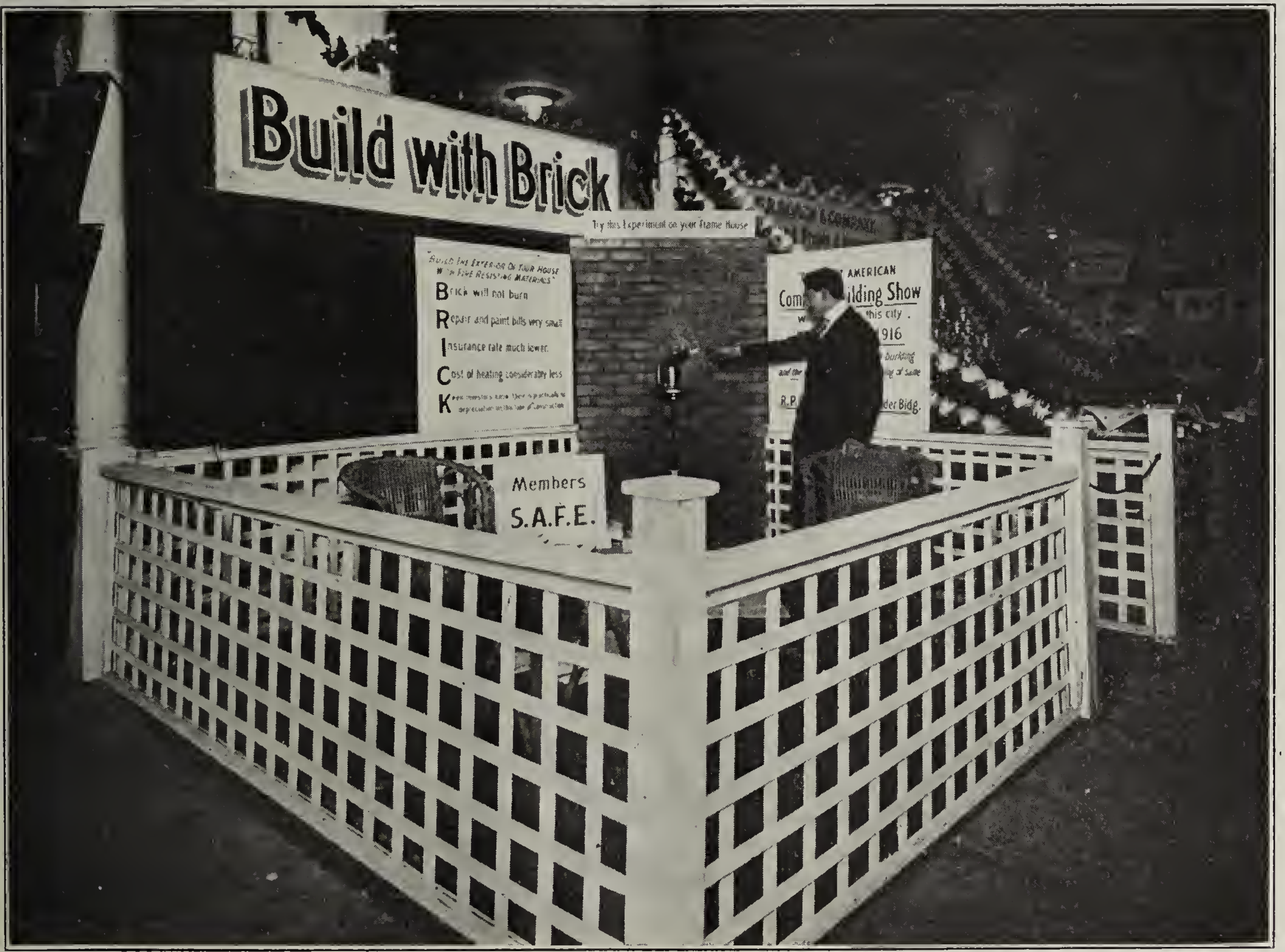
BUILD WITH BRICK
We Ship Any Amount Anywhere Anytime.
Fire — cost the people of United States $250,000,000 during 1914.
A large part of the American fire losses could be prevented by the intelligent use of Brick
THE "House Beautiful" Should be. Built of Brick
Ask your Architect or Contractor for plans and estimates.
BRICK
SALT LAKE PRESSED BRICK CO.
THE CLAY-WORKER.

Attractive Display of the Salt Lake Pressed Brick Company, Which Won Second Prize at the Utah Products Show.

Fiske & Co. feature tapestry brick fireplaces in their May advertising, and they do it in such an attractive manner that it should make an appeal that will beget orders for brick fireplaces during the building season.

The Ludowici-Celadon Company specialize in roofing tile; and, while their argument is aimed both primarily and exclusively for this purpose, it also assists the brick trade in that it makes an appeal with a picture of an entire brick house that is attractive enough throughout to turn the thoughts of the builder to brick for the building as well as tile for the roof.

Several effective displays have been made by individual firms at various shows and expositions, boosting their products, the two most worthy of note being those of the Salt Lake Pressed Brick Company and the American Building Brick Company. The former had a splendid exhibit in the Utah Products Show, held in Salt Lake City, Utah, the week of April 1. Out of eighty exhibitors the company received second prize and the compliments of the general public for the most artistic display.


Build with Brick
Try this Experiment on your frame house
Build the Exterior of Your House with Fire Resisting Materials
Brick will not burn
Repair and paint bills very small
Insurance rate much lower
Cost of heating considerably less
Members
S.A.F.E.
American Building Show
1916

The American Building Brick Company's Exhibit at the Women's Exposition, Cleveland, Ohio.

In the illustration shown herewith, the pleasant-looking individual is no other than our old friend and long-time member of the N. B. M. A., Mr. Parley N. Davis, sales agent for the company. Note the effectiveness of the brick panels and clever manner in which the "Build with Brick" slogan is electrically displayed.

We do not know just what took first prize, but we are of the firm belief that it must have possessed unusual merit.

The display of the American Building Brick Company was made at the Women's Exposition, Cleveland, Ohio, the middle of March. The exhibit consisted of a brick wall, on which was played a lighted torch, teaching that brick are fireproof. Above this wall you will note the card reading, "Try this experiment on your frame house." The "Build with Brick" slogan was used conspicuously as were also placards setting forth the merits of brick. The young man in charge of the exhibit was well versed in construction work, and explained to all interested parties the difference between the cost of fireproof construction and frame. A circular containing proof that the reader could afford a brick house was handed to the visitors.

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## P-P-B-B. OTHERWISE PANAMA-PACIFIC-BRICK-BATS.

WILL THE BRICK manufacturers and their allied interests allow an advertising proposition, such as they now have at the San Francisco Fair, to lie dormant? We think **not**. The nature of the exhibit is too much like the immortal G. W., it **cannot** lie.

The members of the Chicago Face Brick Association, in addition to their loyal support to the present time, are asking all of their agencies to ship one car of brick each, as their donation to the National Brick Publicity Movement. This car load is to be of a net yard value of $100.00. The members pay the freight and all selling expense, and turn in to the Panama-Pacific Clay Products Association $100.00, which is credited to the subscription account of the shipper. We ask **other** associations to do the same. "It's a poor fisherman that will not cut up **one** fish for bait, rather than to fish with a bare hook."

The Warren Brick and Tile Company, of Warren, Ohio, manufacture tile **only**, but say that they want a little share in keeping up our "BRICK HOME" and to prove their statement, remit to the Association their check for $5.00. Figure it out for yourself; if the six hundred live factories in twenty-two clay states would do the same, the cause of BRICK PUBLICITY would be working smoothly, and the seed planted now would yield a rich harvest "when this cruel war is over" and the financial situation of the country is again normal.

Topeka, Kans., is a city of 45,143 population, capital of the state, also the county seat. The advertising department of The Topeka State Journal is asking for full information regarding the scope and purpose of the Association, both as to national publicity and through this method, local benefits. They state: "We have been working this proposition for the past four years, and in that time there have been hundreds of houses erected and occupied, but the brick houses have been so few and far between that one of them is more of an oddity than otherwise." Also: "This is a city of homes, and we can see no good reason why the brick men should not get theirs. The only way to get it is to **go after it** and tell the people WHY."

To the brick manufacturer and the brick dealer in every section of the United States, this has "Billy" Sunday beat a mile, as an everyday sermon. Leave the mourners' bench and join the BAND. E. C. KIMBELL.

## GROOVED BRICK FOR STEEP GRADES.

Grooved brick of the wire-cut-lug type, designed to prevent horses from slipping on steep grades, have been laid for the first time in the United States at Grove City, Pa. The steepest grade on which the hillside bricks were used was 7 per cent. The bricks are the same size and have the same features as the ordinary Dunn wire-cut-lug brick, with the additional feature of two transverse grooves on the wearing surface. The blocks are laid so that the grooves lie at a right-angle to the curb. The joints of the brick are broken in the course so that the grooves do not run continuously across the streets, but break, theoretically, at every joint, thereby making a groove 3½ inches long at equal distances of 2.38 inches, thus allowing the tread of broad tired vehicles to bridge the joints and run over the pavement without jolting.

GUARD AGAINST the ever present MENACE of FIRE DESTRUCTION when you plan your NEW BUILDING.

FIRE, WIND, RAIN, FROST—all are HELPLESS to warfare against BRICK.

BRICK WALLS form an IDEAL STRONGHOLD for any BUILDING, and your BRICK HOUSE will not only be a PERMANENT STRUCTURE, but a JOY FOREVER, for REMEMBER that **"It Improves With Age."**

(Firm Name)

(City) (State)

Use this in your local paper the first week in June.

**THE**

**Roman Colosseum**

**IS IN RUINS**

It Was Built of Stone.

The

"Baths of Titus"

Still Stand.

THEY WERE
BUILT OF BRICK.

Moral: Use Brick
The Everlasting Material.

ASK US FOR THE
MANY REASONS
WHY BURNED CLAY
PRODUCTS ARE
THE BEST AND
MOST ECONOMICAL
BUILDING MATERIALS OBTAINABLE.

(Firm Name)

(City) (State)

Use this in your local paper the second week in June.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

The BUILDING SEASON has opened with a rush, not only in Milwaukee, but about Wisconsin and brick manufacturing plants all over the state are now in operation. General business conditions seems to be showing gradual improvement and brick men are inclined to take an optimistic view of the situation. Building operations in Milwaukee are taking on an active tone and Building Inspector Harper is confident that the building record for 1915 will exceed that of 1914 and will at least equal the high mark attained in 1913. During the month of March the building investment showed a decided gain over the corresponding period a year ago. During April, there was a slight falling off in the cost of the building launched, but what is considered more important, the number of permits issued showed a good increase. During the month there were 600 permits issued by Building Inspector Harper for structures to cost $1,173,693, as compared with 537 permits and a building investment of $1,343,502 during the same month in 1914. More activity in building circles about the state is looked for just as soon as farmers are over with the first rush of their spring's work, so that they can give attention to building work which has been planned.

Judging from the prospective contracts now being considered by Milwaukee jobbers, many of the cities about the state are preparing to do considerable brick paving this season. Stevens Point, Manitowoc and Janesville are only a few of the cities mentioned. Considerable brick paving was carried on last year in most of these cities and the work has given such satisfaction that similar paving material will be used on a larger scale this year.

J. B. Whitnall has resigned as president of the Pennsylva-

The
MONUMENTAL
BUILDINGS
IN BABYLON

Were erected
3800 Years
Before Christ.

**THEY WERE BUILT OF BRICK**

Today
MODERN CITIES
ARE BEING
BUILT WITH
BRICK TAKEN
FROM THE
RUINS OF
BABYLON.

**BRICK DOES NOT DETERIORATE**

(Firm Name)

(City) (State)

Use this in your local paper the third week in June.

WHY should you build with BRICK? HERE IS THE ANSWER:

THERE is no other BUILDING MATERIAL for walls which so well combines PERMANENCE with ARTISTIC BEAUTY, because:

BRICK will stand UNHARMED when all other BUILDING MATERIALS have ROTTED, BURNED or CRUMBLED AWAY!

BRICK will impart to any STRUCTURE into which it is incorporated an ARTISTIC CHARACTER and PERSONALITY impossible to obtain otherwise!

BRICK will prove more genuinely ECONOMICAL than any OTHER MATERIAL!

THEREFORE, WHY shouldn't you build with BRICK?

ALSO, **"It Improves With Age."**

(Firm Name)

(City) (State)

Use this in your local paper the fourth week in June.

nia Coal & Supply Co. of Milwaukee on account of ill health, and will retire from active business. He will remain on the board of directors, however. Frank S. Peabody of Chicago has been elected president; W. E. Caldwell, vice-president, and John C. Post, secretary and treasurer. Frank W. Fellens is general sales manager of the coal department of the company, while Edward F. Whitnall is general manager of the brick and general building material department.

Milwaukee brick men believe that the city would have done well to have chosen brick for paving Grand avenue, the leading downtown business street, from Fourth to Eighth street, instead of using sandstone blocks. F. G. Simmons, public works commissioner says that asphalt or creosote blocks would have made a pavement which would be too smooth, as this partion of Grand avenue is on a decline, but he gives no valid objection to the use of brick. Milwaukee has to spend about $200,000 in street repair work this year and much of this sum is being expended on repairing the asphalt and macadam pavements. As nearly as can be ascertained, but very little will have to be expended this season in repairing any of the brick pavements laid in the city.

Manger & McGucken of Milwaukee were recently awarded the contract for paving with brick the alleys between Fifteenth and Sixteenth streets, Wright and Clark streets, at 60 cents for cutting and $1.90 for brick, making a total of $2,249.90. The same firm was given the contract for paving alleys between Seventeenth and Eighteenth avenues, Maple and Burnham streets, involving a total contract price of $1,442.60.

M. Nisen & Sons, operating a tile plant near Union Grove, Wis., have installed a labor saving device in the shape of a cable operated miniature railroad system for conveying clay from the pits to the factory.

The Whitewater Brick and Tile Company, organized at Whitewater, Wis., last fall, is making favorable progress with the erection of its new plant. The power house has been completed and work on the main factory building is under way. A 300-foot artesian well has been dug and sidetracks to the plant have been laid.

The employes of the plant of the Hydraulic Press Brick Company at Menomonie, Wis., recently saved from destruction the home of C. L. Blissard, manager of the plant, when fire broke out in the residence. The brick company has its own fire department and the men did such efficient work that the home was saved, although the entire roof was nearly burned through when the fire was discovered. A loss of about $2,000 on house and contents was sustained by Manager Blissard.

A deal of unusual interest to the brick and tile manufacturers of Wisconsin was concluded at Manitowoc, Wis., recently when the Manitowoc Clay Company was organized to take over the stock and business of the Manitowoc Clay Product Company. The capital stock of the new concern is placed at $200,000. The principal stockholders are Elmer Leach and W. M. Clark of Oshkosh, Wis., A. S. Green of Milwaukee and William Killen of Appleton, Wis. The reorganized company has secured a total of fifty-eight acres of land, said to contain the largest body of clay in Wisconsin, and will take up the manufacture of tile, as well as brick. Additional buildings for the tile department will have to be erected, but it is expected to have all departments of the plant in operation by July 1. The brick department of the plant will continue to be under the management of Edward Fricke. Mr. Titsworth of Chicago, now with the Chicago Clay Product Company, which owns plants in Indiana and Illinois, has been secured as sales manager of the company and will become financially interested in the concern.

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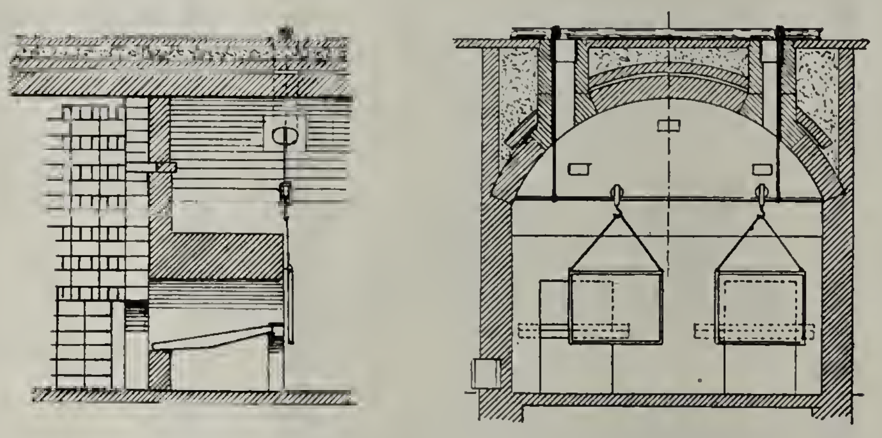
Modesty is a virtue rather low in the ambitious percentage, but fortunately the average American is not afflicted with enough of it to hurt.

**Matt Glaze at Cone 010**—An unfritted matt glaze is made with 223 parts of white lead, 25 parts of kaolin and 72 parts of flint. For blue-green add 10 parts of rutil, 2 parts oxide of zinc and 1.5 parts of oxide of cobalt.—Keramische Rundschau No. 19, 1914.

**Ceramic School at Landshut**—In spite of the fact that the war has taken several of the professors into the army, the clayworking school has not been closed, and has for the winter term thirty-nine students.—Deut. Topf & Z. Z., Nos. 88-89, 1914.

**Starting Fire in Continuous Kiln**—In the cut shown herewith the best method of starting fires in a continuous kiln is made plain. The fireboxes are built on the outside of the kiln set with green brick, and are built up entirely of burnt brick. This will save several thousand of good brick in the kiln, as the starting fire will have no bad effect on them. The first arches in the kiln should be set with firebrick also, as this will prevent the green brick from being melted, and, in fact, a kiln started in that way will get under fire quicker than one in which the fireboxes are built right in with the green brick.—La Revue des Materiaux de Construction No. 108, 1914.

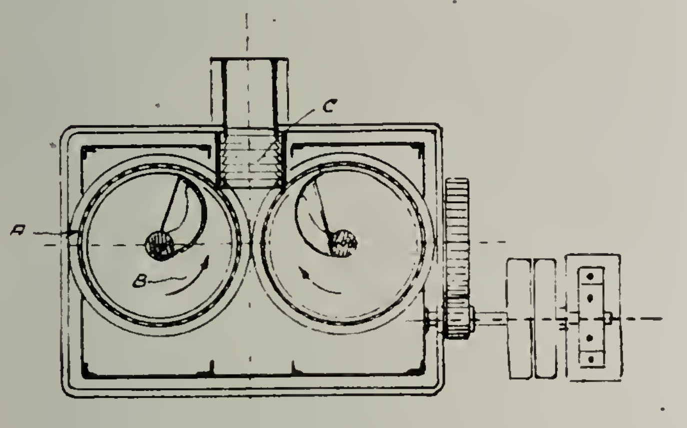


**Weathering of Burnt Brick**—The weathering of burnt brick can only take place when brick are burnt too soft, provided, however, that the clay does not contain a large amount of lime and other soluble salts. The trouble with disintegrating of burnt brick will sometimes show up at once, and sometimes it will be years before this trouble appears. If it appears quickly after exposure, it is usually the salts, which cause the trouble if the brick are burnt to medium hardness. A chemical analysis of the salts present should be made and the trouble should be remedied by proper selection of the clay. —Deut. Topf & Z. Z. No. 35, 1914.

**Kiln Firing**—The determination of the condition of the kiln gases can only be made by chemical analysis. The oxidizing or reducing atmosphere in the kiln can be judged by the color of the flame by an experienced burner, but it is better to rely upon an analysis in order to be sure of the condition, especially when the clay ware is easily affected by reducing conditions. With an excess of air the condition of the kiln will always be oxidizing, while with little access of air the reducing condition will prevail. It is, therefore, also good to have a draft gauge, so that the burner can regulate the kiln. For the examination of kiln gases an Orsat apparatus is the best, and samples should be taken every 10 minutes.—Sprechsaal No. 14, 1914.

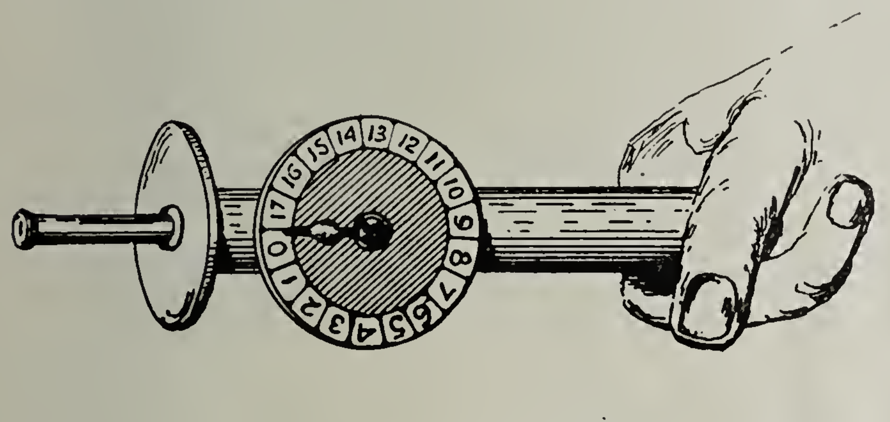
**Salting of Sewer Pipes**—The outside of sewer pipe is salt-glazed, while the inside is mostly slip glazed. When the kiln has been burnt to the right stage, the salt is put in the fireboxes, which will volatilize, and the sodium will deposit itself on the white hot clay, while the chlorine will escape. From two to four shovels of salt will be necessary for every firebox, according to the size of the kiln. In order to give the sewer pipe the right glossy appearance, it is a good idea to reduce the draft of the kiln about one-half before salting, so that the kiln will work reducing. Slow cooling will also assist good salt glaze finish.—Tonwarenfarbikant No. 9, 1914.

**Back Feeding in Auger Machines**—The great trouble with auger machines is the fact that the clay will back up on top of the machine and that it will not feed fast enough through the mouthpiece. Mr. Iwan Artjemkin has invented a new process, by which he used perforated plates and a cylinder, in which knives work to counteract the backing up of the clay.



With the use of this attachment all backing up of the clay will be overcome. A represents the cylinder proper, B the perforated plate and C is the mouthpiece of the auger machine.—Deut. Topf & Z. Z. Nos. 94-95, 1914.

**Plasticity Tester**—In order to test the plasticity and the stiffness of clay column there is no accurate instrument or simple arrangement on the market which can be used by clayworkers. F. Renner & Son, of Kempten, have invented a small machine, as shown in the cut, which will answer the purpose all right. By pressing the point on the clay column it will act on the spring inside the larger tube, and this will move the hand on the dial. The degree of plasticity can then be ascertained and the difference between the plasticity and stiffness of various clay columns can be easily read with such an instrument.—Tonind. Z. Z. No. 118, 1914.



**Crude Oil Engines for Brick Plants**—When brick plants are so arranged that steam is not absolutely necessary either for running an engine or drying the product, then an oil engine will be the best adapted. At present it is possible to buy such oil engines from 10-h.p. and up, and these engines have more than proven that they are very economical in their operations. According to the quality of the oil used, the cost varies, but on an average the cost per horse-power will be about 1½ pfenning (about 3/10 of a cent). The saving made with a Diesel oil engine is about 50 per cent. over a steam engine. For the production of 25,000 brick, with the necessary grinding, pug mill and auger machinery, a 45-h.p. oil engine was used, and the daily consumption was from 80 to 90 liters (21 to 24 gallons) of distillate and from 2 to 3 liters (½ to ¾ gallon) gasoline. Figuring the distillate at 5 pfenning per liter (5 cents per gallon) and gasoline at 15 pfenning per liter (15 cents per gallon), then the total cost of running the plant for 25,000 brick was 4.95 marks ($1.19).—Deut. Topf & Z. Z. Nos. 90-93, 1914.

## FOREIGN ITEMS.

Special Agent Garrard Harris, of Guatemala City, Guatemala, says in a report on the toy, pottery and basket industry of that country that some remarkably good pottery is made by the natives there—pottery of the decorative class which he thinks would find a ready sale in the United States as a distinct novelty, very palpably different from those pieces which are obvious imitations, yet are offered for sale as Indian pottery. He claims, too, that relics from the mounds and ruins of Guatemala, in cities and ancient town sites, show fine specimens of pottery, and demonstrate that the pottery art is an old one there which they have never forgotten.

Consul Harry D. Baker, Bombay, India, reports that a furnace and other necessary plant is in process of erection at Gwalior, Central India, for a state pottery factory. Besides porcelain articles, tile for building purposes, for which there is considerable demand, will be manufactured.

We are not by any means the only people who are irritated by stamp taxing measures because of the war in Europe. Our neighbor, Canada, has had to put into effect a higher tariff, and even supplement this with stamp taxes on banknotes, cable and telegraph messages, railway tickets, checks, bills of exchange, etc.

## NOTES FROM DIXIELAND.

IT IS ANNOUNCED that the contract for the medical college building for Vanderbilt University, at Nashville, will be awarded separately. Bids for the same were opened the past week, the lowest complete estimate approximating $300,000. Many Memphis and Nashville contractors have submitted estimates. Much brick work figures in this job.

H. Aron, at Memphis, is having the Memphis Building Company construct a two-story brick veneer home at 885 North Parkway, that will cost complete $4,000. The interior will be hardwood, with furnace heat.

The contract for the new Carnegie Library, at Vicksburg, Miss., has been let to H. H. Havis, of Vicksburg.

The bid of $63,897 made by D. D. Thomas & Son, contractors, submitted to the Board of Education, for the construction of the Prescott High School building, at Memphis, was the lowest submitted. A fire-proof brick building, 124x193 feet is planned. A. B. Hill is secretary of the board.

Architects Hanker and Carnes, of Memphis, have prepared plans for a two-story office building to be erected at Paragould, Ark., by J. Bertig. Brick construction.

Ground was broken some weeks ago for the magnificent Jewish Temple at Memphis, which will be one of the finest in the South. The work on the same will be done by the James Alexander Construction Company. The cost will be $120,000 and the work will be completed this summer.

The site is being cleared and actual work is about to start on the four-story building at Main and Monroe, Memphis, for the Shop of Culture. The building is to be completed by August 15. The Carroll-Blake Construction Company, of Birmingham, Ala., are the sub-contractors. The New York Terra Cotta Company will furnish the terra cotta.

Bids have been received for the Shelby County Oil Mill, to be of brick and concrete fire-proof construction, at Memphis. The contract was awarded to Fred B. Young & Son.

DIXIE.

Written for The Clay-Worker.

## PACIFIC COAST NEWS.

GENERAL CONDITIONS in the Pacific Coast building trades have not changed much in the past month, yet what change there has been is for the better. Building operations do not come up to expectations; the fact that there has been much overbuilding in the past and the general tendency of the last few years to retrench in all lines of business reflects vitally on the present building situation. Material dealers are holding pretty well to firm prices and there is no feeling of serious depression. Common brick at $7.50 per 1,000 is moving steadily, but not briskly, and terra cotta and face brick show a reasonable demand. The movement in fire clay products, both brick and vitrified sewer pipe, is rather active and business in these lines is encouraging. Throughout the coast territory public street and sanitary improvements are going ahead at a fully normal rate, and the prospects are fair for still greater activity before the summer is over.

In San Francisco no new buildings of special importance have been announced this month, still there is much private building, so that the normal average of operations is being maintained. During March the total reached for building permits was $1,320,000. In Los Angeles the March permits totaled $1,125,000, which was over twice the amount for the preceding month. Some dealers are optimistic enough to predict a building revival, but whether this will be or not, it is evident that the tendency is for a steady improvement.

In the north there have been plans announced for some important structures, notably in Seattle and Portland. The Washington Securities Company, of Seattle, has taken out a permit for a ten-story steel frame building, to cost $400,000, and in Portland James P. Taylor has been awarded the contract for constructing a $30,000 building for the Coin Machine Company.

The branch manufacturing plant of the Shredded Wheat Biscuit Company to be erected at Oakland, Cal., will call for 100,000 enameled brick and considerable other clay products materials.

Gladding, McBean & Co., San Francisco, report business fair, with hopeful prospects for the near future. This company has just been awarded the contract to supply buff brick for two new schools, the high school at Roseville and a grammar school at Auburn. Each building will require about 65,000 brick.

The new hall to be erected at Berkeley, on the campus of the University of California, will be constructed of brick, it is planned, and the new Rainer brewery to be put up in San Francisco will require a great quantity of brick and hollow tile. The general contract for the brewery plant has been let, but no separate contracts as yet are announced. This plant will represent an expenditure of over half a million dollars.

The Steiger Terra Cotta and Pottery Company has been awarded the contract for the white matt glaze terra cotta to be used in the new Elks' Club building at Klamath Falls, Ore., and other contracts. Prices in terra cotta are not holding as firm as they should, owing to the keen competition for business.

### Clay Products at Exposition.

Clay products are being most attractively featured at the Exposition. The pavilion of the National Terra Cotta Society in the Varied Industries Building is a beautiful structure, which displays the advantages and desirability of terra cotta construction in a telling way. The Model Brick House on the grounds, the building constructed of clay product materials contributed by the various local concerns, is just about completed now, the interior finishing having required more time than was expected. This house constitutes a most attractive exhibit of the possibilities for the use of brick in structures of small size.

Eugene Corrigan, representing in San Francisco the Stockton Fire and Enamel Brick Company, states that business in fire clay products in California is active and prosperous. While no manufacturing plants have increased their capacity of late, they are able to operate with regularity and obtain fair prices for their output. The Stockton Fire and Enamel Brick Company manufactures fire brick and fire clay products only. They are running their plant all the time and have an assured market for their output. This company furnished the fire brick used for the garbage disposal plant on the Exposition grounds, and enjoys a steady business supplying fire brick and other fire clay materials for gas plants, bakeries, kilns, lumber plants, oil burners, etc.

The Sacramento Clay Products Company, whose specialty is hollow building tile, is having a rush of business at present. This concern will probably furnish the hollow tile to be used on the new Rainer brewery at San Francisco.

The complaint recently filed by the several pottery and clay products manufacturers of Northern California against the Southern Pacific Railroad Company, alleging unjust, unreasonable and discriminatory rates on clay and clay products, was dismissed by the California Railroad Commission on April 12, and the railroad company was directed to correct certain inconsistencies in its tariffs and to prepare a special tariff embracing all its rates on clay and clay products. Under the new tariffs ordered by the commission it will probably be possible for shippers to determine for themselves the correct rates and to check quotations furnished by the railroad company.

A new clay products company has been incorporated by a group of California capitalists, under the name of the Fresno Brick Company. The capital stock is placed at $200,000, and of this $120,000 has been subscribed by Fred Dodd, B. G. McDougall, W. G. Uridge, F. Rehourn and C. P. Lindaren. The brickmaking plant will be located at Pittsburg, Cal.

The Garden City Pottery Company, of San Jose, Cal., has recently installed new machinery for increasing their capacity and efficiency. This concern manufactures Red Standard flower pots, chicken fountains, water filters, water coolers, etc. The office and warehouse is situated at 129 Second street, Oakland, Cal., and the manager is D. Raymond.

B. R. Smith, until recently the general manager of the Denny-Renton Clay and Coal Company, at Seattle, has resigned his position and returned to his home in Portland. This company is represented in San Francisco by C. S. Laumeister, with offices in the Sharon building. This company is employing in its advertising propaganda an article by Elbert Hubbard, entitled "On the Road." In an attractive form they have distributed this sketch over the coast territory. It sets forth some pertinent facts relating to brick roads in particular.

The interlocker tile manufactured at Ben Ali, on the outskirts of Sacramento, Cal., which has hitherto been used almost exclusively on large structures, is now being used with signal success on residences. The new residence of D. S. Wasserman, a building costing $30,000, will be constructed of interlocker tile. Several other large residences at Sacramento will also be built of this material.

The Western Tile and Fireplace Company, of Los Angeles, has filed a voluntary petition in bankruptcy.

In San Francisco the city engineer has advised the Board of Public Works that appropriations amounting to over half a million dollars will be necessary for the coming year. A large fund still remains of previous appropriations for carrying on work now under way or being planned.

The clay deposits near Oroville, Cal., have recently been tested scientifically at Livermore, and a number of manufactured bricks made from this clay are attracting favorable attention in the trade. The bricks have a fancy facing and consist both of pressed and cut bricks. The Oroville deposits have been thoroughly prospected and these operations attest that the clay is not only pure, but present in enormous quantities. The sample bricks were made at the request of L. F. Riley, of Oroville.

SUNSET.

San Francisco, Cal., May 3, 1915.

# ENDORSES PAVING WITH BRICK.

### Head of Ohio Oil Company Makes Strong Appeal for Laying of Brick Streets in Findlay, Ohio.

THE FINDLAY Morning Republican, of Findlay, Ohio, printed prominently in their issue of May 4 a letter from J. C. Donnell, of the Ohio Oil Company, read before the Findlay city council at a recent meeting. The letter, in part, is as follows:

"The proposition which seems to be attracting the most attention at this time is that of paving Main street.

"I am called up on the telephone every few minutes, and have had a number of parties call on me personally, each of whom is in the paving business, or rather has paving material of a certain kind; I have listened to their arguments, and as I understood there are petitions out for various kinds of pavements, what I have said to all of them is that this street has as hard wear as any street in the State of Ohio. I do not mean by this the most wear, but the heaviest types of vehicles, such as traction engines, loads of logs, etc., with iron tires on the wagons, are using the street continually, and for that reason we want what is positively known to be the very best material available for this pavement—something that will last and that has been thoroughly tried out. We do not want to spend our money for anything that is in any sense experimental. A great deal is being said about wood block, which material makes a very nice, smooth pavement, but when you are through it is nothing but a piece of wood, and I greatly doubt whether it will stand such wear as the street will be subjected to. Therefore, I think the whole question reverts to something that we know will stand the wear and that is the best quality of guaranteed brick. I do not want to be arbitrary in this matter, but, as stated above, we do not want to take any chance at all; in fact, I do not think it is necessary to do so, and I hope before you award this contract to anybody you will consider all of these phases of the question very thoroughly. As you know, we are very large taxpayers in this section, and it is my duty to look after the interests of the company as well as my own."

A Portion of the Famous Brick Paved Speedway at Indianapolis Where it is Predicted the World's Record Will Again be Broken During the Races May 29, 1915.

## BRICK ROAD IS CAUSE FOR REJOICING.

In view of the recent passing of Elbert Hubbard, of East Aurora, N. Y., who was among those who went down with the ill-fated Lusitania, his story of a brick road in the December number of the Fra Magazine will be read with unusual interest.

### Greets Brick Road with Joy.

Let the joy bells jingle. Pull aloft the puggarree. Pass out the happy honks.

'There is now a brick roadway from East Aurora to Buffalo. Also, what is better, this road runs from Buffalo to East Aurora. Sixteen feet, vitrified brick, with curbs, culverts and ditches, no hills, as good a road as can be built, straight to the Roycroft Shops. Oho and yet again Oho!

### The Brick Pavement.

Five years ago seven miles of brick pavement was laid on the Buffalo road. And this pavement is in good condition today. Now within the last few weeks a new brick road has been laid through Main street in the Village of East Aurora, extending to the brick road six miles away. So as before divulged let the gladsome fact be thrown on the screen that there is a continuous first-class automobile brick pavement from East Aurora to Buffalo.

When you leave Buffalo, go out Seneca street and follow straight out to the Roycroft Shops. The run is easily made from the city line in Buffalo to the Roycroft Inn in thirty minutes. In the good ol' days on the plank road the trip used to take up three hours.

### Mr. Rockefeller's Opinion.

Recently I had an interesting interview with John D. Rockefeller on the subject of roads. Mr. Rockefeller is an economist by nature and a money-maker by experience. I trust these two points will not be contradicted.

The Standard Oil Company owns 40,000 horses and more than 10,000 tank wagons.

The business of the Standard Oil Company is to manufacture goods and deliver them to the consumer; and at the present time the big article produced by the Standard Oil Company is gasoline. Gasoline is largely used to run automobiles and motor trucks—at least this is what I am told.

During our conversation I slipped in this one—

"Mr. Rockefeller, how does it happen that a man so consistent as you should depend upon horses to deliver gasoline? Is this a part of the old proposition that shoemakers' children go barefoot and doctors never take their own medicine?"

"Not at all," said Mr. Rockefeller, "the truth is we send our wagons wherever people live; and as yet the majority of roads in America are so imperfect that we are obliged to depend upon horses to get absolute reliability. Just remember that the automobilist usually picks his road, while we are obliged to go where the customer is. I am vitally interested in good roads—for one reason, if for no other, that good roads mean more business for us. Just as fast as we find a district where good roads prevail we sell our horses to the farmers at a nominal price and put in motor trucks to carry tanks."

## THE IDEAL ROADWAY.

The idea seems to prevail at present among the big road builders that the only road we can call "permanent" is the brick road. This applies to the district in America say from the 38th Parallel northward. Frosts, snow, ice, water, with a rain fall of 50 inches, make a big tax on your road. The macadam road, costing eight to ten thousand dollars a mile will have to be replaced in three, four or five years. The brick road, put down properly on a concrete base, well drained at the sides with concrete culverts, will last fifteen or fifty years.

A brick road where cracks occur, has not been put down as it should.

Brick wears more slowly than any other substances. When the joints are filled with cement, and an expansion cushion of bitumen is used along the sides, all properly curbed and drained, we have a road that we can call permanent. That is to say, it is a road that will last longer than any other form of road of which we know. It is skidless, mudless, dustless, and should last a generation. In case imperfect brick are laid, or accident occur to the road, to lift out the brick and replace them is easy. Thus we get a road that can be repaired at a minimum of expense. But if this road is properly built, with the right kind of brick, based with the right kind of cement, properly drained, we have a road that should not require any repairs short of ten years, even though it is subjected to continuous and heavy traffic.—American Clay Magazine.

## CANADA CONTEMPLATES ROUTE SIMILAR TO LINCOLN HIGHWAY.

Central western Canada will have a federal highway much after the plan of the Lincoln highway proposed across the United States, if the project being urged by the Board of Control of Winnipeg is carried out. This project contemplates the construction of a highway from Winnipeg to Calgary, to go through the more thickly settled territory tapped by the Canadian Pacific railway.

The thousand miles of highway through the provinces of Manitoba, Saskatchewan and half way into Alberta will be financed by the municipalities by which the roadway would be traversed. Special appropriations also will be sought from the provincial governments. The project has been received with enthusiasm in a number of the larger cities along the proposed route.

It has been pointed out by the promoters of the highway through the prairie provinces its construction would enhance the value of farm lands for several miles on both sides of the roadway.

## DRYING OF CLAY WARES.

By Ellis Lovejoy.

### PART XVI—RADIATED HEAT DRYERS.

THE RADIATED HEAT DRYER is a development from the direct coal-fired hot floor. The first step in the development was to cover the hot floor with tunnels. The next step introduced air around the furnaces and into the tunnels, and improvements have been made from time to time in the air circulation and heat radiation. While the name "radiated heat dryer" is appropriate, yet the dryer really makes use of convection as well as radiation. The entering air circulates around the hot furnace walls and becomes heated by contact with them. It then passes into the tunnels and gives up the heat to the ware and to the work of evaporation. The smoke flues extend the full length of the tunnel under the tunnel floor, and the heat from its walls is rediated to the ware. The improvements in the dryer are toward better air circulation and contact with the hot furnace walls, and toward smoke flue construction, which will give a maximum radiating surface with minimum wall resistance to the passage of the heat by conduction from the inner to the outer surface of the flue walls.

The furnaces are at the delivery end of the dryer, in a pit below the dryer tracks, and usually and preferably are built into the dryer, in order that any radiation from the furnaces, ordinarily reckoned at a loss, is available in the tunnels for drying purposes. The furnaces are simple box grates and are coal-fired.

We have worked out the following table from an article, entitled "A Contribution to the Technology of Drying," by R. H. Minton, in Vol. VI, Trans. Am. Cer. Soc. Mr. Minton's calculations are based on nine-pound bricks, containing in round numbers two pounds of water each. The air is assumed to have an initial temperature of 50° F., and to be 75 per cent. saturated.

—Fuel and Air Requirement Per Thousand Bricks Daily—

| No. | Temp. F.° Hot End. | Temp. F.° Exhaust. | Coal in Pounds. | Cu. Ft. Air Per Hour. |
|---|---|---|---|---|
| 1 | 82 | 59 | 271 | 246,965 |
| 2 | 109 | 68 | 283 | 144,309 |
| 3 | 176 | 86 | 281 | 71,888 |
| 4 | 314 | 104 | 264 | 38,087 |

A waste heat dryer in temperatures and air volume will operate somewhere between No. 3 and No. 4, inclusive, while a radiated heat dryer will fall below No. 4. In a waste heat dryer the heat source is outside, and there is no opportunity to recuperate the heat in the dryer. In consequence there is a greater fall in temperature from the entering end to the exit, and, other conditions being the same, the volume of vapor which can be carried out is less.

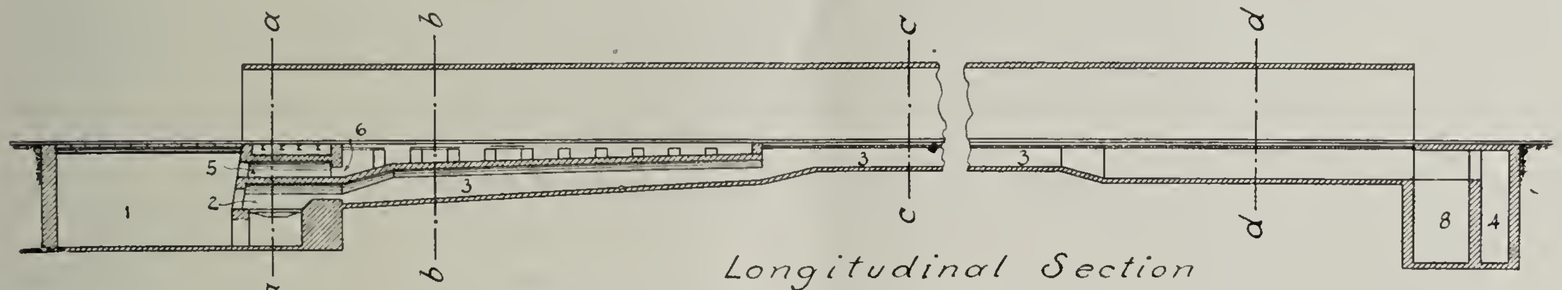
In the radiated heat dryer the smoke flue (radiating flue) is constantly giving up heat to replace that used in the drying operation, and because of this heat we can remove more moisture with a smaller volume of air. As has been previously stated, there is no relation between air volume and moisture volume; the air has nothing to do with it, except, as in the case of a waste heat dryer, the volume of heat is determined by the volume of air.

Radiated heat dryers can work with a relatively small volume of air. In one instance we found 28,000 cubic feet of air per hour per thousand bricks, but this is greater than an ordinary radiated heat dryer, because of fan draft in this particular instance, where usually only natural draft is used.

The quantity of fuel per thousand bricks used in a radiated heat dryer depends upon the volume of water to be evaporated, upon the weight of clay and iron to be heated up, upon the dryer losses, and upon the efficiency of the operation.

The quantities given by Mr. Minton are fairly representative, taking into consideration the volume of water assumed to be removed. Our records show variations from 200 pounds to 380 pounds per thousand bricks, the latter consumption being due to improper construction and inefficient operations.

Fig. 63 is a longitudinal vertical section through a tunnel of a double track radiated dryer, and Fig. 64 is a plan view below the tracks, and Figs. 65, 66, 67 and 68 are vertical cross-sections of the same. The numerals marked on the several drawings indicate the following features of the dryer: No. 1 is the firing pit below the track level; 2 is the furnace, one for each track in the dryer; 3 is the combustion or smoke flue, which extends the full length of the dryer and connects with the main draft duct, 4.



Longitudinal Section
Fig. 63

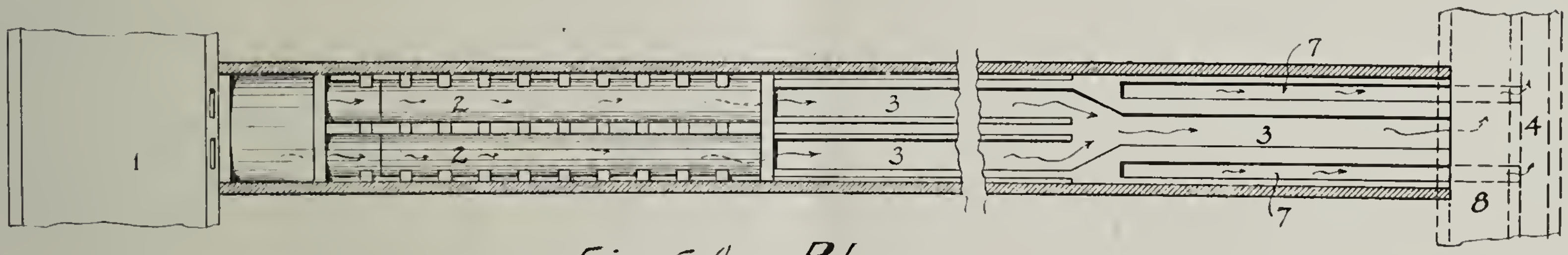
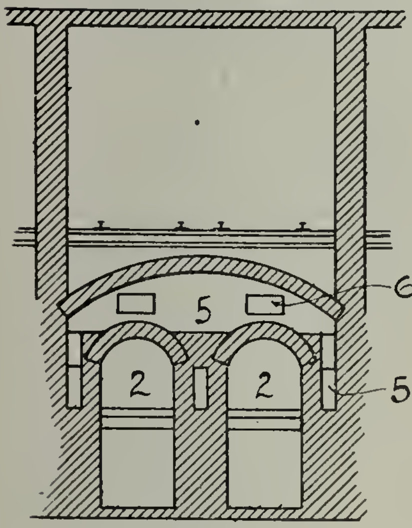
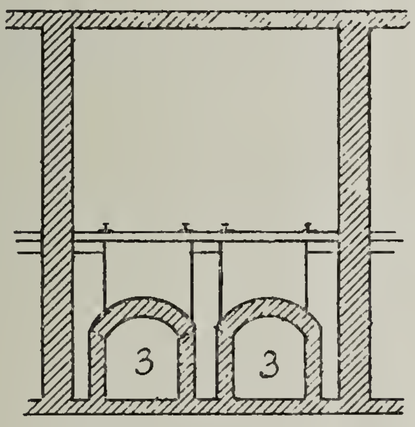


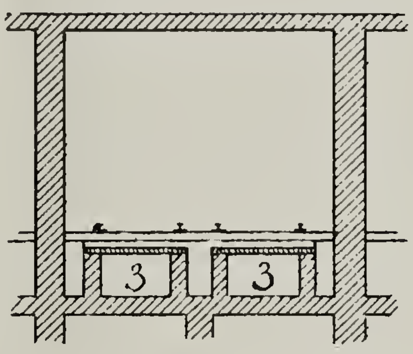
Fig. 64 Plan



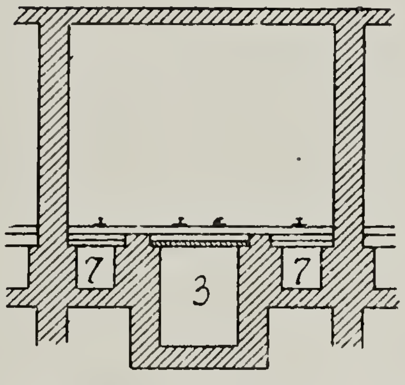
Section a-a
Fig. 65



Section b-b
Fig. 66



Section c-c
Fig. 67



Section d-d
Fig. 68

The dryer under description differs from the usual radiated heat dryer in that the air and moisture at the exit are drawn down through the ware and out through the floor of the dryer. To accomplish this, double-track tunnels are used, and the two smoke flues (3) are brought into one flue in the center of the tunnel near the exhaust end. The air enters through openings in the furnace fronts—such openings being on either side and above the furnaces—circulates around the furnaces, collects in the hot air chambers, 5, enters the tunnel proper through openings 6, thence rises through the ware and is drawn the length of the tunnel. The entering hot air, instead of rising immediately through the ware, may, by means of sheet-iron plates, with graduated openings under the tracks, be distributed under several cars as in waste heat and other hot-air duct dryers. On either side of the single smoke flue, near the exhaust end, are air and moisture ducts 7, with perforated floor (not shown), which connect with air and moisture duct 8. The smoke (4) and moisture (8) main ducts lead to stack or fan at one side of the dryer, and the air and furnace drafts are controlled by dampers.

The smoke flues (3) are brick for a distance of 30 to 40 feet from the furnaces, on account of the intense heat, and beyond they have brick walls covered with cast-iron plates. The idea is to build these flues of materials having the least conductivity resistance and the largest possible radiating surface. The flues must be of bricks near the furnaces, but the walls are only 4 inches thick, and the sides, as well as the crowns, are exposed except buck walls at intervals to support the crowns and to carry the tracks. Beyond the brick flue cylindrical iron pipes have been used to the exhaust end, but the more common construction is that of 4-inch brick side walls covered with iron plates. Sheet-iron plates have been used and sealed with sand; flat, overlapping cast-iron plates make a simple covering, but greater radiating surface is had from curved and corrugated plates.

(To be continued.)

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European governments dispense with oratory and make prohibition a condition instead of a theory.

# THE DAWN OF A NEW ERA FOR BUILDING BRICK.

## The National Building Brick Bureau Organized at Indianapolis with the Object of Boosting the Brick Business.

THE COMMITTEE of brick boosters appointed at the Detroit convention of the N. B. M. A. to formulate and put in operation a general plan for the promotion and use of building brick in America, met at Indianapolis, April 27, and perfected an organization, which, if properly supported by the makers of building brick throughout the country, will be of inestimable value to the industry.

The delegates in attendance were Fritz Salmen, New Orleans; Edwin Brockway, New York City; H. C. Kleymeyer, Evansville, Ind.; W. P. Varney, Chicago, Ill.; Robert C. Mitchell, Cleveland, Ohio, and Charles H. Bryan, Detroit, Mich.; and there were present as ex-officio members and guests, the president of the N. B. M. A., C. P. Mayer, Bridgeville, Pa.; Will P. Blair, Cleveland; Theodore A. Randall, Indianapolis; Wm. B. Wreford, Detroit, Mich.; J. Crow Taylor, Louisville, and Ralph P. Stoddard, Cleveland, Ohio.

Most of the delegates arrived Monday, the 26th, and immediately began the consideration and discussion, informally, of the purposes of the meeting, and the means of putting same in effective operation. All of the meetings were held in the Claypool Hotel, which afforded unexcelled facilities for the purpose. The committee labored industriously through the better part of three days (and nights, too) and as a result of their deliberations an organization was formed under the name of the National Building Brick Bureau, to be duly incorporated under the laws of Indiana. The objects of the bureau as set forth in the constitution are:

"To encourage and assist in the manufacture and use of building brick by the gathering and dissemination of information demonstrating the superiority of brick as a building material; and to aid and assist the public in the proper use of building brick for every purpose for which they are adapted; and to advance the interests of its members by a careful, concerted study and investigation of such uses, and of all matters pertaining to the welfare of the brick business, and to encourage a more extended use of building brick throughout the nation."

A board of nine directors was elected, composed of Fritz Salmen, Louisiana; George H. Clippert, Michigan; W. W. Ittner, Missouri; W. P. Varney, Illinois; H. C. Kleymeyer, Indiana; T. E. Wilson, Pennsylvania; Edwin Brockway, New York; J. Fred Smith, Nebraska; T. A. Randall, Indiana. In turn the directors elected the following officers:

President, Fritz Salmen, New Orleans; vice-president, W. P. Varney; treasurer, George H. Clippert; secretary-manager, Theodore A. Randall; and an executive committee of three directors, W. P. Varney, George H. Clippert and H. C. Kleymeyer, was appointed to manage and direct the affair of the bureau.

### Some Interesting Diversions.

It was not wholly a case of all work and no play, however, with the visitors, for they were entertained at luncheon Tuesday by the Indianapolis Rotary Club, during which Secretary Randall delivered an address on "Incombustible Brick," which was illustrated with a series of lantern slides showing in a graphic way the tremendous fire waste of the nation and suggesting as the best remedy the universal use of BUILDING BRICK. Through the courtesy of the American Clay Machinery Company, those present were treated to a moving picture show. Two films were shown, "A Made to Order Fire" and "Love in a Brick Bungalow," which proved very entertaining and instructive.

In the evening, the Indiana Brick Club gave a dinner in honor of the visiting brick manufacturers, which proved a very delightful occasion and demonstrated that Hoosier brickmakers are generous and happy entertainers. Mr. A. E. Davis, of the Western Brick Company, acted as toastmaster.

At noon of Wednesday the visitors were autoed to the famous brick-paved Speedway and witnessed some fast trial runs by professional drivers, to whom eighty miles an hour is an ordinary or slow pace on this track, following which an informal luncheon was served at the Columbia Club, a fitting celebration for Mr. Kleymeyer's birthday, during which Hon. James Watson was introduced and spoke briefly in his usual felicitous manner, congratulating the delegates on the important work they were engaged in and wishing them the largest possible measure of success.

### The Dawn of a New Era for Building Brick.

The successful launching of the National Building Brick Bureau marks the dawn of a new era in the brick business, provided a reasonable number of the enterprising brick manufacturers of the country will get in line and participate in the work and help carry out the plans outlined for this bureau. And we have faith that they will. The enthusiasm of the committee in setting about this work, the harmony with which their ideas chimed, and conditions in the trade and throughout the country generally, lead us to believe that the committee did just the right thing at exactly the right time, and that this really marks the dawn of a new and wonderfully bright era in the clayworking industry—an era in which there will be more brick made and sold than was ever dreamed of before, and in which the problem will be how to supply the needs rather than how to find a market for the product.

Conditions in the building industry are ripe for a brick-boosting campaign of nation-wide scope, to yield larger returns for the money and effort expended than ever before. The general public is beginning to awaken to the possibilities in brick construction, to realize that it is not an expensive proposition in the long run, nor really costly in the first place. Meantime, the brick people themselves are thinking as they have never thought before of the great field of enlarged trade that lies open before them, if they can but drive home to the public the essential and important fact that brick is not only the best building material in the world, but that brick construction is within the reach of all.

### History-Making Incidents.

To realize how rapidly we are making history in the brick business these days, you have but to recall the fact that only a few years ago the brick men themselves thought it cost a lot more to build with brick than with lumber. This impression was so strong that they accepted it as a sort of general fact and didn't take the trouble to make estimates and comparisons. Then when some venturesome experimenters did take up the matter and began to show what a good chance there was for brick, there was some hesitancy and timidity about accepting the figures. It is only during the past year or two that the conviction has been driven home to the brick men themselves that brick is within reach of the modest home builder as well as the best material for the finest structures. Now what a difference! The brick men are realizing the situation, and the proposition is to make the public see the right light. That is what this new bureau is to point the way in doing, and to open the door to a bigger trade that will result in good for the builder as well as busy and prosperous times for the brick manufacturer.

The Clay-Worker takes an unusual pleasure in heralding this thing at this particular time. It was just one year ago, in May, 1914, issue of The Clayworker, that the first broadside in the campaign of brick boosting under the banner, "Build with Brick," was fired. So this marks both the anniversary and the culmination of a boosting campaign that was waged earnestly and enthusiastically throughout the past year. The "Build with Brick" poster idea started things, and the idea grew as the trade took notice, and the more it grew the faster it spread; and then, while this was at its height, along comes F. W. Fitzpatrick with his clarion call to arms, issued by The Clay-Worker in February. Next came the annual N. B. M. A. meeting, which naturally took notice of the things that were, and following its usual habit of doing the right thing, appointed a committee to formulate and set to working a national boosting bureau.

Brickmakers, you are making history right now as well as brick, and history that all who take a hand in the making may be proud of. The thing before us is not merely a new page and a fresh idea; it is the dawning of a new era in the building brick business. Get in line with it, if you want to be a winner and to see the whole industry prosper as it never has prospered before.

Written for The Clay-Worker.

## AMONG PHILADELPHIA BRICKYARDS.

PHILADELPHIA brick manufacturers, together with those of the adjacent sections of New Jersey and Delaware, report business conditions current during April as having been quite inactive for this season of the year. Notwithstanding this state of affairs, operations at a majority of the local brick plants have been resumed and are now being conducted along lively lines. Inquiries on both faced and rough texture brick from the building trades were in fair volume, and, it is believed, will be conducive of a considerable number of orders being let during May and June. Prospects for the future are viewed in a most optimistic manner.

The market for vitrified brick for paving purposes has been particularly inactive within the past two to three weeks. Several of the leading manufacturers of vitrified pavers of this locality report an exceptionally light volume of business on hand, but state that there is almost an unprecedented amount of business to be let. The first big award of contracts was made by Director Cooke, of the Department of Public Works, on May 11, which represents an expenditure of $218,749.93. A considerable portion of this work will be in vitrified paving block, according to previous specifications and the awards.

The headquarters of the Hamburg Vitrified Brick Company and the Pinegrove Vitrified Brick Company, formerly located at 1115 Fidelity Mutual Trust building, Broad and Chestnut streets, this city, have been moved to Twentieth and Sedgely avenue, where the offices of the Mack Paving and Construction Company, of which Mr. Jos. P. Mack, head of the brick companies, is president, are situated.

Operations are in force at the brick works of Joseph T. Bryne, at Twenty-ninth and Clearfield streets, and although conditions are said to be in no way rushing, a representative of the firm expressed the belief that there is considerable building about to be begun in the city and vicinity, which will unquestionably do much toward effecting a betterment of local conditions with the industry.

"We have been doing nothing startling in the way of big business during the past several weeks, as the spring season's business is notably late in opening up," said John C. McAvoy, secretary of the McAvoy Vitrified Brick Company, of this city, "but neither have we been sleeping. We are optimists and anticipate a strong revival of business within the immediate future. Our plant is in first-class shape for a long, steady run, and now in operation. We are practically exclusively producing Dunn wire-cut-lug pavers and anticipate a good season with the product, as it has increased greatly in popularity in this vicinity recently. In some of the recent contract specifications for paving work by the city 'Dunn Hillside' brick has been specified as the material to be used."

Contracts were recently awarded for street paving work to be done at Wilkes-Barre, Pa., during the summer, amounting to an approximate cost of $249,768.12, a considerable portion of which is to be of vitrified brick. The Bolton G. Coon Company was awarded a contract for laying 14,897 square yards of brick for a total of $43,819.98; the Herrick Construction Company for 6,462 square yards of brick for a total of $14,734.36, and the State Company for 30,566 square yards of brick for a total of $67,503.48.

William B. Maddock, of the well-known pottery firm of John Maddock's Sons Company, of Trenton, N. J., was the principal speaker at the regular meeting and luncheon of the Trenton Rotary Club, held at the Trenton House, that city, on April 1. Mr. Maddock's talk was entitled "Thirty Minutes Through a Pottery," and during its course the speaker gave a practical knowledge of the present-day methods in the industry, the kind of materials used and how employed, also touching on the various "funnyisms" of the industry.

Operations were begun at the brick manufacturing plant of Tobias & Sheridan, at West Hamburg, Pa., on April 26, following a period of idleness of several weeks' duration. The works are one of the oldest engaged in the making of brick in the eastern section of this state, and are now said to be operating to a full normal capacity, as the firm has sufficient business booked ahead to keep things running at their present rate for some little time to come, while the outlook for future business with the company is viewed optimistically.

The superiority of vitrified brick as a lasting paving material and the great strides which it is making in the favor of Eastern municipalities and property owners, was given another boost in Pennsylvania, when Attorney Ralph S. Schantz, representing M. S. Weidner, William G. Keck, Freeman H. Moyer, Mrs. Thomas J. Koch, Edwin Killer and Frank A. Landis, appeared before councils in Allentown and presented a petition asking to have Maple street, between Peen and Levan streets, paved with brick in preference to the bituminous paver, owing to its irregular drainage. The work to be done at the expense of the petitioning property owners.

Articles of incorporation have been granted to the John A. Schmitt's Sons Brick and Manufacturing Company, of Wilkes-Barre, Pa., under the laws of this state, with a capital stock of $60,000. A. QUAKER.

## THE TREND TOWARD BRICK PAVING.

Among other cities in the country that are being stirred up in the paving question is Cincinnati, and the tendency there seems to be toward brick paving, instead of macadam. A great many streets of Cincinnati are paved with the latter material. The increase of heavy motor trucks, both in point of weight and velocity, on the city streets is what forced the problem of a change in street paving on Mayor Spiegel, Service Director Fosdick and City Engineer Krug. Mr. Krug says that macadam is used on the streets of Cincinnati more than any other article of paving, and in reference thereto he says:

"Take, for example, a suit of clothing made of soft material, use a stiff-bristled brush in cleaning it frequently, and it is only a matter of time until you will have brushed the nap away and be wearing threadbare clothing. The use of heavy trucks on macadam streets results in the raising of dust from the material, and the speed of machines raises a wind which blows the dust away, and thus when our big freight motors go careening over the streets, you are brushing your soft-napped municipal clothing with a stiff-bristle brush. This is a problem of to-day."—The Onlooker.

# CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

## Business More Than Doubled.

Editor Clay-Worker:

Enclosed you will find check for our ad. Business is picking up right along. Our wire business has more than doubled in the past six weeks, orders coming in every day from all directions, which shows that all brickyards are enjoying a good season.

THE MITTLER WIRE MFG. CO.,
Robbins, Tenn.

## A Machine Wanted for Washing Fire Clay.

Editor Clay-Worker:

We are interested in buying a fire clay washing machine, and would ask you to kindly give us the address of manufacturers of same. We will be glad to have some information in regard to the price of the machine, how it is operated, etc.

COLUMBUS CLAY CO.

## Developments on Pacific Coast.

Editor The Clay-Worker:

The several pottery companies located around the Bay of San Francisco, Cal., appear to be wholly dissatisfied with the decision of the Railroad Commission in what is known as the "clay rate case," and the various concerns affected have just filed a petition for a rehearing through their counsel, John L. McNab, Francis J. Heney and Alfred J. Harwood. The corporations involved comprise the Steiger Terra Cotta & Pottery Works of San Francisco and South City, The California Pottery Company, N. Clark & Sons of Alameda and San Francisco, Oakland Art Pottery & Terra Cotta Works and the Pacific Coast Pottery & Terra Cotta Company.

The original complaint charged that the Southern Pacific railroad rates on raw clay and its products to the potteries in the "bay region" were unreasonable and discriminating and unduly favorable to Lincoln and Ione, whence the principal factory—that of Messrs. Gladding, McBean & Co.—draws its supply of the raw material. The commission took an adverse view of this contention and found that the existing rates were just.

The opponents are now making a further effort in the expectation of securing a reversal of the award. Most all raw clay used by the factories bordering the Bay of San Francisco has to be transported by rail a distance approaching 120 miles before being manufactured into the finished products of brick, terra cotta or other material.

In consequence of a general trade depression throughout the Western States of America the clay industry on the Pacific coast has been seriously affected, and the volume of work at some of the California brickyards and terra cotta works has been very considerably reduced. A general tightening of prices has been necessary, the figures for sewer pipe and standard bricks being much lower than ruled in normal times.

In some instances several large contracts for the supply of terra cotta have been altogether abandoned until the close of hostilities in the European war, money having drifted into other channels.

In San Francisco building brick is not in much demand, although in the neighboring city of Stockton several important developments in building enterprise are being carried out, and it is pleasing to note that the employment of pressed brick is almost universal in the present construction in that thriving township, as instanced by the erection of a Roman Catholic Church and the Eldorado Grammar School there.

"LAMBETH."

## The Jitney Bus Business Causes Embarrassment.

Editor The Clay-Worker:

Beg to acknowledge the receipt of the signs and invoice, and herewith send you check for same. I am herewith enclosing a snap shot of a sign which has caused me considerable embarrassment. We are now operating a good many jitneys in our community, and at a distance this sign is misinterpreted, but after reading the same the victim generally backs off. But the point in question is that he has read it. I have practically all the signs posted, and thoroughly believe that if every man would post his community it would do us a great deal of good.

A. E. Huckins Boosts Build With Brick Idea.

Wishing you success and with kindest regards, in which Mrs. Huckins joins me, I remain,

Very truly yours,

Urbana, Ill., April 17, 1915. A. E. HUCKINS.

## An Improvement in Silo Construction.

Editor The Clay-Worker:

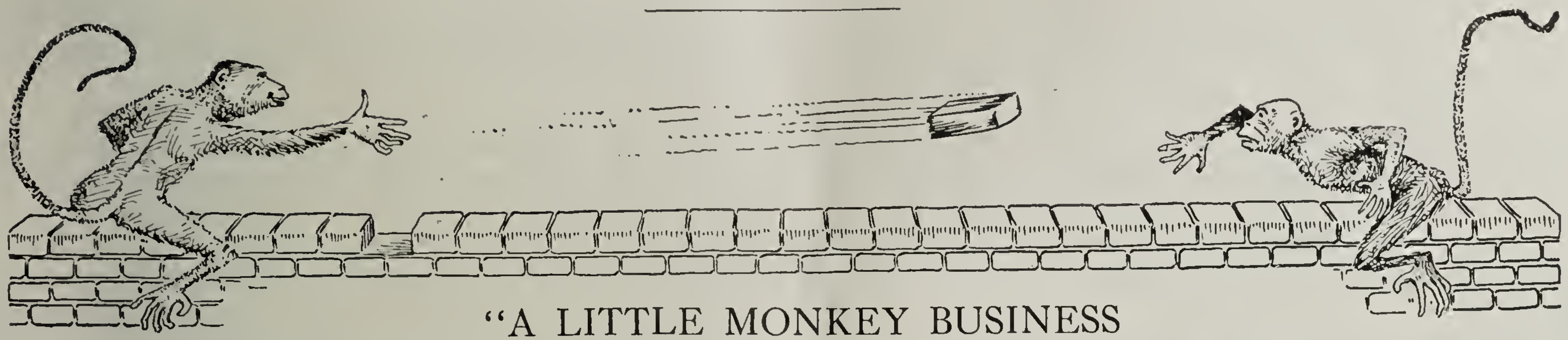
In making my usual round through the various clay industries, I noticed in one of the local plants a novel method applied in the usage of hollow blocks, which seems quite practical and may create general interest among the manufacturers of such products.

It is a well-known trouble, that in setting hollow blocks in the wall, or in a ceiling, on account of the surface at the end of the block being so narrow, the mortar is bound to slip into the holes, thereby causing gaps in the joints, whereas from a theoretical view the joints should be solidly filled with mortar. Such gaps admitting air and moisture are especially undesirable in silos, where the admittance of air or water would spoil the contents, or render them useless altogether.

Said gaping joints can be most effectively eliminated by manufacturing the hollow block closed on all sides, which has been accomplished for many years in Germany, for instance. The process adopted for this purpose, however, is somewhat cumbersome and increases the initial cost. The method I saw in effect right here is simpler and answers the purpose in practically the same manner, save that the closing of the holes is done on the job instead of being already done at the factory. A special tile, mainly shaped like a thin slab, with projections on either side to correspond to the cross-section of the block was set between every two bolcks, thus carrying the mortar and preventing it from sliding out of its desired position.

Although the method described herein is patented, I am confident that permission as well as a simple die for making them could be obtained at moderate cost.

RICHARD B. HOEHNE.



## "A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

### HER SYSTEM.

A negro mammy had a family of boys so well behaved that one day her mistress asked:

"Sally, how did you raise your boys so well?"

"Ah'll tell you, missus," answered Sally. "Ah raise dem boys with a barrel stave, 'an Ah raise 'em frequent."

### VERY SERIOUS ERROR.

A St. Louis merchant, while in New York, received a telegram notifying him that his wife was very ill. He wired to his doctor asking what was the matter, and if there was any danger, and promptly received the answer:

"No danger; your wife has had a child. If we can keep her from having another tonight, she will be all right."

The mystification of the agitated husband was not removed until a "repeat message" told him that his indisposed wife had had a "chill."

### VALUABLE INACCURACY.

An Irish recruit in our army was taking instruction in marksmanship. The squad had finished firing, and the Celt was brought to task for his poor shooting and told that he must do better at the next distance, there being seven rounds of quick firing.

"Now, Pat," the sergeant told him, "fire at target No. 5."

Pat banged away and hit target No. 4 seven times in succession.

"Which target did you aim at?" asked the sergeant.

"No. 5, sir," answered the recruit.

"And you hit No. 4 every time."

"Well," said the Irishman, "that would be a grand thing in war. Sure, I might aim at a private and git a gin'ral!"

### WISHED TO BE OCCUPIED

A colonel wanted a man servant, so he inserted an advertisement in the local weekly and received a great many applications, but none of them suited his requirements. But at last an Irishman was shown into his presence.

"What I want," said the colonel, "is a useful man—one who can cook, drive a motor, look after a pair of horses, clean boots and windows, feed the poultry, milk the cow, and do a little painting and paperhanging."

"Excuse me, sir," cried Murphy, "what kind of soil have ye here?"

"Soil!" snapped tre colonel, "what's that got to do with it?"

"Well," replied Murphy, "I thought that if the soil was clay I might make some bricks in me spare time."

### ENOUGH.

"I don't see why he wants to marry her—he has only known her a week."

"That's the answer."—Houston Post.

### NOT WHAT HE WANTED.

"My! That's a speaking portrait of your wife."

"Don't say that. I thought I had at last got it arranged so that I could enjoy her beauty without the speaking."

### GOOD GUESS.

The principal grocer of a small country town was chatting with several customers when a discussion arose as to the wonderful sense of touch the blind have.

"Here comes old blind Henry Perkins now," said the grocer. "We'll test him."

He took a scoopful of sugar and extended it to the old man.

"Feel this, Henry," he said, "and tell us what it is."

The blind man put his hands in the scoop, passed its contents through his fingers, and said in a firm, confident tone, "Sand!"

### STILL A DARK SECRET.

There used to be a United States senator from New England—he is dead now—who spoke at great length and with much force on whatever subject he chose to discuss; but his style of delivery was somewhat involved, not to say intricate. And sometimes, because of this, he spent some time in getting at the meat of his topic.

One night, during a heated presidential campaign, he spoke at Cooper Union, in the city of New York. A business man who had a profound admiration for the statesman was late in arriving. As he hurried up the steps, panting hard, he met an up-state farmer just emerging from the top-floor hall, where the meeting was staged.

"Has Senator So-and-So begun speaking?" asked the new arrival.

"Yep," said the departing one.

"How long has he been speaking?"

"'Bout twenty minutes," said the farmer.

"What is he speaking about?"

"He didn't say!" answered the truthful yokel, and then passed on.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION.*

**OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.**

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

STATEMENT OF THE OWNERSHIP, MANAGEMENT, ETC., required by the act of August 24, 1912, of THE CLAY-WORKER, published monthly at Indianapolis, Ind., for April 1, 1915.

Name of Editor and Business Manager, Theodore A. Randall, Indianapolis, Ind.

Assistant Editor, James E. Randall, Indianapolis, Ind.

Publishers, T. A. Randall & Co., Inc., Indianapolis, Ind.

Owners are T. A. Randall & Co., Inc., Indianapolis, Ind.; Theodore A. Randall, James E. Randall and Denton F. Billingsley, each and all of whom are at 211 Hudson St., Indianapolis, Ind.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

(Signed) Theodore A. Randall, Editor.

Sworn to and subscribed before me this 19th day of March, 1915.

(Signed) Mildred B. Sibel, Notary Public.

[Seal] My commission expires December 2, 1917.

Vol. LXIII. MAY, 1915. No. 5.

## CURRENT COMMENT.

The Building Brick Bureau has been launched. Here's looking toward it and to bigger things in the brick industry.

* * *

The time was ripe for it, and the committee in charge of and backing the new bureau seem to have just about the right idea as to what is needed in the brick-boosting game.

* * *

Indianapolis has been quite a center of interest for those engaged in various branches of the clayworking industry during the past month, for there were delegations of both building brick and paving brick meeting in the Hoosier metropolis.

* * *

Now it is up to the people, to the brick manufacturers through the country, whether or not they will make the new Building Brick Bureau the biggest thing that ever happened in the clayworking industry. Somehow, we have a feeling they are going to do it.

* * *

Competition between the different branches of the clayworking industry should never go beyond the point of friendly rivalry. The clayworkers are, and properly should remain, one big family and pull and work together for the mutual good of all, and not do fighting inside the family.

* * *

Call a man a stick or a blockhead, and you give offense, but call him a brick and you tickle his vanity.

* * *

Even the lumber folks admit that it only costs 10 per cent. more to build a home with brick than with lumber.

* * *

There is still room for the use of many thousand "Build with Brick" poster signs, and their proper use will bring good returns.

* * *

Let us not forget or in any way neglect the "Build with Brick" slogan and poster idea. It is these that started the good work of awakening the public to the subject of brick.

* * *

The only spurious thing going by the name of brick is what is called a "gold brick," and it is not clay, but is composed of some of the things which glitter but are not gold—and the clayworking industry doesn't deal in "gold brick."

* * *

While the big field for expansion in the building brick trade is in the erection of homes all through the country, let us not overlook the fact that there are many other fields in which good mission work can be done, including warehouses, factory buildings, furnaces and chimneys.

* * *

"Build with Brick" is a truism that is practically as old as history. One of the historical stories of ancient times has it that before the flood the chosen people were inspired to write the story of their race and religion in baked clay tablets, and they would be preserved against the ravages of time.

* * *

The Bureau of Standards of the Department of Commerce at Washington is preparing a circular on the subject of "Standards for Electric Service," which deals with both lighting and power transmission, and should be of interest to the industrial users as well as municipalities, for which it was originally intended.

* * *

The right idea in connection with boosting brick is to stand pat on the fact that good brick is the best all-around building material on earth. There is not much call to make fights on other material, but a splendid chance to promote brick persistently on its merits for what it is, the best building material on earth.

## BUILD WITH BRICK HEARD AROUND THE WORLD.

The first big gun broadside in the campaign to awaken this country to the benefits and opportunities offered by brick for home building was fired by The Clay-Worker in May, 1914. That big gun was charged or loaded with the slogan, "Build with Brick," and while the intent was merely to arouse the people of this country, it proved to be one of those guns which was heard to echo all around the world—an echo soon came back from Sweden.

## CLAY PRODUCTS.

Products in the clayworking industry for the year 1912 show a total value of $172,811,275 at the plants before shipment to consumer.

For the past ten years the industry has progressed steadily and has made an average gain of a little more than 4,000,000 a year. Of course, there were some years when the total product dropped behind previous years, while it went forward by a great stride, but the average production for ten years has been approximately $4,000,000 a year.

Clay products consist of quite a number of items contributing to form the total. Of these, those entering into building construction amount to something more than 50 per cent., and they include common brick as the largest single item, making nearly a third of the total value of the product, and a greater percentage than this in the point of quantity, because it is a low priced product. Then come face brick, roofing and floor tile, wall tile, fireproofing and hollow building tile, terra cotta; and when this list of products is totaled up, it amounts to more than half of the total clay products.

## BUSINESS IMPROVES IN SPITE OF WAR AND STRIKES.

While strikes are interfering some and the depression drag of the war is being felt in the eastern section of the country, still, taking the country as a whole, it looks like we are to have a busy, prosperous season in the clayworking industry, and that the busy times will extend far enough to stimulate trade in clayworking machinery so that all may prosper as the year passes.

## BRICK FOUNDATIONS BETTER THAN CONCRETE.

Foundation work offers a field for brick that has not been cultivated nearly as much as it should have been the past few years. There has been too much giving away to concrete and not enough effort on the part of brick manufacturers to push their product for this work. Some are going after it earnestly now, and we hope to see others at it, for there is here a big field for brick consumption that only needs proper cultivation.

## THE BRICK PORCH AN ATTRACTIVE FEATURE OF HOME BUILDING.

It does one good to go about the country and see how brick shines up in porch work these days. Not only is the brick porch with piers and parapet walls found in front of the brick homes, but many of them are pleasing additions to frame houses, which not only show how brick appeals, but are evidently forerunners of more brick in home building itself. The brick porch idea has been a pet hobby of The Clay-Worker for a long time, and it is pleased to see it gaining such headway.

## THE GOOD ROADS MOVEMENT GROWING.

Never in the history of this country has there been as much active interest in good roads as is being manifested at the present time. It is not merely a talking interest, but the people are getting into action and making provisions for road building, which indicates that there will be more good road building this year than was ever known. Eventually, we hope to see all road building ideas center upon the ultimate attainment of brick-paved roadways, which in time will bring a new era to the paving brick industry and also into the highway history of the United States. It is up to the brick men to keep the idea of the brick-paved roadway alive.

## THE PRODUCTION OF COMMON BRICK.

The production of common brick furnishes an interesting study in the rank of states, because as any section of the country is developed and grows older it becomes more important as a producer of common brick.

The common brick production in 1913, according to statistics of the United States Geological Survey, was 8,088,790,000, valued at $50,134,757. The total value of all clay products for the year was $181,289,132, which makes common brick represent a little less than a third of total value, but when we add front or face brick to this it brings up considerably the total of the building brick line.

There are seventeen states which produce common brick in excess of a million-dollar value per year. These states are California, Connecticut, Rhode Island, Georgia, Illinois, Indiana, Iowa, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Texas, Vermont. Among other states coming to the front and getting beyond the half-million mark are Kansas, which, if it had secured the price it should, would be listed in the million-dollar rank, Kentucky, Minnesota, Mississippi, Nebraska, South Carolina, Tennessee, Washington, Wisconsin.

In all these states the brick industry is one of considerable importance, and may be made doubly important by persistent exploitation. There is not a state named on the list but what should be able to double the production and consumption of brick by persistent exploitation, until brick is used as extensively as it should be in home building and for other purposes to which it is best adapted.

## THE EDISON FIRE.

Wizard Edison is out in an open letter to the press, assailing The Clay-Worker for defending brick and calling attention to the wreckage in his reinforced concrete buildings after the memorable fire of December 9, 1914. Incidentally he adds—the real purpose of his letter—an advertisement for concrete by proclaiming its superiority to all else as a fire resistant. The statement is not susceptible of controversy; it is final; he is infallible, oracle-like, and has spoken. Selah!

It comes with rather bad grace for our Wizard friend to sling mud, or concrete, at us for defending brick from his attacks. He sees many motes in our methods, but he is singularly blind to the beams in his own eye. There is never the slightest hesitancy on his part in his attacks to proclaim the downfall of brick; he is one of the most insistent boomers of concrete in that trade and not over-particular in the methods used to overcome opposition. But, then, is he not a cement manufacturer? Or, at least, his name is branded upon many hundreds of thousands, if not millions, of barrels of cement; and is he not the inventor of the long-expected and much-defended "poured concrete house" that was to be completed in twenty minutes or so and revolutionize the art of house-building, if not the entire system of life?

A throbbingly expectant world has been taught to hang upon the every outpouring of that oracle-like Wizard—though of late years there be doubting "Thomases" in alarmingly increasing numbers, who insist upon sprinkling a little salt upon some of his promises—but we don't quite see how Mr. Edison can have the front to pose as a constructor, a builder of high degree, after having suffered the loss of several million dollars in that fire. He is a great inventor, a wizard indeed in matters electrical, but any man who will build a great plant, such as was his, and housing highly inflammable materials, without resorting to the first A, B, C of fire-resisting knowledge, building those structures without fire walls, without fire-resisting windows of metal and wire glass, without a sprinkler system, without any safety device whatsoever and then has most of that plant destroyed by fire and the buildings distorted and damaged, some beyond repair; that man, we submit, should crawl into a hole out of sight somewhere until the people had forgotten that he had posed as a very high authority upon construction! Evidently he was carried away with the theories of our concrete friends and fondly thought that by building of concrete he had said the last word, there was no need of other protection. Fond illusion!!

He is probably so set in the matter, so insistent in averring that his buildings were not damaged, that he is occupying those that were less injured regardless of possible consequences. Our advice to him is to beware. Fire raised hob with his plant last December; the concrete that was at all exposed to that fire probably lost 50 per cent. more of its efficiency, it would be a sad climax to that fire for him to head-strongly re-use those buildings only to have them crumble in upon him in a little while when the machinery has started rumbling and full loads are applied to the structures. We pray no such fate awaits him, for with all his enthusiasm for "concrete at any cost" we love him still.

As far as our comments made upon that fire at the time of its occurrence are concerned, we have nothing to add, nothing to deduct nor to qualify.

Mr. Edison says that "every brick and steel building which was attacked by the fire was completely destroyed." What did he expect? Unprotected steel framing will twist and contort and eventually throw down any wall supporting it. No one who knows even the kindergarten lessons in fire-resisting construction ever builds that way. Why did **he** build so? And that's what was the matter with his concrete buildings, the steel reinforcement was insufficiently protected and so it misbehaved, and if he can conceal the resultant weaknesses now, it's a foolish concealment, and is apt to result disastrously. Unfortunately, his buildings are not under any city authority, so there is no one to force him to build safely. We sincerely hope that his fanatical love of concrete will not so completely outweigh the humanitarian promptings of his heart that he will madly plunge into too great risks with the lives of his hundreds of workmen and experts housed in that great plant. Think what might have happened if the fire had occurred during working hours, Mr. Edison, and be warned.

## BUILDING OPERATIONS FOR APRIL AND FOUR MONTHS.

The best monthly showing of the calendar year to date in building operations is that for April, the summaries of which are just being completed. The loss, as compared with the activities of a year previous, is negligible, being less than 2 per cent. Gains and losses in the various cities are fairly well balanced. One interesting development is that several cities show very decided increases, indicating that some big work has started. Another good symptom is that in the larger cities the comparison is generally favorable. New York and Philadelphia show substantial gains. Chicago might have done likewise but for the stupid labor strike in that city, which temporarily paralyzed construction work.

The official reports of building permits issued during April in 67 cities, received by the American Contractor, Chicago, total $64,652,631, as compared with $65,531,427 for April, 1914, a decrease of less than 2 per cent. The March operations showed a decrease of 15 per cent., those of February 14 per cent., and January 25 per cent. Of the 67 cities, increases were shown in 29, the more notable of which were the following: Manchester, 702 per cent.; Bridgeport, 608; Utica, 107; Grand Rapids, 126; New Haven, 86; New Orleans, 66; Kansas City, 53; Peoria, 56; Topeka, 56; Troy, 63; St. Joseph, 74; Bronx borough, New York, 58; Richmond borough, New York, 69.

For the first four months of 1915 the total building permits issued in these 67 cities reach a total of $191,056,490, compared with $203,674,619 for the corresponding period of 1914, a decrease of 6 per cent.

## FIRE BRICK.

The above is the title of an attractive catalog published recently by the Chicago Retort and Fire Brick Company, 208 South LaSalle street, Chicago, consisting of eighty-five pages devoted to a line of fire brick manufactured in standard and special shapes for a variety of uses. The catalog contains illustrations of all the shapes, together with tables which give the number of brick necessary for the construction of arches of various spans and springs. Views of the company's plant are shown, which give an idea of the stages through which the products go in the course of their manufacture. This catalog can be secured by writing the Chicago Retort and Fire Brick Company.

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**"GETTING THE MOST FOR A DOLLAR"** has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy Engineering Company.**

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FOR SALE, WANTED, ETC.

WANTED.

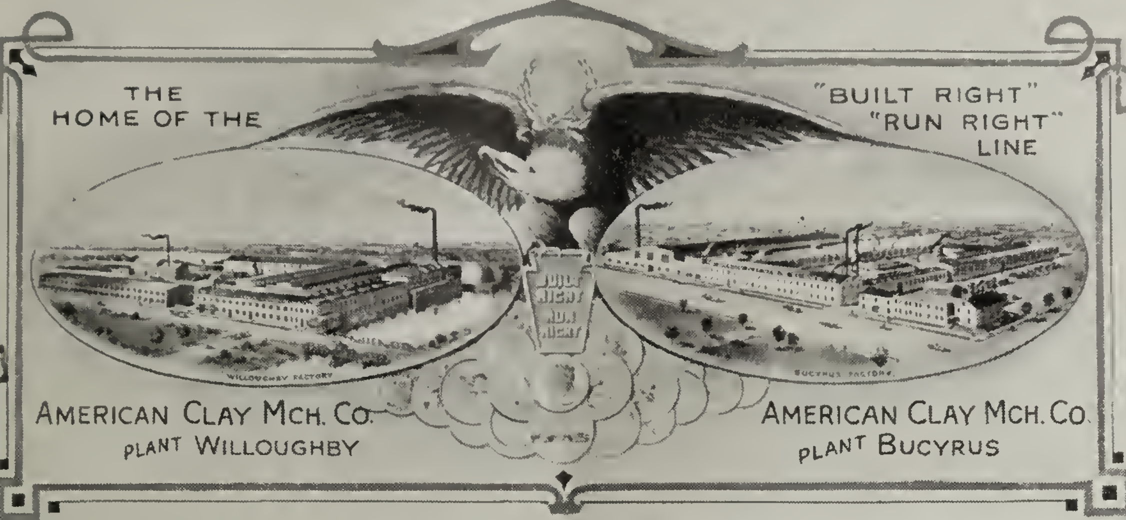
Position as superintendent of brick plant, facing brick preferred. Thoroughly familiar with gas fired, continuous and down-draft kilns. Employed, but desire change. References. Address, BOX 5—F. W. B.
5 1 c Care Clay-Worker.

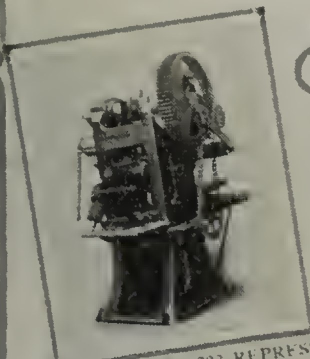
WANTED.

First-class, experienced man for position as stenographer and clerk to the sales manager of a large sewer pipe manufacturing concern. Answer, fully giving experience and references. Splendid opportunity for properly equipped young man who is willing to begin modestly. Address, Box 4—Mo.,
4 1 d Care Clay-Worker.

See additional ads on pages 694, 695, 696 and 697.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

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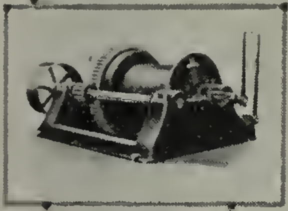
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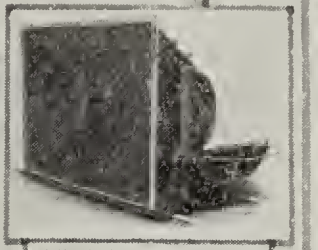
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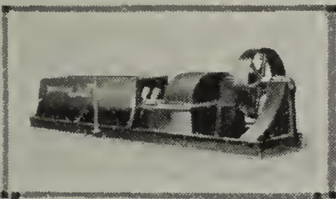
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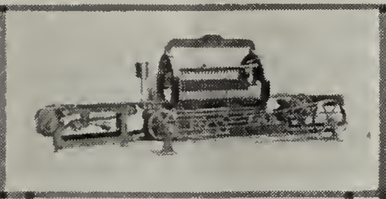
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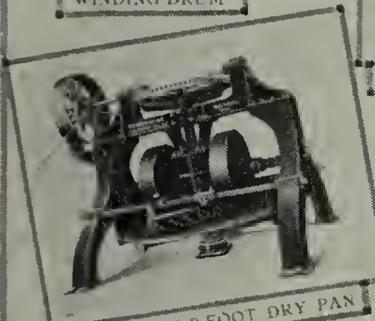

AMERICAN 9-FOOT DRY PAN

HAIGH CONTINUOUS KILN

# INCREASED CAPACITY INCREASED PROFITS

When you find it advisable to make changes in your plants it will be well to remember to ask for information about:

Our New Line of Auger Machines.
Our New Line of Pug Mills.
Our New Line of Automatic Cutters.

These are all essential to profitable production and they have all been designed to increase capacity and decrease cost of operation. That means increased profits.

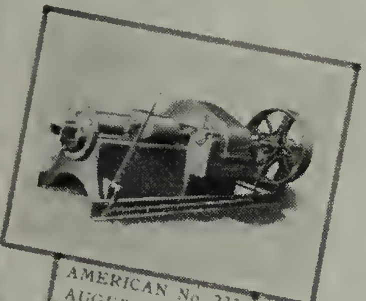
There are no other machines that will compete with these. Get complete descriptions and judge for yourself.

The Haigh Continuous Kiln will save about half of your burning cost. Ask for catalog and particulars.

The American Steam Shovel will reduce your clay cost.

We supply large and small wants with equal care.

**The American Clay Machinery Co.**
**Bucyrus, Ohio**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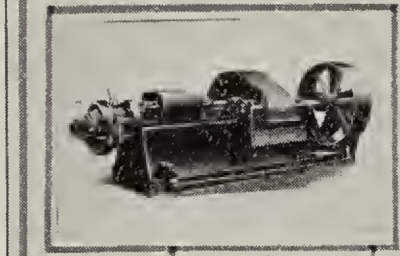
AMERICAN WASTE HEAT DRYER

AMERICAN DRYER CAR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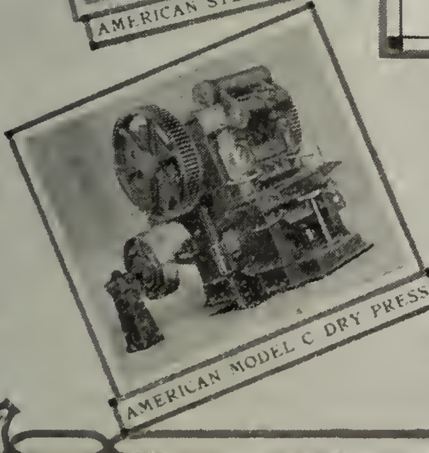
AMERICAN STEAM SHOVEL

AMERICAN STEEL FRAME FOR PUG MILL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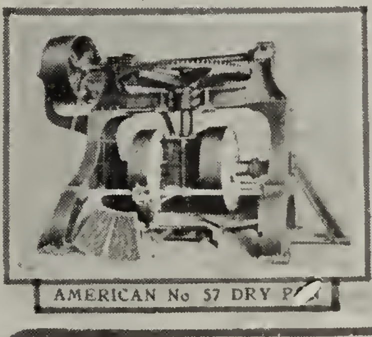
AMERICAN WASTE HEAT FAN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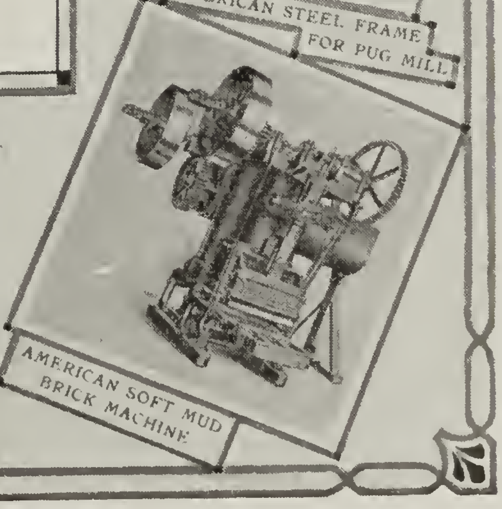
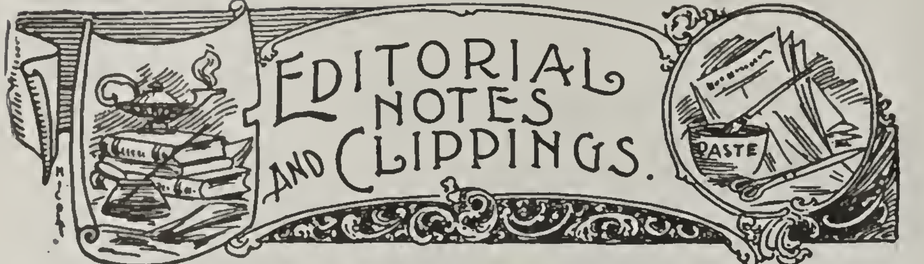

AMERICAN SOFT MUD BRICK MACHINE

We Build Every Machine and Appliance Needed in the Clay Trade.



# EDITORIAL NOTES AND CLIPPINGS.

The Georgia Brick Company, at Adairsville, Ga., has resumed, after being closed for some months.

Part of the $100,000 bond issue of the Nova Scotia Clay Works, Ltd., Halifax, is to be devoted to the construction of a plant at Elmsdale.

Plans are being prepared for the construction of a plant at Fairmont, W. Va., for the Marion Brick Company. The estimated cost is $50,000.

The Stuck Lumber and Brick Company is another industry of Jonesboro, Ark., that handles brick and is doing considerable work this season.

T. E. Lewis, of Berwick, Pa., has leased the plant of the Nanticoke Brick Company at Mifflinville, that state, and is making preparations to start operations.

Plans and specifications have been drawn for a postoffice and custom house at Lawton, Okla. The building will be three stories, of brick, with stone and terra cotta finish.

The River Stone and Brick Company, of Point Marion, Pa., has leased a track of ground on which it will erect a plant for the manufacture of 50,000 shale brick per day.

Several streets of Dubuque, Iowa, are to be paved with brick during the coming summer. The contract has been let to the Western Improvement Company, of Racine, Wis.

The Barton Brick and Lumber Company, of Jonesboro, Ark., reports a reasonable spring activity in eastern Arkansas, and is supplying brick for several building undertakings.

George W. Peters, an employe of the Williams Grove Clay Company at Bigler, Pa., was instantly killed when the roof of the mine in which he was at work gave way, burying him under tons of rock and clay.

A new brickmaking concern, to be known as the Bayard Brick Company, has been organized to take over the property of the Reilly Brick Company at Stony Point, N. Y. Bayard Fonda and J. V. Dolan are at the head of the enterprise.

The Peerless Clay Manufacturing Company, with $100,000 capital stock, has been organized at Toronto, Ohio. Sewer pipe will be the chief product of the company. Those interested are W. R. Myers, William B. Goucher, W. S. McCannon, T. J. Myers and John J. Burns.

The Chambers Brothers Company, Philadelphia, Pa., report business as very satisfactory. They recently booked two orders for brickmaking machinery for South America, one equipment was shipped to Bogota in April, and they are at work on a larger and heavier outfit for Valparaiso, which they expect to ship during the month of May.

The plant of the United Fire Brick Company, at Fairchance, Pa., which has been idle some time, resumed operation the latter part of April. Enough orders have been booked to keep the plant running to full capacity all summer. A number of roads in that vicinity will be paved with brick during the summer, and the United Fire Brick Company will furnish the brick to be used in the construction of same.

The Universal Sanitary Pottery plant at New Castle Junction, Pa., has planned an addition which will double the capacity of the establishment. Mr. Conrad Dressler, of London, England, has charge of installing the new equipment in the addition. The addition will cost in the neighborhood of $30,000 and will furnish employment for about 150 more men than have ever been employed at the plant. Work on the addition will be completed about the last of June.

The Hydraulic Press Brick Company, of St. Louis, Mo., has taken over the holdings of the Continental Brick Company at Aledo, Ill. General Manager J. L. Buckley will continue in charge of the Davenport office of the company and be general manager of the business of the Hydraulic Company in that territory. The development of the Aledo plant and the Davenport business has been almost wholly due to Mr. Buckley's energetic management during the three years he has had charge of the Aledo plant. The price paid by the Hydraulic Company was in the neighborhood of $170,000. Mr. Buckley will make his home in Davenport.

The main offices of the Haeger Brick and Tile Company, formerly located at Elgin, Ill., will be moved to Dundee about the first of June.

J. F. and H. L. Gantner, owners of the Fayette (Mo.) Brick and Tile Company, contemplate establishing a brick manufacturing plant at Jefferson City, Mo.

The Standard Brick Company is the name of a new concern recently incorporated at Athens, Ohio. The incorporators are B. Phinizy, Harvey Stovall and J. T. Cooper.

C. W. Deming, of Tulsa, Okla., has purchased the plant of the Claremore Brick Company, of Claremore, Okla., formerly owned and operated by Covert Brothers.

William Meyers, of Toledo, Ohio, is at the head of a new company which has been organized, with $150,000 capital stock, to build a large sewer pipe factory at Port Homer, O.

Brower & Best, of Thompsonville, Conn., booked an order calling for over 2,000,000 brick which, in addition to their regular business, insures the steady operation of their plant until late in the fall.

The Seguin Brick and Tile Company, Seguin, Texas, plans to construct an addition to its plant for the manufacture of interlocking and partition tile, fireproofing material and other clay products.

The Potomac Fire Brick Company, Piedmont, W. Va., recently elected the following officers: John A. Caldwell, of Frostburg, Md., president; M. A. Patrick, vice-president; W. F. Caldwell, manager. This is a new concern, owning its own clay lands and coal, and at present over-sold.

The Alton Brick Company, Alton, Ill., recently booked an order for twenty-five cars of paving brick to be shipped to Sparta, Wis. While being nothing unusual in the way of an order for the Alton company, "every little helps," and this order will add its mite toward keeping the plant busy.

The Edwards Brick Company, of Columbia, Mo., has completed the installation of machinery for the manufacture of drain tile in addition to their regular output of brick. The company has had an unusually prosperous season with their prospects good for a continuance of that happy condition.

The Clay Products Company of America, with main office at Fairhope, Ala., has been organized to develop clay property in that vicinity. A factory will be established at Clay City, Ala., where brick, tile, hollow block, terra cotta and other clay products will be manufactured. F. L. Brown is president of the company and G. C. Streeter, secretary.

Matthew Moore, one of the pioneer brick manufacturers of Morristown, N. J., died at his home in that city April 30. A number of years ago Mr. Moore organized the Moore Brick and Clay Company, which was later taken over by the Hanover Brick Company a number of years ago, and is now one of the largest brick plants in New Jersey. Mr. Moore was seventy-two years old and is survived by his widow.

At the recent annual meeting of the stockholders of the Bloomsburg (Pa.) Brick Company the following officers were elected for the ensuing year: President, George L. Low; vice-president, Myron I. Low; treasurer, W. R. Kocher; secretary, H. R. Mears; general manager, W. W. Swengel. These with G. G. Baker and Dr. J. E. Shuman compose the board of directors. The plant was rebuilt following their fire last September and is now better equipped than ever before.

The LaClede-Christy Company, St. Louis, Mo., is busy rebuilding the plant that was completely destroyed by fire the week of the National Convention, causing a loss of nearly $150,000. Profiting by their experience, the plant will be absolutely fireproof, being constructed of steel and hollow tile, with steel window frames and wire-glass windows. The capacity of this plant was formerly 50,000 per day, but when finished will have a daily output of 70,000.

A new corporation named the Conemaugh Clay Craft Company, has taken over the interests of the Soissons Fire Brick Company at Connellsville, and the Bolivar Face Brick Company, of Bolivar, Pa., with operations here, for a consideration said to be about $500,000. The deal involves about 1,000 acres of coal, hundreds of acres of fire clay, and other mineral deposits and four plants, with a daily capacity of 125,000 bricks. The officers of the new corporation are as follows: President, E. M. Houghtaling; vice-president, James B. Hammond; secretary, C. A. Fisher; treasurer, E. L. Houghtaling. E. R. Hammond is the other member of the board of directors, and he

(Continued on page 692.)

# The New Way

IT IS NOT THE PLAN of a city nor the plan of the farm, but instead it is a combination of the two. It provides a place for a home that will support you instead of you supporting the home. It provides for a *small* amount of ground to produce a *large* amount of INCOME. That's why it is THE NEW WAY. That's why it is named

**INCOME PARK,**

A WINTER RESORT AND PERMANENT HOME COMMUNITY on the Gulf Coast, a community devoted to the cultivation of Figs, Oranges, Grapefruit, Pecans and such other fruits and vegetables as the individual fancy may direct. The plans of this NEW WAY community are comprehensive and provide for co-operative marketing and buying, for pleasure grounds, for boating, bathing and fishing, for telephone, light, water, transportation and other conveniences.

THE NATURAL ADVANTAGES and conditions include good soil, excellent water, splendid drainage, abundant rainfall, delightful climate, and freedom from floods.

THE AVERAGE MONTHLY TEMPERATURES for the past thirty-five to forty years range from 50 degrees for January to 81 degrees for July and August. The rainfall for the same period averages 62 inches. We know of no other place in this or any other country where there are brought together by nature so many of the things that man requires and enjoys. The Gulf waters afford an abundance of the finest oysters, red snapper, pompano, sheepshead, flounder and other sea foods, and the small streams furnish bass and other fresh-water fish. The soil produces practically every known vegetable, citrus fruits and a large variety of other fruits and nuts.

TO TAKE ADVANTAGE of these conditions is your privilege, and to share in the profits of the development of this property is your opportunity. Let us show YOU:

HOW, as an investment, to be sure of a big profit.

HOW to own a WINTER HOME on the Gulf Coast at a profit instead of an expense.

HOW to own a PERMANENT HOME on the Gulf Coast, with an income of more than you are now earning.

HOW to provide a competency for old age.

**MOBILE BEACH & LAND COMPANY**
**State Life Building**
**Indianapolis, Indiana**

Mention The Clay-Worker.

## EDITORIAL NOTES AND CLIPPINGS—Continued.

and James B. Hammond will look after the company's interests in the Bolivar field.

E. D. McCollum, of Ruston, La., is contemplating starting a small brickmaking plant at that place.

Harry H. Randolph and others of Lincoln, Ill., are building a large brick and tile factory at that place.

The Whiteman Clay Products Company, of Philadelphia, Pa., has been incorporated with $50,000 capital stock.

The Brooklyn Brick Company, of Brooklyn, Ind., has increased its capital stock from $50,000 to $100,000, with the view of making a number of improvements in its plant.

The Bristol Brick Company, Bristol, Tenn., is reported to have plans for enlarging the capacity of its plant. A. C. Honaker, Abingdon, Va., is president.

The death of Charles F. McKenzie, a well-known brick manufacturer and contractor of Augusta, Ga., occurred May 1, after an illness covering a period of almost two years. A wife, two daughters and one son survive.

The Vincennes Shale Brick Company, of Vincennes, Ind., has been incorporated, with $40,000 capital stock, by John L. Kleymeyer, Henry B. Davis and W. M. Willmore. The output of the company will be shale paving brick.

The plant of the Columbia Fire Brick Company at Dover, Ohio, which was destroyed by fire early in January, has been rebuilt and operation was again resumed the latter part of April. The plant is modern throughout, which means that it is fireproof this time.

A good opportunity for anyone looking for an investment in the way of a good manufacturing plant is offered in the drain tile plant which is advertised by "Tile Factory" in our classified department. Full particulars will be supplied anyone interested.

Albert J. Baker, a pioneer brick manufacturer of Denver, Col., died at his home in that city, April 29. Mr. Baker was seventy-three years old, and had lived in Denver since 1860. He had been in the brick business for over forty years. He is survived by a widow and three children.

F. L. Dickey, associated with the W. S. Dickey Clay Manufacturing Company, of Kansas City, Mo., has purchased the plant of the R. B. Small Brick and Sewer Pipe Company at Columbus, Ga. J. E. Minter, who has been manager of the plant for a number of years, will remain in charge.

Fire which was caused when a defective oil pipe feeding the big continuous kiln at the brick plant of the Salmen Brick and Lumber Company, at Slidell, La., destroyed the entire roof of the kiln, causing a loss of between $5,000 and $10,000. The damage is entirely covered by insurance, and the fire will not affect the operation of the plant in any respect.

Colonel Burrell Huff, president of the United Brick Company, of Greensburg, Pa., died at his home in that city on May 5, following a lingering illness with Bright's disease. Aside from being well known in the brick manufacturing industry of this state, the deceased was also prominent as a coal operator and in public life. He was forty-three years old and is survived by his wife and two daughters.

One of the displays of interest at the Panama-Pacific International Exposition is that of clay products display in the North Dakota State Building, showing wares made in the ceramic department of the College of Mining Engineering of the University of North Dakota. The exhibit is being made for the purpose of demonstrating the quality of some of the undeveloped clay resources of North Dakota.

The Hedgecock Brick Company has moved its offices from Winston-Salem to Walnut Cove, and Mr. R. A. Hedgecock, the new secretary-treasurer, now has the management of the business here, while Mr. N. R. Hedgecock is in charge of the Greensboro yards. They have been delayed by the bad weather the past few weeks, but the Walnut Cove plant is active again.

J. A. Ridgway, Woolworth Building, New York City, writes that he is quite happy over having landed an order for the complete equipment of the new plant of the Anness & Potter Fire Clay Company of Woodbridge, N. J., which is to take the place of the plant burned some weeks ago. The plant will be equipped with machinery from the shops of the J. D. Fate Company, Plymouth, Ohio, while the dryer and transfer cars, turntables, etc., will be furnished by the Chase Foundry and Manufacturing Company, of Columbus, Ohio. The work of rebuilding the plant will be rushed to completion as rapidly as possible.

The Hancock Shale Brick Company, of Hagerstown, Md., has increased its capital stock from $30,000 to $40,000. The company will make a number of improvements in its plant.

Vitreous Clay Company, Atlanta, Ga., has been incorporated to manufacture brick, sewer pipe and tile. Capital, $67,500. The incorporators are G. H. Pittman, A. R. Colcord and others.

Henry D. Dox, a pioneer brick manufacturer of Geneva, N. Y., died at his home in that city, May 1, after a short illness. Mr. Dox was seventy-four years old, and had spent almost his entire life in Geneva, most of which time he had been engaged in the brick manufacturing business.

The brick plant of the Cornell Coal Company at Creighton, Pa., was almost wholly destroyed by fire the latter part of April. The loss is estimated at $10,000, on which there is no insurance. The fire was discovered in the boiler room, but spread so rapidly that the fire companies were powerless to check it. The plant will be rebuilt as soon as possible.

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Written for The Clay-Worker.

## SEEN IN NEW JERSEY.

SINCE LAST MONTH building conditions have improved somewhat in some parts of New Jersey and have not changed in other localities. According to latest statistics, conditions as a whole, taking all the large cities of the country, were 23 per cent. better for April this year than they were for April last year. Of that percentage Newark got some and Jersey City had a share, but Paterson, Passaic, Hackensack and other important cities and towns in the northern part of the state had no increase. They were fortunate to hold their own, but they did that.

Naturally the possibility for the coming season attracts attention, and very many are wondering what will be done. One thing is certain, in those cities where the agreement between the workingmen and the bosses expires this year they got by May 1 without trouble. The journeymen, glad to have anything in some communities, did not demand higher wages, and the old agreement was renewed.

Glen Ridge, not far from Newark, is to build a new school this spring to require 485,000 brick. Ernest Sibley, of Grantwood, is the architect, and is reported to have done a very handsome piece of work, considering the amount of money involved, which is relatively small.

The prospect for considerable development in cottage and dwelling house building seems promising, and more burned clay will be used than ever before. The experience with so-called fire-proof cement has not been of a reassuring character in this vicinity. Fire-proofing, hollow tile and brick are to be the principal materials used in most of the progressive communities this spring. The "Build with Brick" propaganda is bearing its proper fruit, and brick is fast becoming the favorite material, replacing wood, which is too costly for perishable material.

Perhaps it will do no harm to point out just here that the architect who can or will evolve a design for a dwelling which will give a plain building at low cost will do much to improve the demand for brick. Very many would build with brick, but are frightened by the designs offered, which seem to them to cost too much. And so they build with wood, or utilize cement, and brick loses a present customer, together with many prospective users. The thing needed now in this vicinity is to convince builders or prospective builders that brick is the cheapest material in the long run, even though it is a little more costly at first, and the "Build with Brick" idea will receive a decided impetus.

N. H. Sloan, the leading brick broker of Paterson, N. J., has lately changed his office to room No. 405, Colt building, the best office building in Paterson. Mr. Sloan is a wide-awake salesman, and even though business has been more or less dull of late in his home city, he has, by going outside its confines, succeeded in picking up a good business. He handles all sorts of burned clay brick of different types, hollow block, fire-proofing and architectural terra cotta.

A. L. B.

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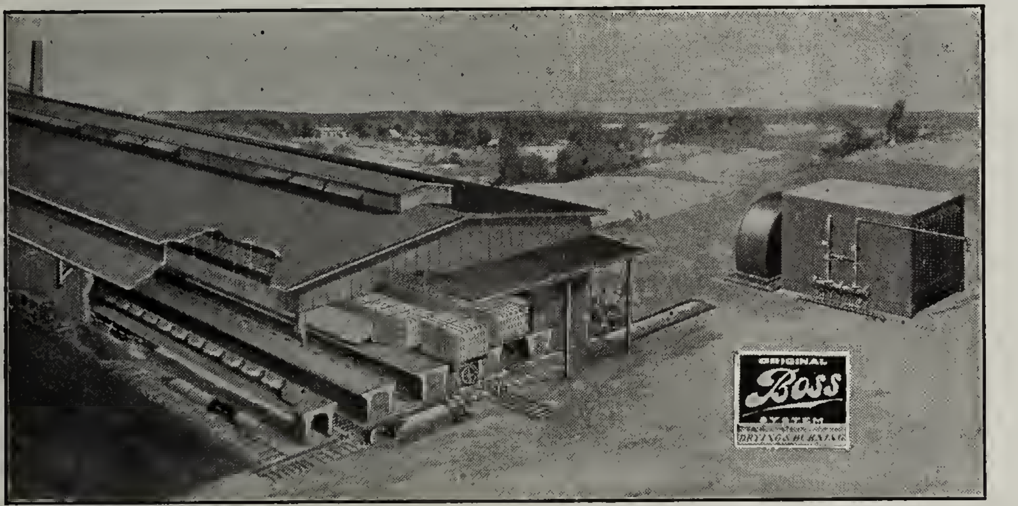

The Boss Ten-Hour Unit-Control Exhaust Steam Dryer.

**Mr. Brickmaker:**

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

**NO CLAY TOO TENDER.**

Ask us to show you how we do it.

**JOHN C. BOSS COMPANY**
**Elkhart, Indiana**

**WEBB WIRES WEAR WELL**

**WRAPPED**
**TWISTED**
**SOLDERED**

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

**The WEBB WIRE WORKS, New Brunswick, N. J.**

Written for The Clay-Worker.

## PITTSBURG BRICK AND BUILDING NEWS.

THE PITTSBURG BRICK business practically came to a standstill May 1st, when the bricklayers, one of the oldest and most powerful unions in the city, stopped work on contracts all over this district, calling the first big strike of the organization since 1892. There are a number of issues involved, principally an increase in wages from 70 to 75 cents an hour for an eight-hour day, or $6 a day.

There are reports that other trades will go out, and there have been rumors for weeks of a lockout.

Bricklaying stopped on all the big contracts in Pittsburg, when the strike was called. The contractors oppose the increase, and say they will fight, this decision affecting those affiliated with the Master Builders' Association.

April report of the City Building Inspector, shows a comparative decrease in new construction last month, with total permits of 453 for work to cost $974,283. In March the totals were 438 permits and $1,006,997, and in April 1914, permits numbered 390, the cost total being $1,158,225. During April of this year permits were issued for 142 new buildings, to cost $704,600; additions permitted were 20, to cost $23,280, and alteration and repairs aggregated 291, to cost $146,403. From these figures it is evident that no specially costly or large operations were authorized last month, the comparatively poor showing being attributed to the anxiety and uncertainty that prevailed as to the attitude of the building trades toward wage scales for the year. Of new buildings authorized last month, 62 were brick, 58 were veneered, 13 frame, 7 hollow tile, 1 stone, and 1 cement. Usually, in house construction, April is one of the most active months of the year, but it did not prove so this year, and May may be no better.

Grove City Limestone company near Butler, Pa., is reported to have started business in full on the first of May.

The Harbison-Walker Brick company at Mount Union, Pa., have put on their laborers at nine hours and their moulders at ten hours, and are resuming night work. This is the most marked improvement in labor conditions Mt. Union has had since the depression began.

The tipple, brick making plant and the boiler house of the Cornell Coal company, near Tarentum, Pa., were damaged by fire recently. The cause of the fire is unknown and the damage is estimated at $15,000. As a result of the damage done the plant was shut down for three days when sufficient repairs were being made to permit the operations to begin again.

The directors of the National Fireproofing company met April 29, and decided to pass the dividend on the preferred stock, amounting to 1 per cent quarterly. The stock is not accumulative. At the usual quarterly meeting a few weeks ago the board deferred dividend actions until a later date. On the 29th day of April they considered the matter and in a statement given out later said that on account of the poor business conditions from which we are now recovering, it was deemed wise to recommend no dividend disbursement at this time.

The company added that its business is rapidly improving, especially locally and from the East, but that on account of the lull in building operations in the West, business from that section of the country was not exactly satisfactory, but is improving daily.

Developments are going along quietly toward establishing a pottery and brick and tile manufacturing concern in Ebensburg, Pa., and before long some well-defined activities in the building line may be looked for. Experiments have been made with the clay, on a most extensive scale, and samples of fire brick and building brick of various grades are being exhibited in a number of business places in Ebensburg.

The Iron-clay Brick company at Shawnee, Ohio, has resumed operations, after three months' suspension. It imployes 100 men.

A SMOKER

# Classified Advertisements

**FOR SALE, WANTED, ETC.**

**Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.**

## FOR SALE

FOR SALE CHEAP.

Brick, tile and hollow block machine, reason for selling, am going out of the business. Answer quick. Address

WM. McCUBBIN,
5 2 dm Braymer, Mo.

FOR SALE AT A GREAT BARGAIN.

A complete brick plant, the only one in a town of 1,000. Galesville is one of the best towns in Wisconsin, and is surrounded by the largest and best farming country in the state. Four acres of land go with it; plant is in good running order, and will be sold cheap. Good reason for selling. Address,

TOLLEF JENSEN,
4 3 cm Galesville, Wis.

FOR SALE.

Soft mud brick plant, 30,000 capacity. Only plant in city of 25,000. Address,

BROMILAW BRICK CO.,
4 3 cm Alexandria, Va.

FOR SALE.

Old established brick yard. Good reasons for selling. This is a proposition that will bear investigation.

SCHALLER-YOUNG LUMBER CO.,
3 3 cm Edgerton, Wis.

MACHINERY BARGAINS.

One American rotary clay dryer.

One No. 0 Thew automatic steam shovel (new).

126 double deck dry cars. Address

BOX 33,
5 1 dm Muncie, Ind.

FOR SALE.

A favorably located brick plant and coal mine in eastern Ohio; excellent shale and fine coal; capacity 25,000 brick per day; on leading railroad system and near market. Address

N. B.,
5 3 c Care Clay-Worker.

FOR SALE.

One American Clay Machinery Co.'s special giant auger brick machine, used for making fire proofing. In workable condition. Address

BOX 1—J. A. R.,
1 tf d Care Clay-Worker.

FOR SALE.

We offer two Standard paving brick rattlers which will be sold for $75.00 each, or one-half regular price. New and first-class in every respect. Address

THE PORTSMOUTH ENGINE CO.,
3 3 cm Portsmouth, Ohio.

FOR SALE.

Martin pipe rack dryer, steel pallets, cable conveyor, etc., all complete, 32,000 capacity. Used only short time before failure of company. Style O Thew steam shovel, 8-foot wet pan, Stevenson 9-foot dry pan, stiff mud brick and tile machine with dies, Martin soft mud brick machine with sander, three steel dump cars, 15x9-inch Blake jaw crusher, Berg four-mold dry press. One Williams crusher. Will sell separately. Address,

C. H. HORTON CO.,
5 1 d Painesville, Ohio.

## Classified Advertisements—Continued.

FOR SALE.

170 roller-bearing, double-deck dryer cars. Never been used. Write for particulars and cuts.

MINNESOTA BRICK & TILE CO.,
3 3 c Millville, Minn.

---

SHERIFF'S SALE.

June 12, 1915. 25,000 daily capacity brick plant, fully equipped, 20 acres clay, producing high-grade face brick and pavers, 4 acres fine molding sand, 12 feet thick, opened for operation, splendid shipping facilities. Located at Crooksville, Ohio, one of the best clay manufacturing towns in the country. Full particulars, write

TOM O. CROSSAN, Attorney,
5 1 dm New Lexington, Ohio.

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FOR SALE.

One Andrus four-mold dry press machine, which has made but 400,000 brick. Practically new. $1,200.00 on cars, Memphis.

One five-mold (can be changed to six) Hercules soft mud machine.

One six-mold Hercules soft mud machine. Overhauled and in good condition. $250.00 each, on cars, Memphis.

One No. 0 late model Thew steam shovel, which has been worked about six months and is in good condition. $2,300.00, on cars, Memphis. Address

SOUTH MEMPHIS BRICK CO.,
3 tf d Memphis, Tenn.

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FOR SALE.

One 12x12 slide valve engine with 84-inch flywheel, also 72x18 band wheel. This engine has been completely overhauled and rebabbitted throughout; new governor and throttle valve, and is in first-class condition.

One double mold Bonnot repress, practically new, run less than three months.

One Chambers cutter for end-cut brick. In good condition, run less than one year.

One Rumley traction engine, single cylinder, boiler insured under the Fidelity and Casualty Co., and allowed 110-pound working pressure and pronounced in good condition by their inspector.

One steel boiler stack, 65 feet high, by 42 inches diameter, 10-gage sheet steel. Stack was used about one year, and taken down account putting in new boilers and it was not large enough for them. Address

HYDRAULIC PRESS BRICK CO.,
Chamber of Commerce Bldg.,
5 2 d Chicago, Ill.

## WANTED, ETC.

WANTED.

Two brick burners who understand burning face brick with oil. Address

BOX 5—BURNER,
5 1 d Care Clay-Worker.

---

WANTED.

A man who can operate a Marion steam shovel. Address

BOX 5—A. J. K.,
5 1 d Care Clay-Worker.

---

WANTED.

Position as superintendent by a reliable man and competent in every respect. Well known to the trade. Address INDIANA,
5 1 cm Care Clay-Worker.

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WANTED.

A first-class brick yard engineer, who understands dry presses and can repair machinery. Address

BOX 5—ENGINEER,
5 1 d Care Clay-Worker.

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WANTED—POSITION.

As superintendent of fire brick plant. Thoroughly familiar with the manufacture of high-grade fire or silica brick. Also selling ability. Employed but desire change. Best references. Address

BOX 5—FIRE BRICK,
5 1 c Care Clay-Worker.

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POSITION WANTED.

By a German kiln builder with twenty years of practical experience in the clay industry. Several years as superintendent in brickmaking school. Know how to handle machinery and an expert burner. Able to design entire plant. Address BOX 5—C. C.,
5 3 d Care Clay-Worker.

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WANTED.

Geologist and engineer connected with a prominent educational institution is open for engagement during the spring and summer months. Sampling and valuation of clays and shales, testing of finished products and plant design undertaken. Address R. J.,
5 1 dm Care Clay-Worker.

---

WANTED.

Stationary engineer for brick factory, one who can make repairs. Address

BOX 5—CLAY,
5 1 d Care Clay-Worker.

---

WANTED.

To hear from owner of good brick and tile plant for sale. State price. Address, D. F. BUSH,
4 3 cm Minneapolis, Minn.

---

WANTED.

Position as superintendent or burner on building or paving brick plant. Best of references. Address, Box 4—P. A.
4 2 c Care Clay-Worker.

---

WANTED.

In trade for brick, one good stiff mud auger machine, capacity 30,000 to 50,000 per day. Address

BOX 5—MACHINE,
5 1 d Care Clay-Worker.

---

WANTED.

Good all-round machinist, one who is capable of making all repairs about a brick factory. Address

BOX 5—OHIO,
5 1 d Care Clay-Worker.

---

WANTED.

Position as manager or superintendent of brick plant. Experienced in all leading clay lines. Employed, but desire change. Best references. Address

BOX 3—BRICKMAKER,
3 1 cm Care Clay-Worker.

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WANTED.

First-class fire brick salesman for Chicago and vicinity, one who understands the manufacture as well as the selling of same. State experience and salary expected. Address

BOX 5—CHICAGO,
5 1 d Care Clay-Worker.

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**WANTED.**

A man who thoroughly understands the promotion and installation of sub-irrigation projects, to such a man a first-class proposition is open. Salary and commission. Address

THE INTERNATIONAL BRICK CO.,
5 2 d El Paso, Texas.

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RARE BARGAIN IN A TILE FACTORY.

The largest tile factory located in the State of Indiana will be sold for two-thirds of original cost. Fully equipped to make tile from 3 to 30 inches, with a demand greater than output. Twenty acres of land and an unlimited amount of raw material. Entire plant and machinery in A No. 1 condition. For full particulars address, BOX 5—TILE FACTORY,
5 3 cm Care Clay-Worker.

## Classified Advertisements—Continued.

WANTED.

Position by experienced German kiln builder, with twenty-five years' practical experience, thoroughly efficient in ceramics.

E. WURZ,
755 Broadway,
Albany, N. Y.
3 3 dm

---

WANTED.

A position by a competent superintendent. Might buy some stock in concern if we both prove satisfactory. Good references. Address,

Box 4—L. I. H.
Care Clay-Worker.
4 1 d

---

WANTED.

Position as manager or superintendent by an experienced man, thoroughly familiar with the manufacture of all kinds and makes of brick. Would like to get in communication with reliable firm. Address

Box 4—J. B.,
Care Clay-Worker.
4 1 d

---

WANTED.

Situation as superintendent of heavy porcelain plant; eight years with the Trenton Potteries Co. Am also first-class sanitary modeler. Could act as foreman of sanitary plant. Good references. Address,

WILLIAM ANDERSON,
63 Oak Lane,
Trenton, N. J.
4 2 cm

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# If...

## You Want to Sell or Buy...

**Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.**

## If... You Want a Man

**for any position or a position in any connection with the Clayworking Trades use the**

## For Sale and Want Columns of...

## The... Clay-Worker.

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**For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.**

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Consulting
Prospecting
Testing
Designing
Constructing
Operating

Producer Gas-Fired
Continuous Kilns
and Dryers
Cost and Efficiency
Systems. Old
Plants Rehabilitated

# JAMES P. WILLIAMS

CLAYWORKING ENGINEER

**2803 N. Kings Highway**

**ST. LOUIS, U. S. A.**

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Special Arrangement for "MONTHLY" Readers.

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**About that Accident or Illness**

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| FORM "S-76" | FORM "S-75" | FORM "S-74" |
|---|---|---|
| Special | Special | Special |
| **Accident & Sickness** | **Accident & Sickness** | **Accident & Sickness** |
| $4.00 Yearly | $6.00 Yearly | $10.00 Yearly |
| No Dues. No Assessments. | No Dues. No Assessments. | No Dues. No Assessments. |
| Loss of life.....$1,500.00 | Loss of life.....$2,500.00 | Loss of life.....$5,000.00 |
| Loss of both eyes, hands or feet.. 1,500.00 | Loss of both eyes, hands or feet.. 1,250.00 | Loss of both eyes, hands or feet.. 2,500.00 |
| Loss of one hand or one foot.... 375.00 | Loss of one hand or one foot.... 750.00 | Loss of one hand or one foot.... 1,250.00 |
| Loss of one eye.. 150.00 | Loss of one eye.. 250.00 | Loss of one eye.. 500.00 |
| $10.00 Weekly Accident Benefit. | $15.00 Weekly Accident Benefit. | $25.00 Weekly Accident Benefit. |
| $10.00 Weekly Sick Benefit. | $15.00 Weekly Sick Benefit. | $25.00 Weekly Sick Benefit. |
| $25.00 Emergency Relief. | $50.00 Emergency Relief. | $100.00 Emergency Relief. |

Send for application blank at once to

INSURANCE DEPARTMENT MANTEL, TILE & GRATE MONTHLY
UTICA. N. Y.

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# Pamphlets Suitable for Distribution by Paving Brick Manufacturers

VITRIFIED BRICK THE BEST MATERIAL FOR SURFACING PUBLIC HIGHWAYS, by Herbert S. Casson.

BRICK PAVEMENTS AS AN INVESTMENT, by W. T. Blackburn.

IDEAL ROADWAYS, by T. A. Randall.

TRUTH IN NEW JERSEY CEMENT ROAD WORK.

STANDARD RATTLER TESTS FOR PAVING BRICK.

FACTS ABOUT ASPHALT PAVEMENTS.

Specimen copy of any one of these pamphlets sent on request. Price in lots of 100, $2.00. Will quote you prices on larger quantities.

**T. A. RANDALL & CO., Inc.**
**Indianapolis, Ind.**

## Classified Advertisements.

# MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**

MINERS AND GRINDERS.

# FOR SALE.

Fine Fire Brick Property and Plant at Half Price.

Opportunity knocks at every man's door once. If you want to own a fine Fire Brick Plant making high grade fire brick and flashed face brick, here is YOUR opportunity.

For reasons good and sufficient when all the facts are known, this fine property is offered at less than half its real present value, and it will greatly increase in value as the property is further developed.

The property embraces 900 acres of fire clay, with necessary equipment for mining same. It has many desirable features, including a 30-inch vein of coal of good quality, and good railroad facilities, one line running through the center of the tract.

The clay plant consists of a three-story factory and an equipment of machinery for making fire brick and face brick which will be described in detail to anyone who is interested. There is also on the premises a two-room office building and a boarding house with accommodations for twenty men.

An analysis of the fire clay shows that it is equal to the famous St. Louis Cheltenham fire clay.

The title is clear and it is in every way a most desirable proposition. For analysis of clay and other particulars, address

OPPORTUNITY,
Care The Clay-Worker.

## BARGAIN LIST OF SECOND-HAND MACHINERY, REPAIRED AND READY FOR SHIPMENT.

1 150-H.P. Non-Condensing Steam Engine.
2 6-H.-P. Upright A B Fan Engines.
15 12 to 15-H.P. Various Makes, Slide Valve Steam Engines.
10 15 to 35-H.P. Various Makes, Gas Engines.
1 54-inch by 16-foot Atlas Boilers.
2 36x15 A B Ventilating Fans.
1 24x12 Pressure Blower.
1 No. 7 Sturtevant Blower.
2 C. & A. Potts Soft Mud Brick Machines.
1 Ross-Keller Four-Mould Dry Press Brick Machine.
1 Penfield Six-Mould Dry Press Brick Machine.
1 Raymond Automatic Cutter.
1 Hummer, Jr., Fates Brick & Tile Machine, with Full Set of building Block Dies.
1 100,000 Arbuckle Horizontal Pug Mill.
1 100,000 Michigan Horizontal Pug Mill.
2 Second-hand Rust Clay Feeders.
1 20,000 Kells Brick Machine and Cutter.
1 25,000 Disintegrator.
1 Bechtel's Automatic Side Cutter.
1 C. & A. Potts Disintegrator, good, condition

## NEW MACHINERY AT SPECIAL PRICES.

1 100,000 Stiff Mud Brick Machine.
1 30,000 Stiff Mud Brick Machine.
1 20,000 Stiff Mud Brick Machine.
1 25,000 Disintegrator.
1 50,000 Disintegrator.
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400 New Brick and Tile Barrows.
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2 Bechtel's Automatic End Cut Brick Cutters.
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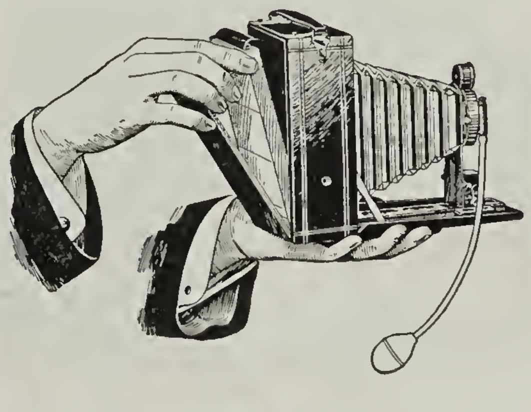

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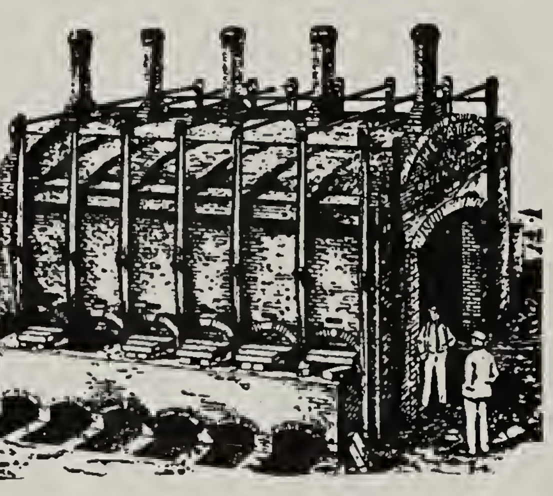

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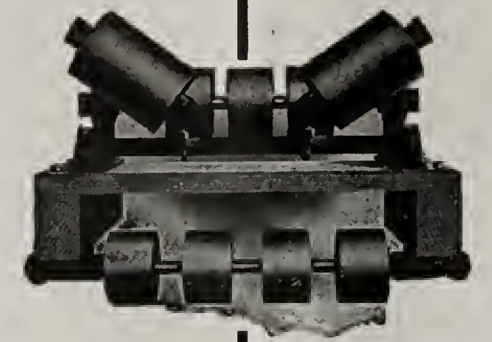

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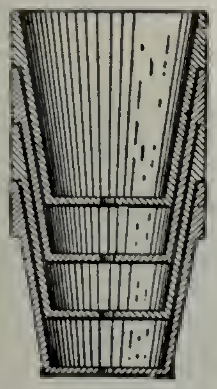

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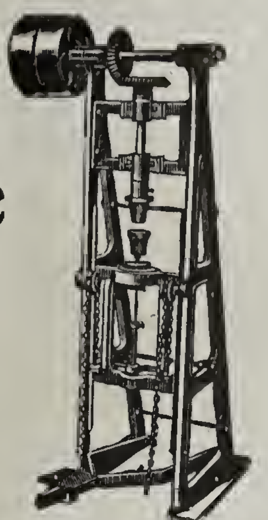

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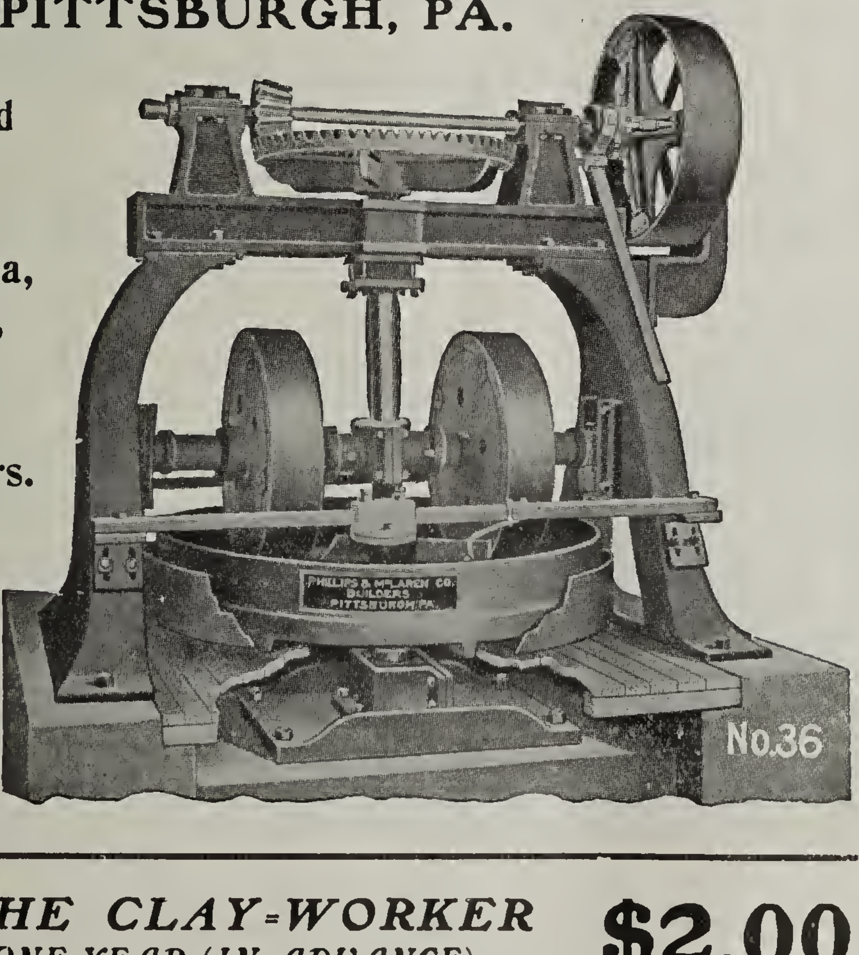

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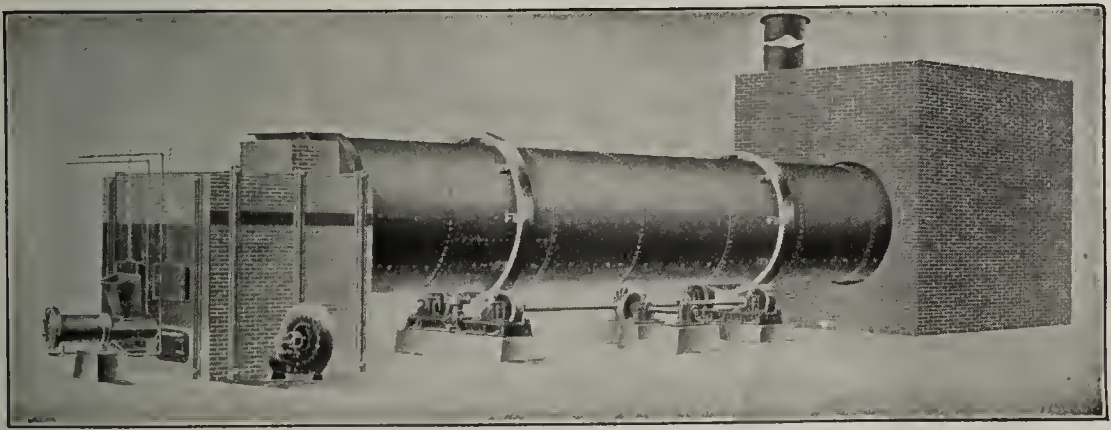

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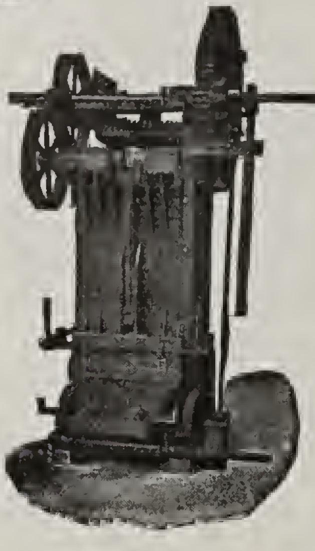

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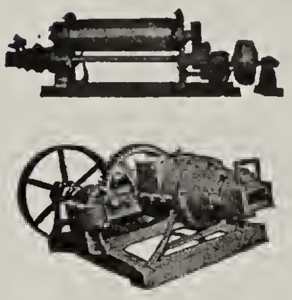

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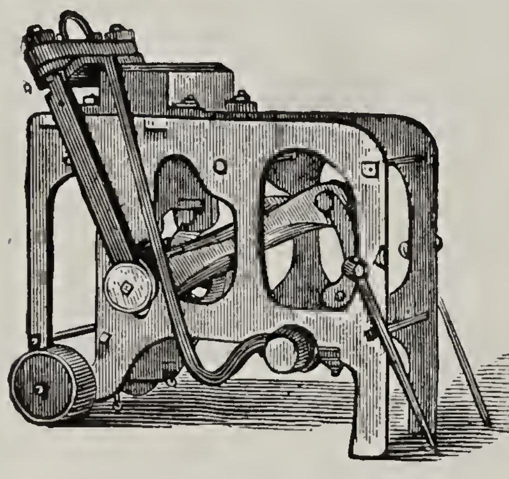

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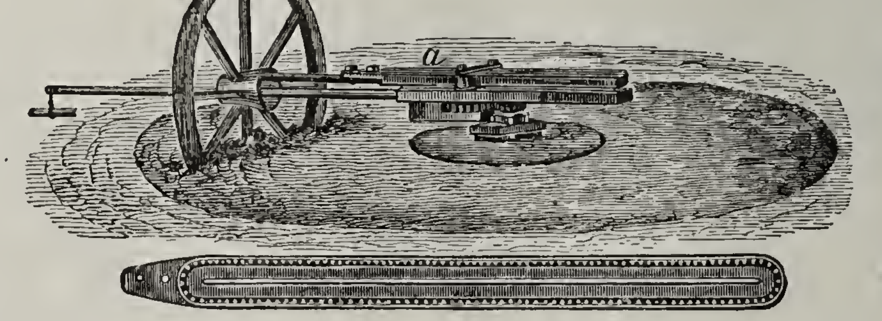

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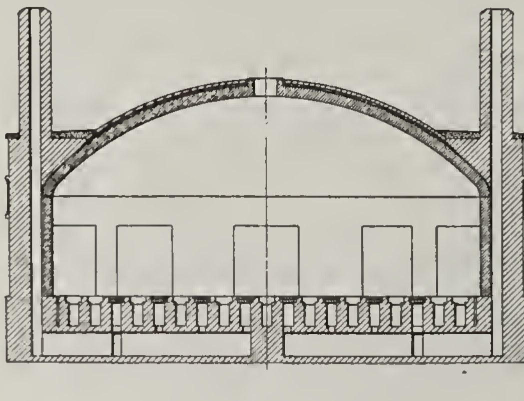

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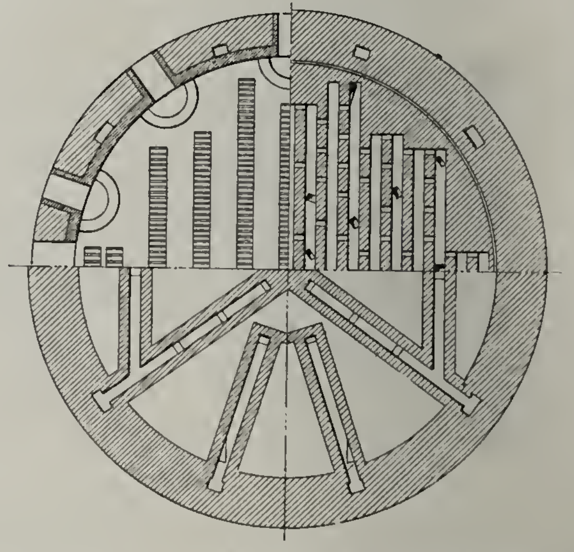

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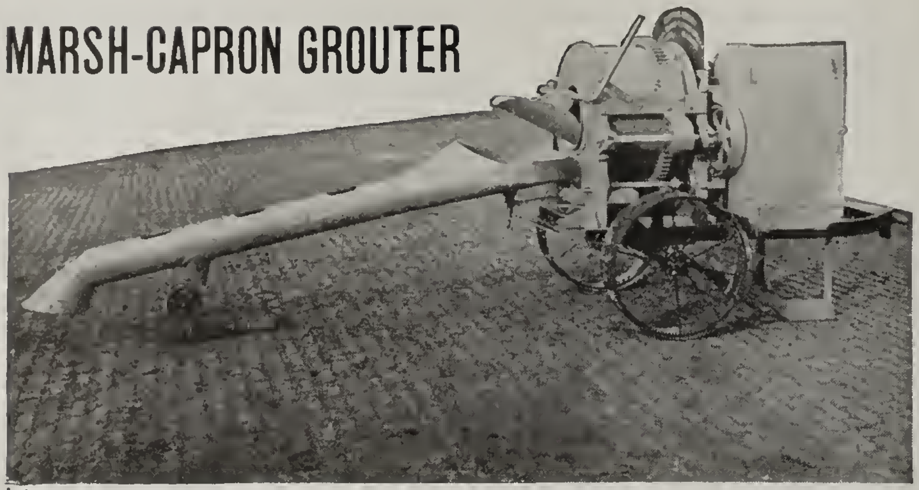

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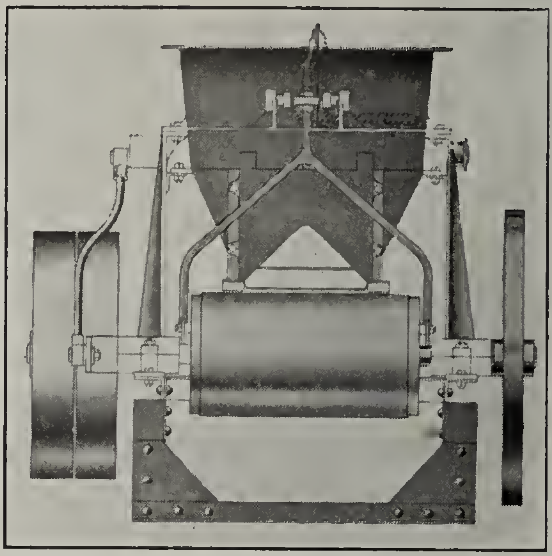

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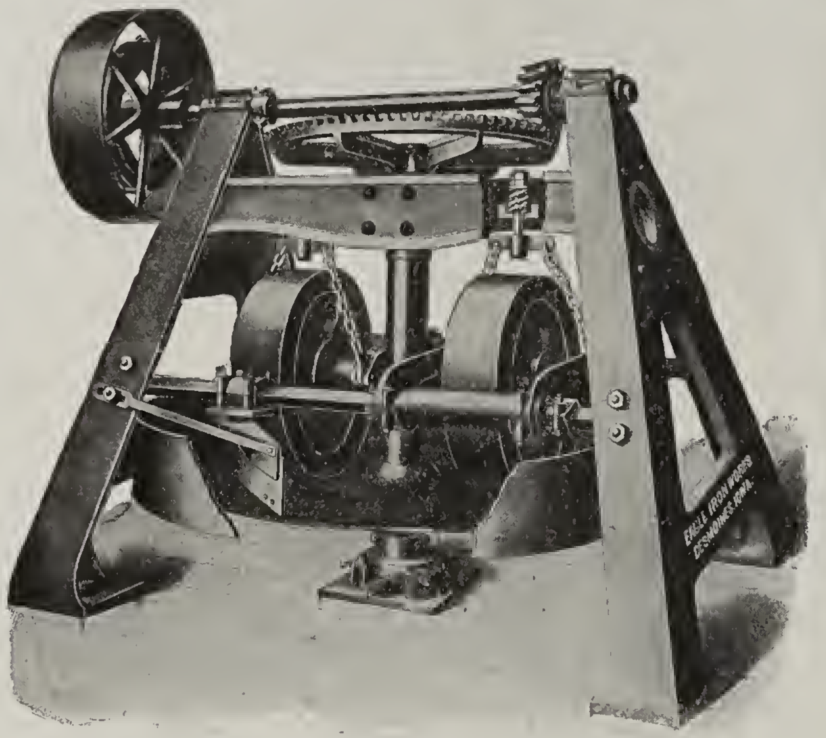

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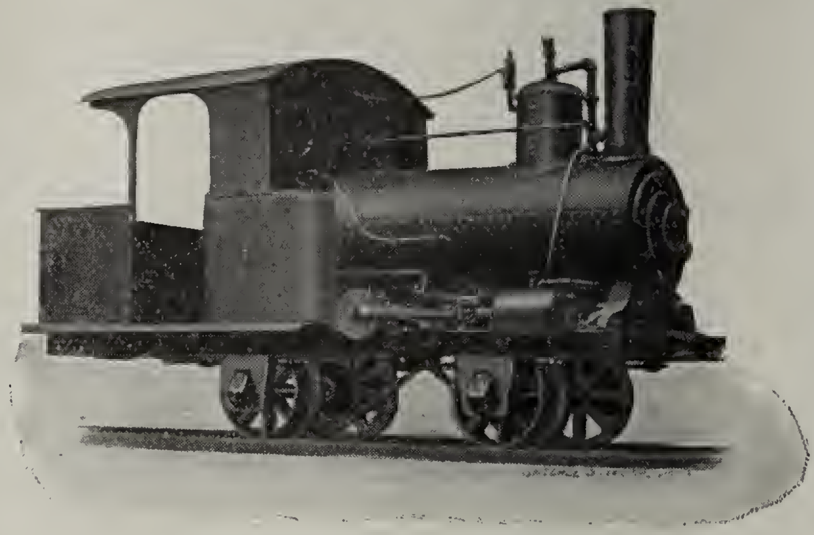

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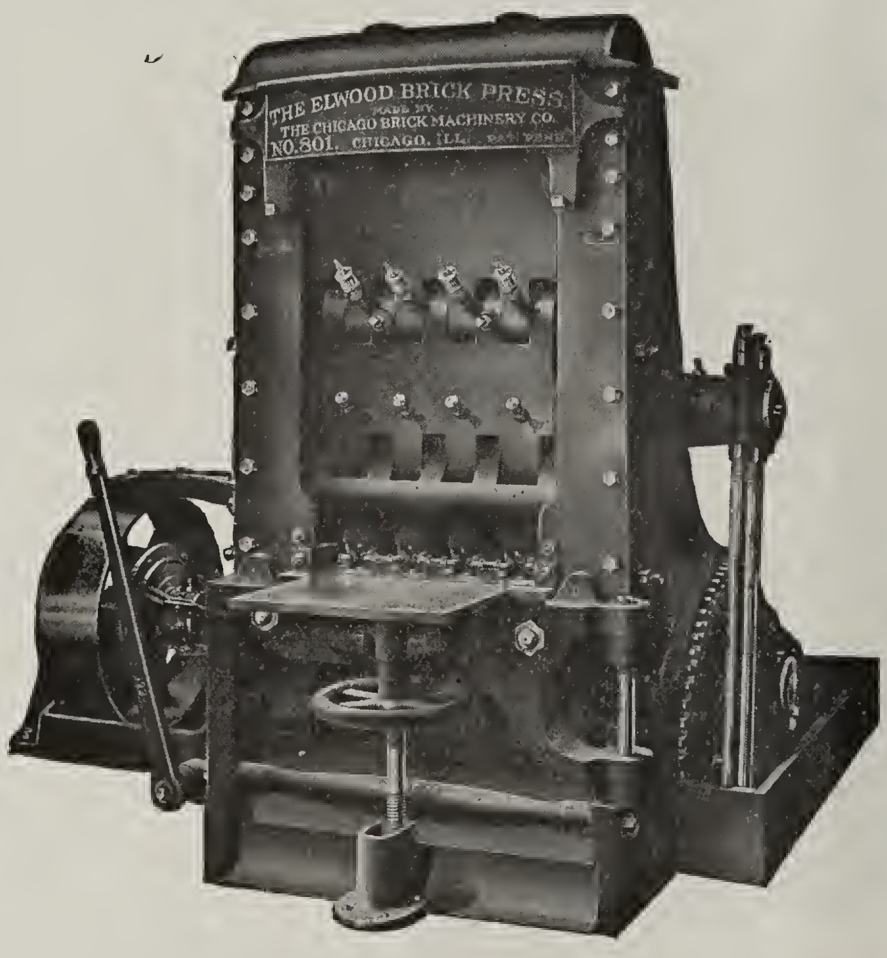

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Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

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Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

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**KILNS**

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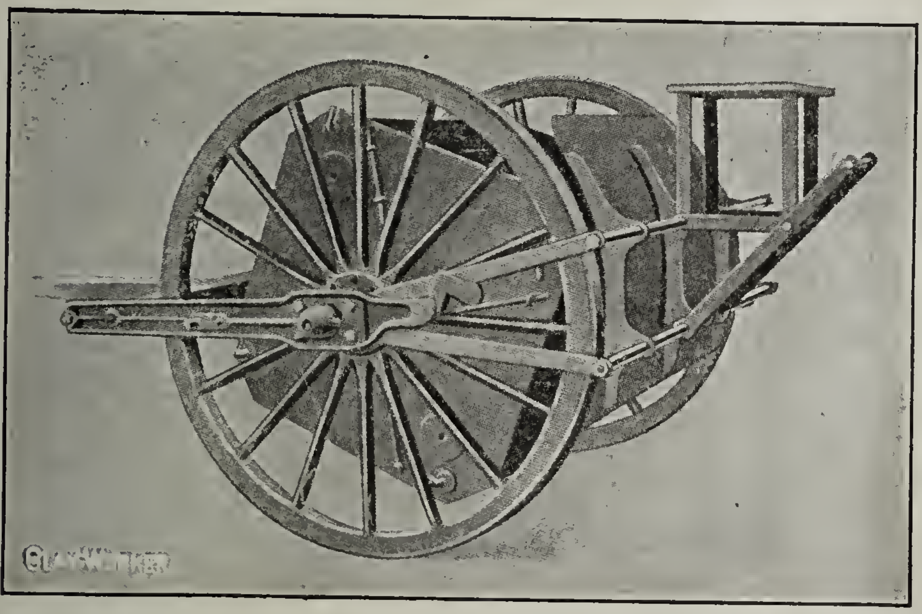


Is being used by a large number of brickmakers and all say with it they can gather clay from the field at one-half the cost of any other method. Capacity one yard.

We also manufacture a Special Clay Plow and by using the two your field is always level, well drained and free from holes.

We manufacture a complete line of brickyard supplies. Write us.

## The Fernholtz Brick Machinery Co.

Boyle and Vandeventer Aves. ST. LOUIS, MO.

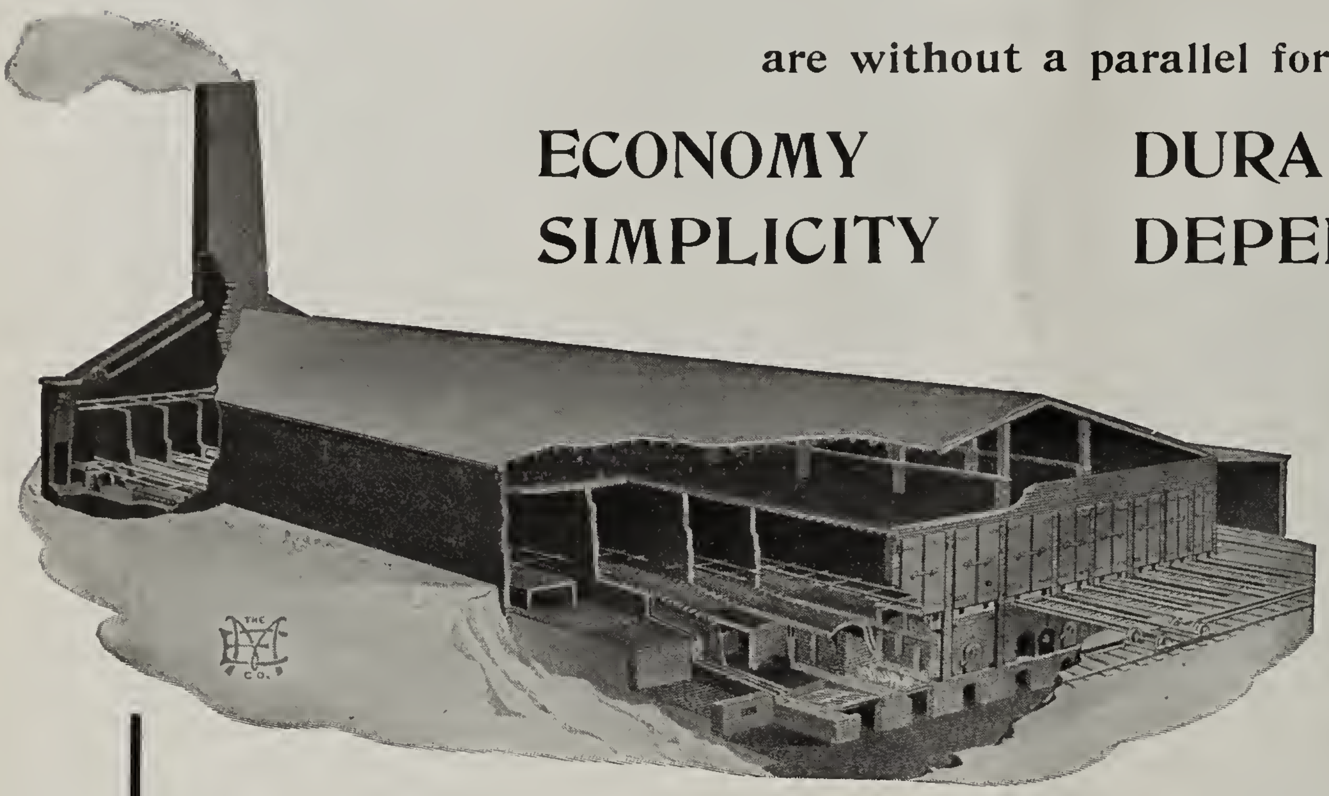
"THE JUSTICE DRYERS ARE THE SHOCK ABSORBERS OF DRYING DIFFICULTIES."

THE JUSTICE CLAY PRODUCTS DRYERS

—Patented—

are without a parallel for

ECONOMY DURABILITY
SIMPLICITY DEPENDABILITY



—THE—

Manufacturers
Equipment
Company

Everything That the Clay-Worker Needs

Dayton, Ohio, U. S. A.

Do you know that we are installing 22 tracks of the Justice Metal Radiation Dryer for the National Fireproofing Company, Pittsburgh, Pa.? They wanted DRY WARE---they are going to get it.

THE HOLLOW-TILE HOUSE

By Frederick Squires, Architect.

A book wherein the reader is introduced to hollow-tile in the making, is told how it is wrought into houses, and it is shown how these houses look and from what foreign ancestry their appearance is a heritage.

The book says the last word on the construction of the fireproof home, the most modern development of wall construction in "Texture-Tile," and the most recently devised systems of fireproof floor construction and architectural concrete work.

*210 pages; 215 illustrations and figures.*

Cloth 7½ x 10 inches. Price $2.50 net.

T. A. Randall & Co. (Inc.) Indianapolis, Ind.

Trautwein
DRYERS

# INSURE YOUR CAPACITY

To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

## ASSURANCE

Of Increased Capacity
Greatest Economy
And Largest Profits

OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

**Trautwein Dryer & Engineering Co.**
**Manufacturers=Engineers**
**417 South Dearborn Street Chicago**

---

# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP=TO=DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

## Claude Smith Company

**KILN BUILDERS**
**Plymouth Building Chicago, Illinois**

# Worth Its Weight In Gold

**Every Clayworker in the Land Should Have a Copy of Prof. Bleininger's Book**

## THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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**Price $2.00**

**Sold Only by**

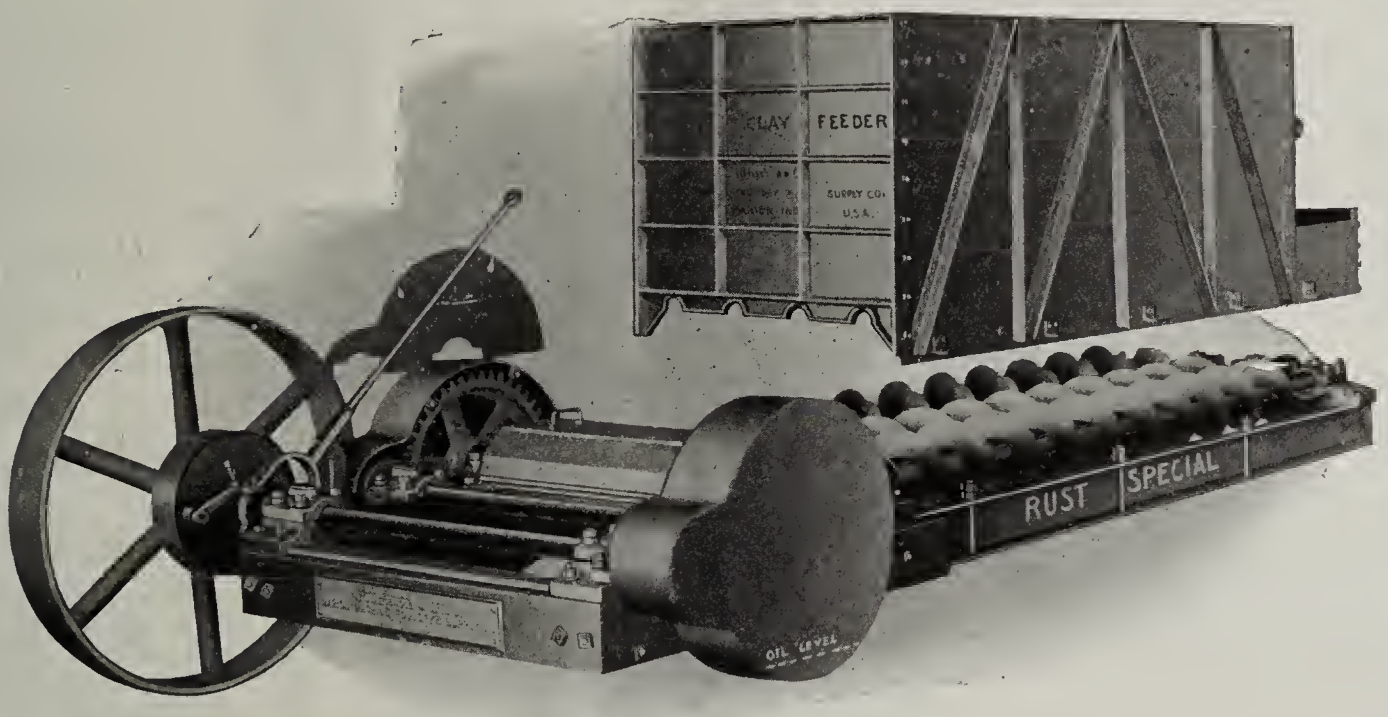
**T. A. RANDALL & CO.**

**Indianapolis, Ind.**

# When You Buy Machinery Do You Always Get Service?

Do you get just what you are paying for—does your machine or machines live up to the promises of the sales agent?

## The Rust Clay Feeder Fulfills Every Claim Made For It



### Five New Points in the NEW Rust

**1:** There is no exposed gearing. Every gear runs in oil, carefully housed from the dirt and grime, and insures full efficiency of your machine and removes danger of accidents.

**2:** The eight gears that drive the spirals: These are also housed in oil and are made of the highest grade crucible steel.

**3:** The large gearing: This is made of semi steel, built doubly heavy for any duty that may be demanded of it.

**4:** The drop bottom: This is hinged at the center and permits the operator to drop out the material under any two of the spirals and reach them quickly.

**5:** The four spiral shafts: These are built extra large and strong and increase capacity of the "Rust" more than 50 per cent.

It is the last thing in clay feeders, combining all the good points that Rust feeders have had for the ten years they have been on the market, with the new features that make it the "Efficient" clay feeder.

Our claims are not so many printed words, but they are backed up by the actual results produced in active service.

We also have a full line of efficient brick and tile machines, disintegrators, pugmills, winding drums, grates, rotary soot blowers, etc. Remember that every machine that bears the "Marion" name represents untiring labor and ceaseless research for correct and scientific design by competent engineers—the skill of capable machinists—the highest quality of material.

When you buy Marion Machines you always get service.

### What the NEW Rust Will Do

**Cut out the labor of two men,** thus saving you $1,350 a year. This means the Rust Special will pay for itself before the year is over, and give an annual profit of nearly $1,000.

**It will temper your clay perfectly,** thus improving your product. Just set the Rust Special at the speed you require, gauge your water feed accordingly, the machine will do the rest.

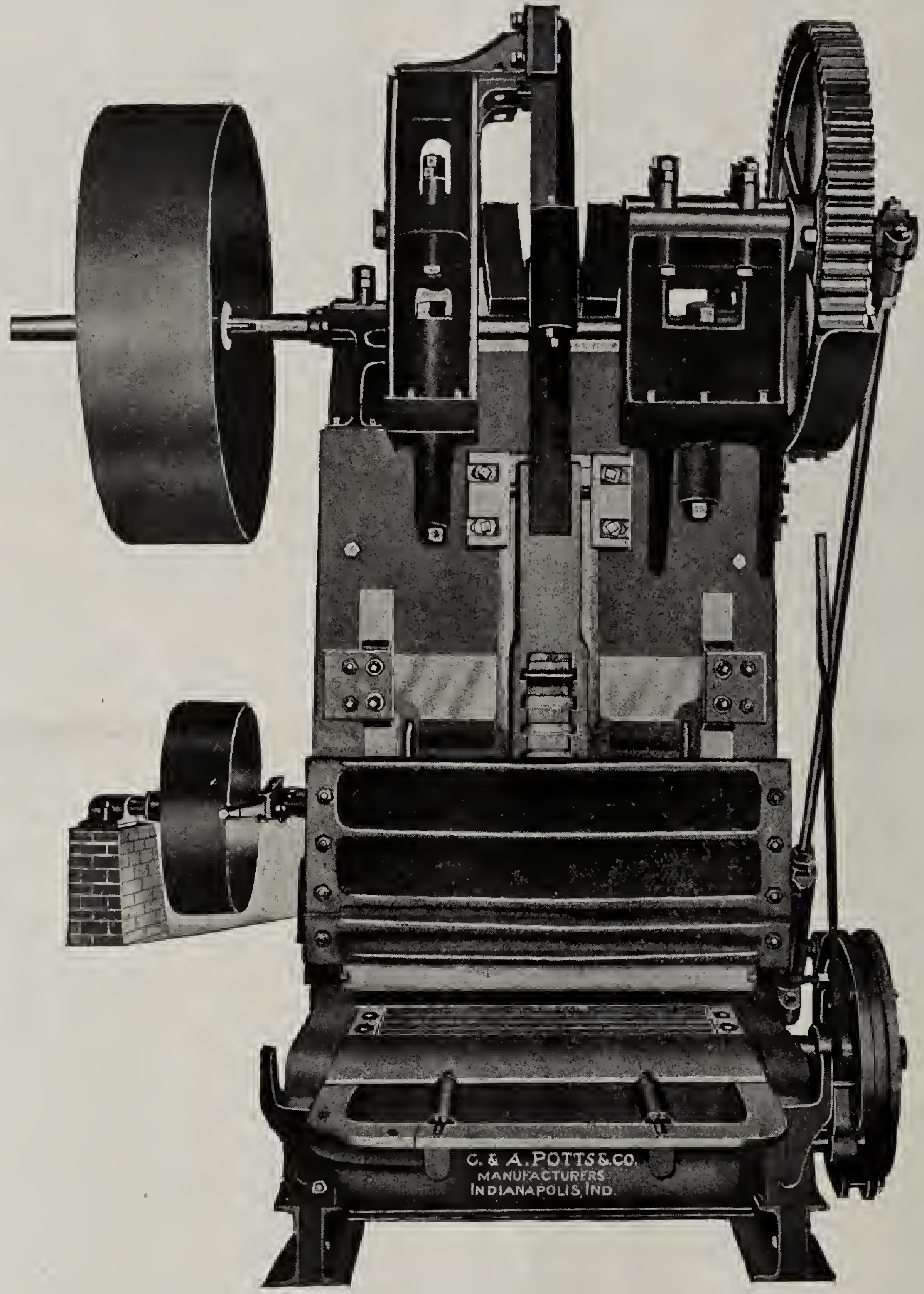
**It feeds your clay regularly**—speeding up your plant. Determine the capacity at which your pugmill and auger will run to get the highest efficiency, set the Rust Special and leave it alone—the feed will not vary ten brick per hour.

## Marion Machine, Foundry & Supply Co., Marion, Indiana

**Chicago Office, Monadnock Bldg.** **P. O. Box 156**

# The Potts Special
# Soft Mud and Fire Brick Horizontal Brick Machine

Drop Forged Crank Shafts. Cut Steel Gears. Large Bearings. Heavy Powerful Press. No Light Parts Working in the Clay.



Note Heavy Construction of Press on Special Soft Mud and Fire-Brick Machine. Built for Service.

FRONT VIEW

## The Most Complete Brick Machine Ever Built

WRITE
FOR
CATALOGUE.

## C. & A. POTTS & CO.
## INDIANAPOLIS, IND.

LET US
KNOW
YOUR WANTS.

## JOIN THE

**BOOST**

# BUILD WITH BRICK

**BOOST**

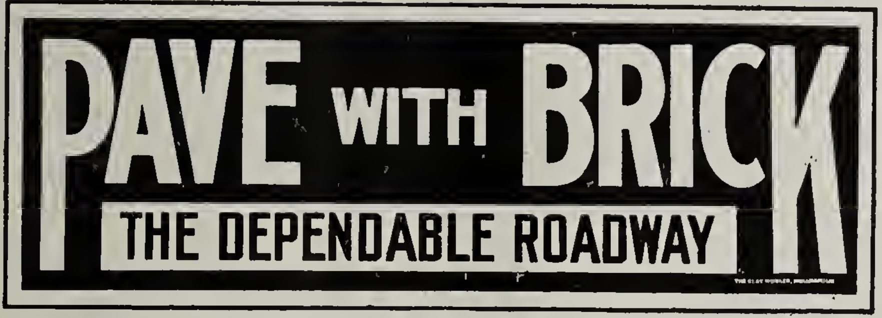
## CAMPAIGN

A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

### THE BUILD WITH BRICK MOVEMENT.

IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.



It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.

Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background.

These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.

Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.

T. A. Randall & Co., Publishers The Clay-Worker.

Gentlemen:

You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ..................................................

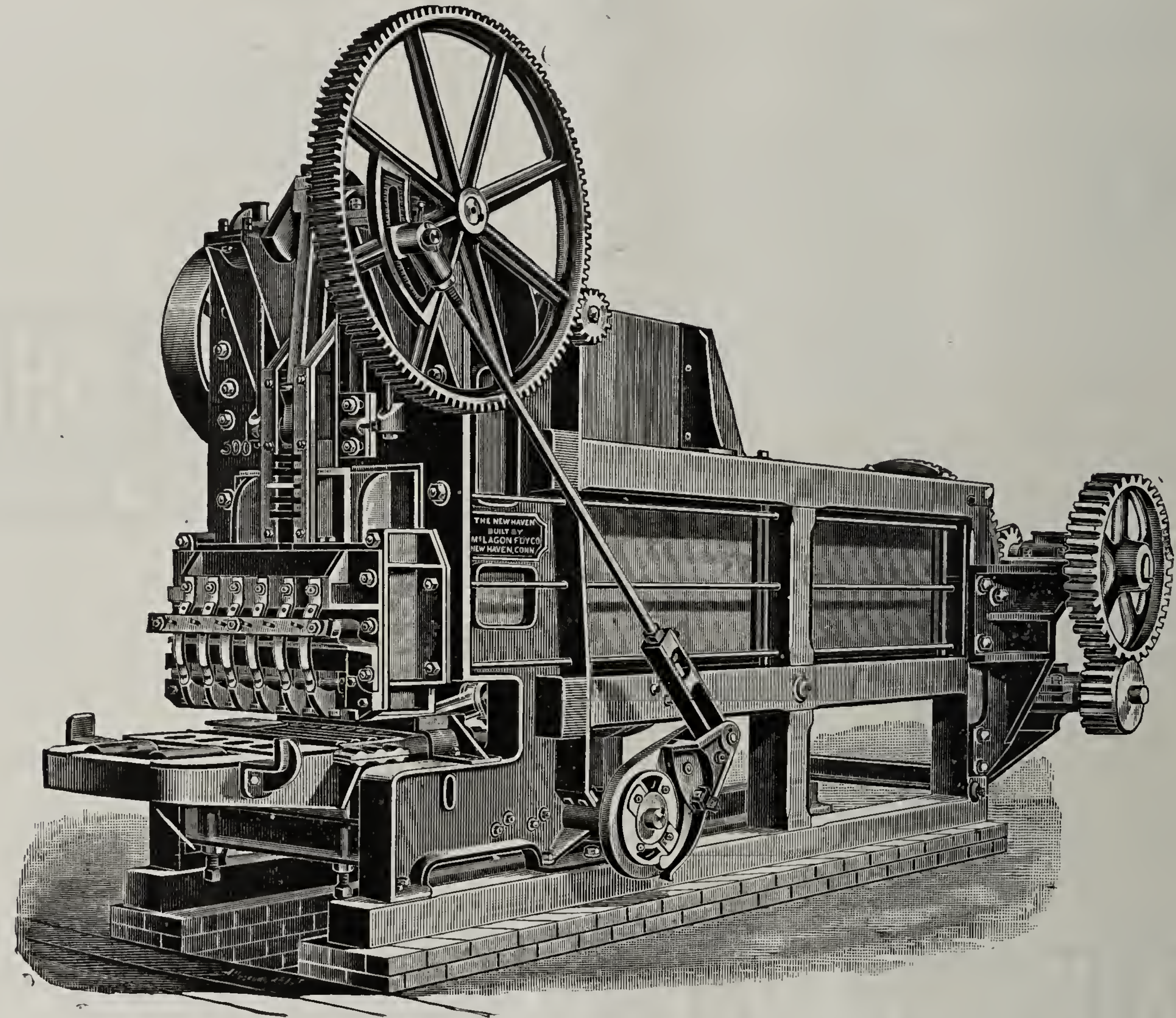
..................................................

(Cross out the items not wanted, fill in and mail us the coupon.)

# Soft Mud Brick Machines

Are the only kind we build and we build them well. We build them with the greatest strength placed where it is the most required. We build them with stout shafts, long bearings, large oil holes, strong gears, steel liners, and all other details in proportion. We build them so they

## *DO NOT BREAK DOWN EVERY DAY.*



"NEW HAVEN" HORIZONTAL BRICK MACHINE.

## *NEW HAVEN BRICK MACHINES*

are popular at home because of their superior qualities. More than three-fourths of the brick made in New England are the product of ***New Haven*** machines. For hard service they are sure to satisfy where others fail. That is the reason why each New Haven machine is a standing advertisement, and why all users recommend them.

**The EASTERN MACHINERY CO.**

**NEW HAVEN, CONN.**

# TURN FAILURE INTO SUCCESS

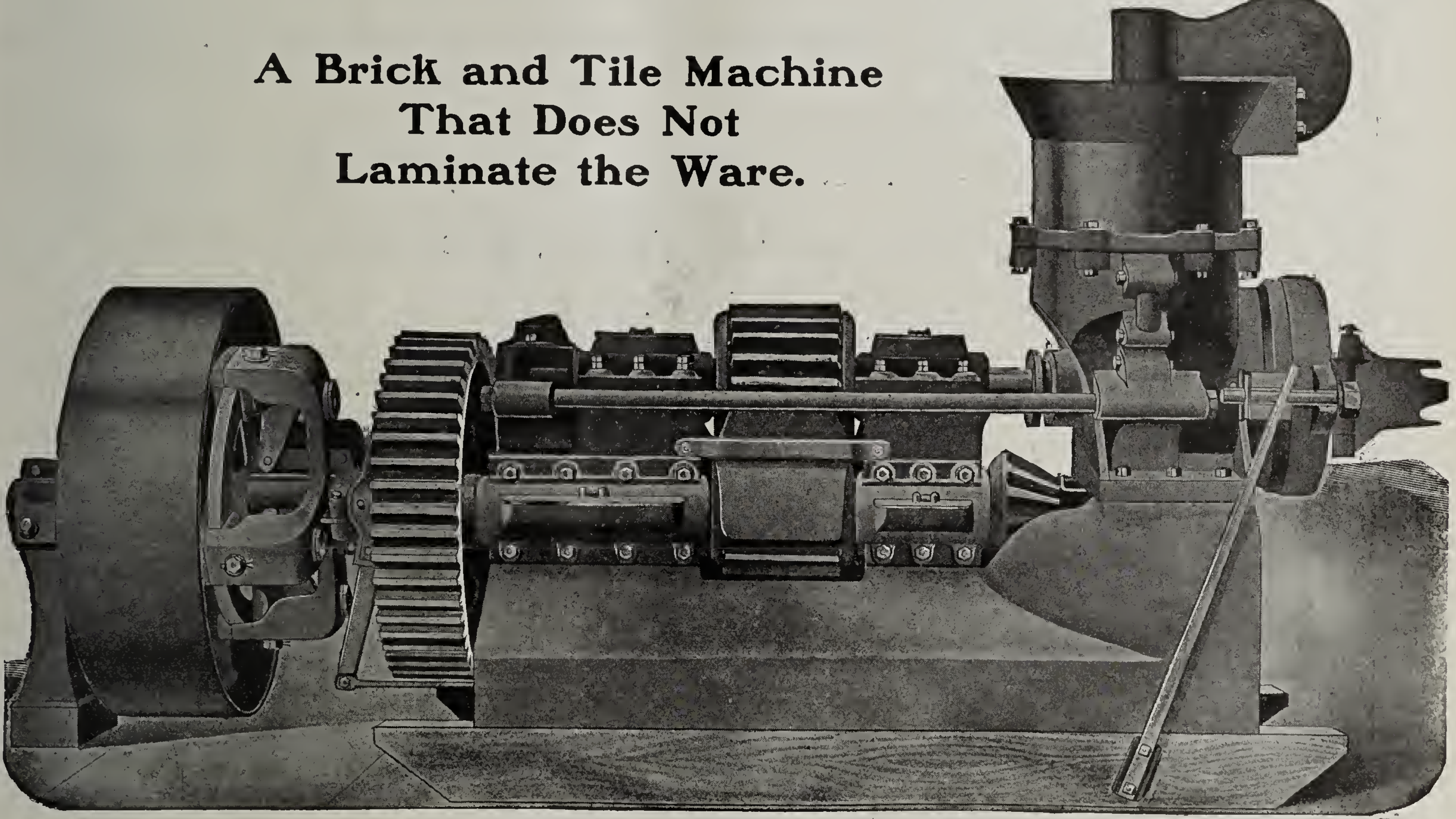
## With The Wonder Machine.

---

**A Machine of Large Capacity. Unequaled in Record of Durability.**

---

**A Brick and Tile Machine**
**That Does Not**
**Laminate the Ware.**



The Big Wonder Brick and Tile Machine

**We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.**

*Write for Catalog and Prices.*

# THE WALLACE MFG. CO.

**FRANKFORT, IND.**

# TAKE A TIP FROM BILLY.

Billy doesn't try to drive people into heaven over the Methodist road, the Baptist pike, or the Catholic highway. He tells 'em to get there by any route they chose, so they get there.

Billy believes in saving souls, not in making Presbyterians, Universalists or Episcopalians.

That is the S-A-F-E method of making Fire-Safe converts.

It is not a question of selling stone, or cement, or brick or tile. It is simply a matter of building SAFE.

There is a place for every good fire-resisting material. We don't try to cram any one kind of stuff down a man's throat; but we try to show him that he can't afford to "build to burn."

Nothing has ever been accomplished by the old one-horse method. Hook up all the good, safe materials together and it makes a pulling power that can not fail.

That's the S-A-F-E way. Get the combination to the SAFE—there's money in it for you.

## THE SAFE

**Society Advocating Fire Elimination**

R. P. Stoddard, Secretary

356 Leader-News Building CLEVELAND, OHIO

# The Verdict–Guilty!

We have been accused, after having placed the Powell Patented Shale and Clay Planer on the market for over one year, of giving the Clayworking Industry, one of the greatest helps that it has ever had, the ARBUCKLE up-to-date line of Paving Block, Stiff Mud Brick and Hollow Ware Machinery, as well as supplies of all kinds for the clayworker, not being excepted.

The Patented Shale and Clay Planer reduces the pit gang like a German 42 centimeter gun would reduce a Belgium fort. That is, it leaves only one man who is necessary to operate the machine.

It also reduces the number of Dry Pans ½ to ⅔.

It saves all explosives.

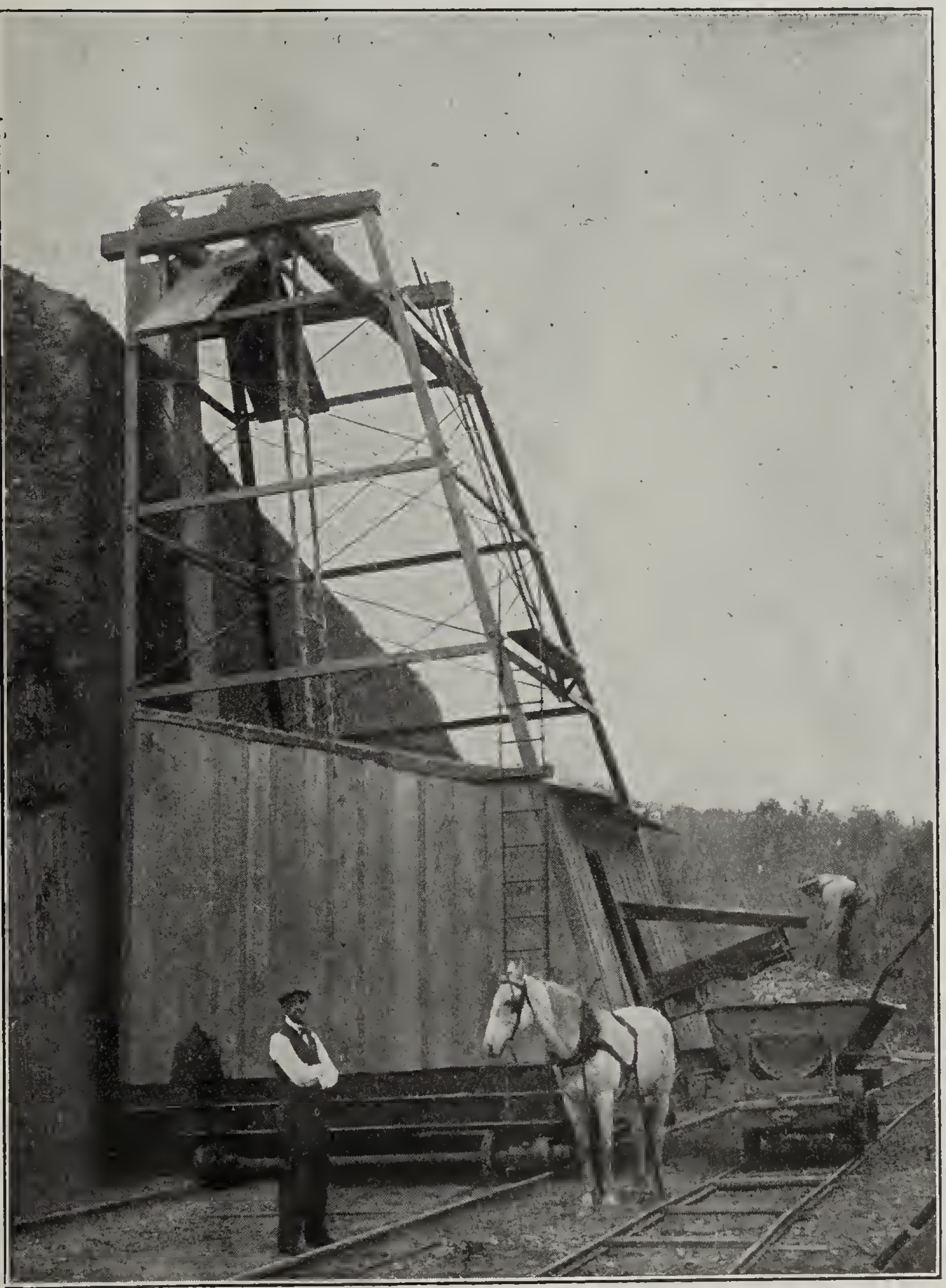
**Above all**, it gives a thorough mixture of the Bank face, cut up into fine pieces.

No Labor Troubles with the Shale and Clay Planer, which is ready to work at any season of the year.

Built in sizes to handle your proposition from a two-foot surface clay bank to a hard shale bank 100 feet high.

When writing state approximate height of bank and also composition of same.

**KNOW THE ARBUCKLE FIRST**



## ARBUCKLE & COMPANY

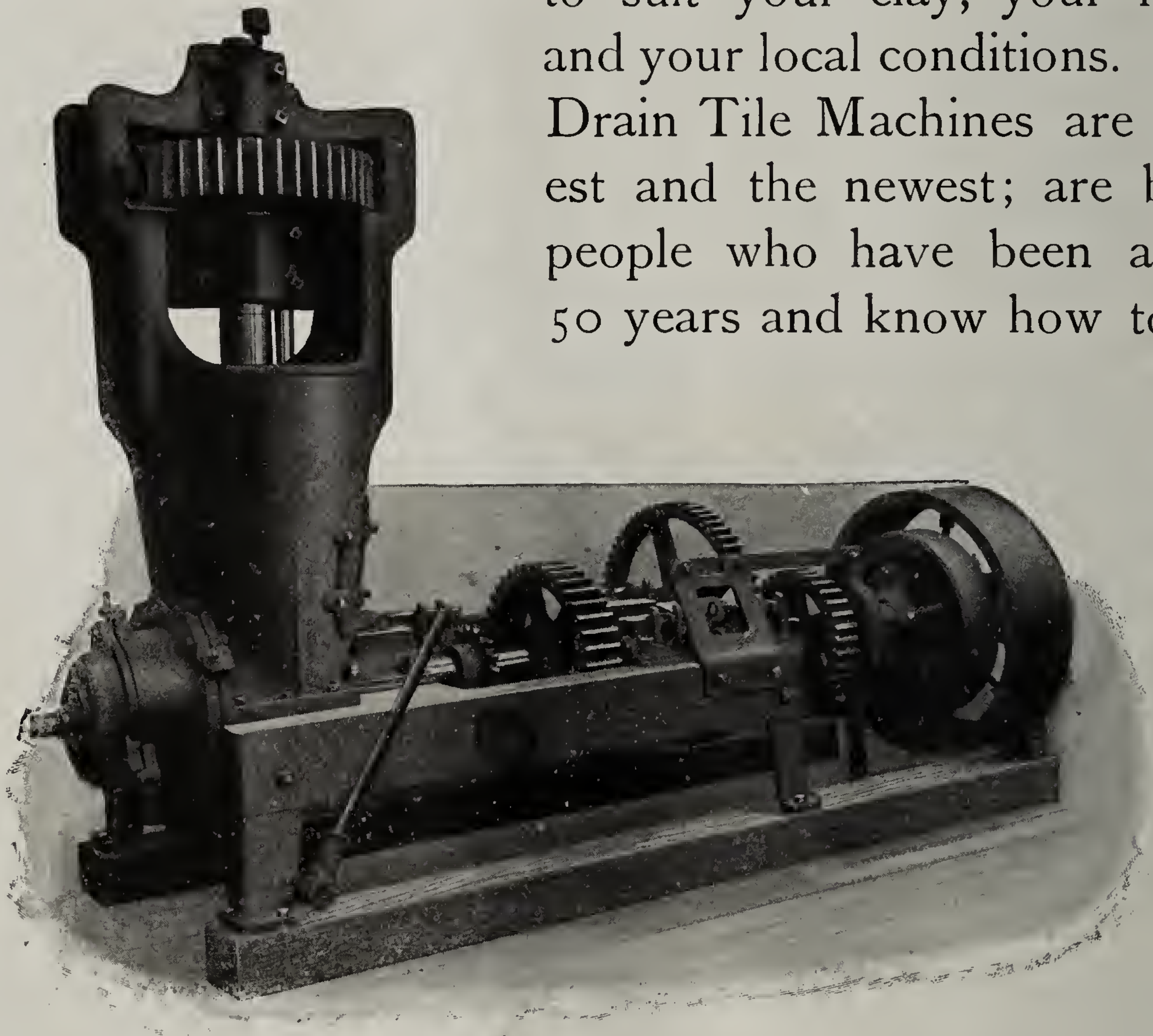
**Exclusive Manufacturers**

RUSHVILLE, INDIANA = = U. S. A.

Infringements will be promptly and vigorously prosecuted.

# DRAIN TILE MACHINES

We build and guarantee both upright and horizontal patterns in several sizes, and can furnish you with just the proper machine to suit your clay, your methods and your local conditions. Brewer Drain Tile Machines are the oldest and the newest; are built by people who have been at it for 50 years and know how to do it.



We also build Horizontal Brick Machines, Automatic Cutters, Crushers, Pug Mills, Feeders, Dry Pans and a full line of stiff-mud machines.

*ASK FOR COMPLETE CATALOG.*

**H. BREWER & COMPANY, Tecumseh, Mich.**

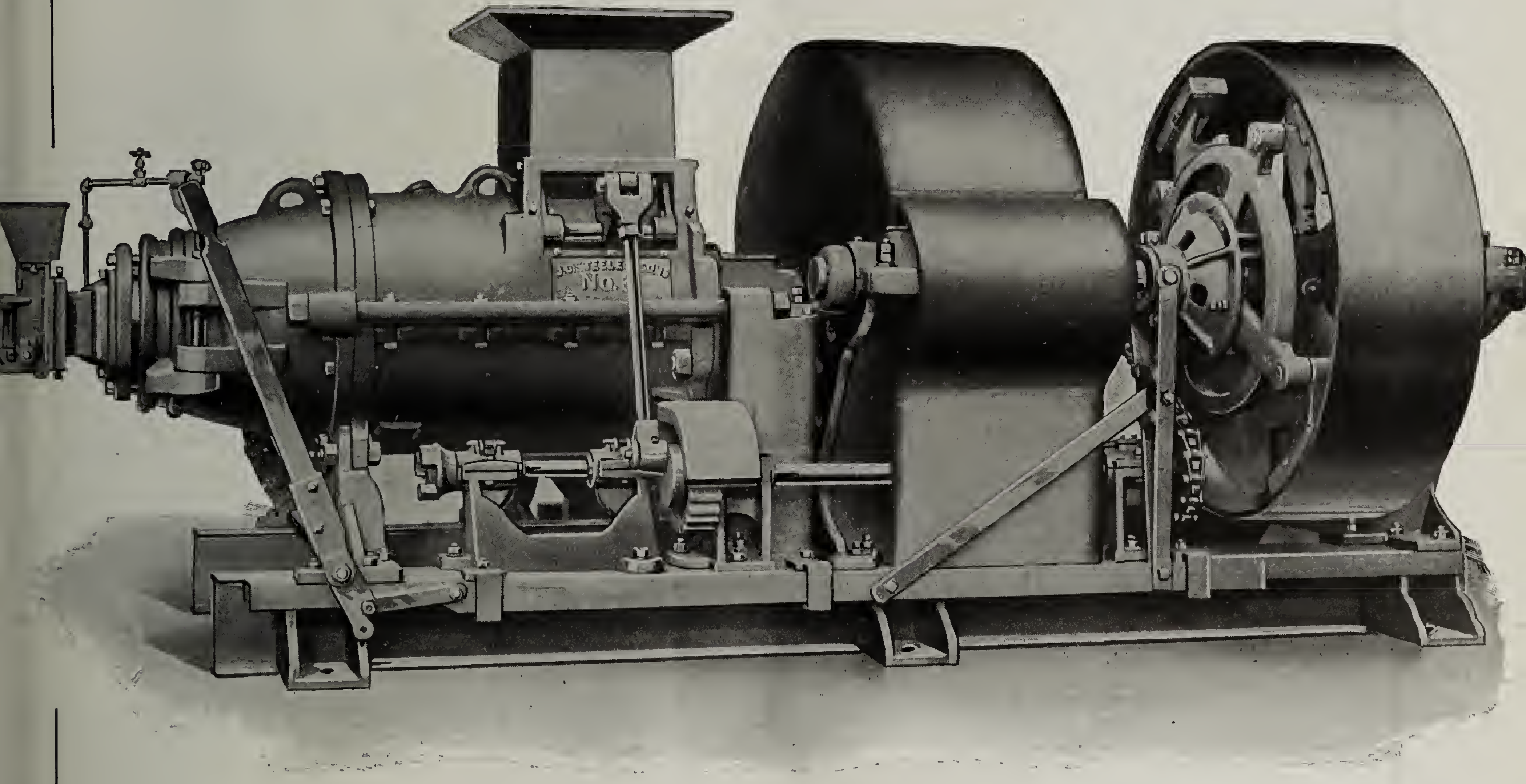
# THE STEELE CLAY MACHINERY

## Is the Result of Over Twenty-five Years of Team Work

The combined and continuous effort of our Organization in meeting the complex problems of working a great variety of material, from very short sandy clays to the most obstinate clays and shales, is producing most satisfactory results.

In many cases the superior quality of goods produced by our customers has caused the adoption of our machinery by competitors.

Experienced service and fair treatment is continually widening our field.



**J. C. STEELE & SONS**

STATESVILLE, N. C.

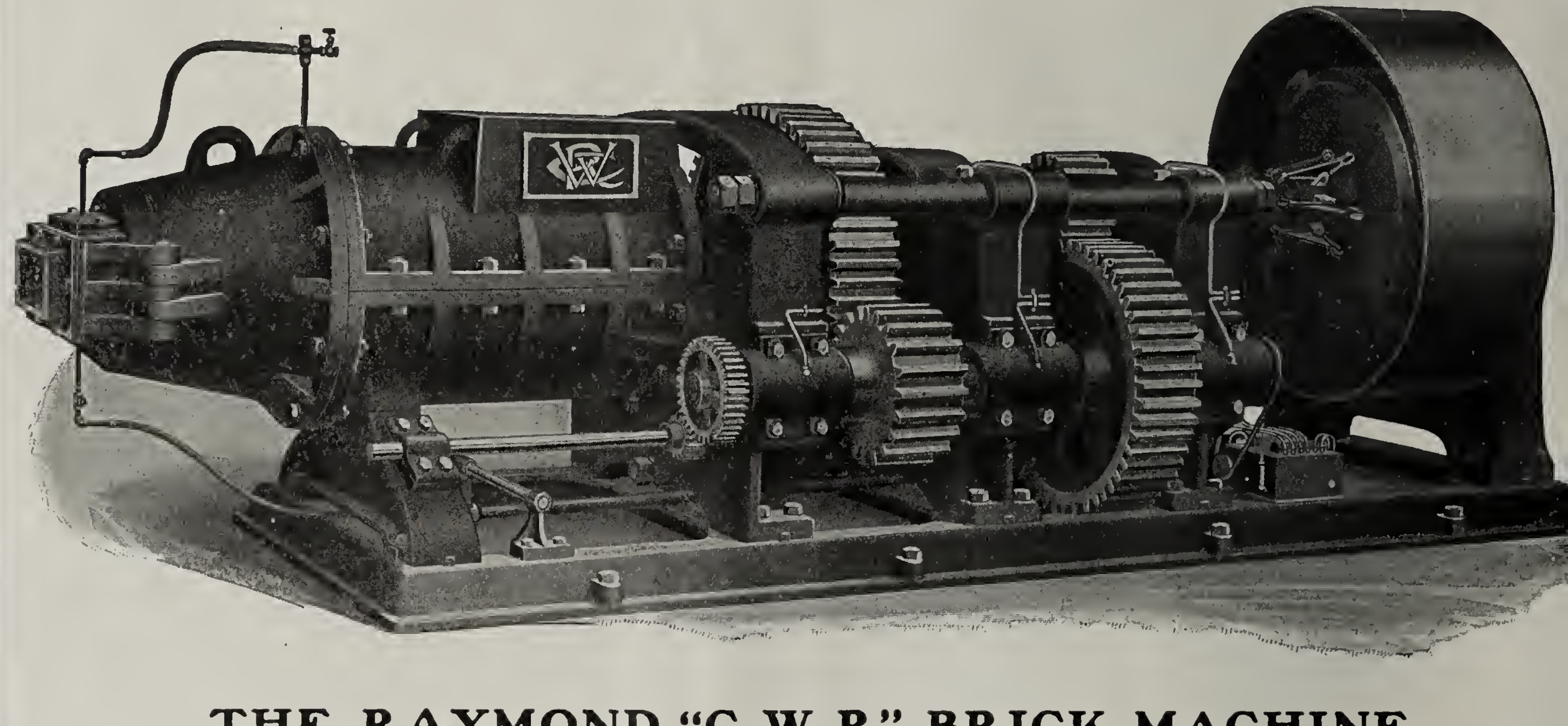
GEO. H. SMITH, KANSAS CITY, MO., Western Agent

# WHY THERE IS A "C W R"

Various clayworkers asked us for a machine of greater capacity, but for one that would not consume the profits in upkeep and repairs, and one that would not always be in need of attention. We got busy, carefully studied their wants, and put out the most wonderful machine in existence—the "C W R."

Truly this is a wonderful machine in more ways than those spoken of. First, greater capacity, without the usual vibration and noise. The machine being built of solid iron and steel, mounted on channel steel skids, reduces vibration until it isn't. Surplus weight, more than generous shafting and bearings, steel cut gears, and the newest friction clutch pulley, speak for the increased output, without the increased current used. It is built for service, and it surely gives it better than even we expected. Once started it requires nothing more than to be fed continuously with clay and it does the rest. Oiling system supplies the bearings and shafting so that no worry is to be had on that account.

Summing up, we do not see how you can afford to overlook this machine. It simply cannot be beat! Let's hear from you right away. We're waiting.



**THE RAYMOND "C W R" BRICK MACHINE**

## The C. W. Raymond Company

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

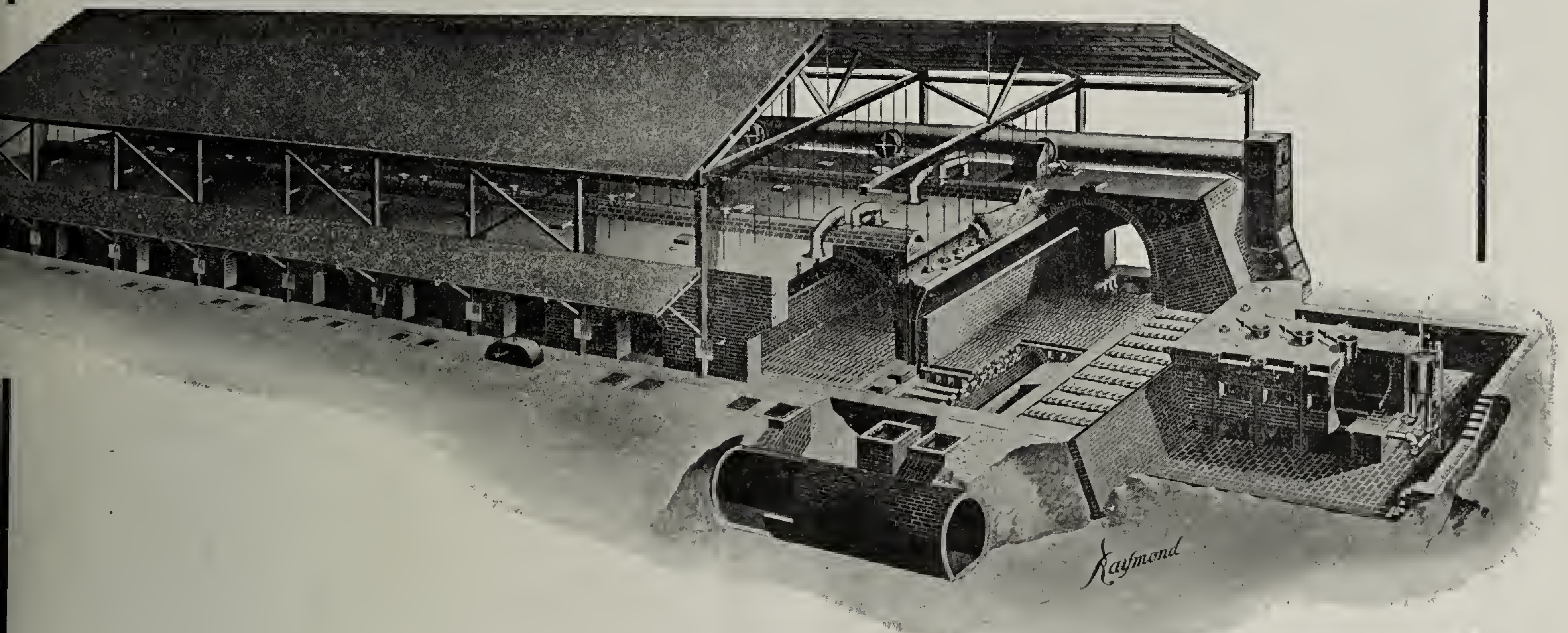
# MOST IMPORTANT OF ALL

What do you consider to be the most important piece of equipment in regard to the quality of your finished product? We think (and you will agree with us before you finish reading this) that the Kiln plays the leading role in the plant. Here's why.

What is it that makes your ware serviceable? What keeps it in shape so that it will not turn again to the condition it was in before running through the various machines? What causes it to withstand the elements without deterioration? And what increases your sales quickest?

The Kiln is the answer to all those questions. Doesn't the kiln bake the clay to the point where it will stand usage, time and what not?

Of course, only the use of the best Kiln will bring results, and here's where we come in. Our Kiln will surprise you, and agreeably, too. It uses but half the fuel you now use, concentrates the coal at one place only, burns better and quicker than any other, and will "bring home the bacon" in large chunks. Isn't it worth while to send for fuller description NOW?



**The Raymond Producer Gas Fired Continuous Kiln**

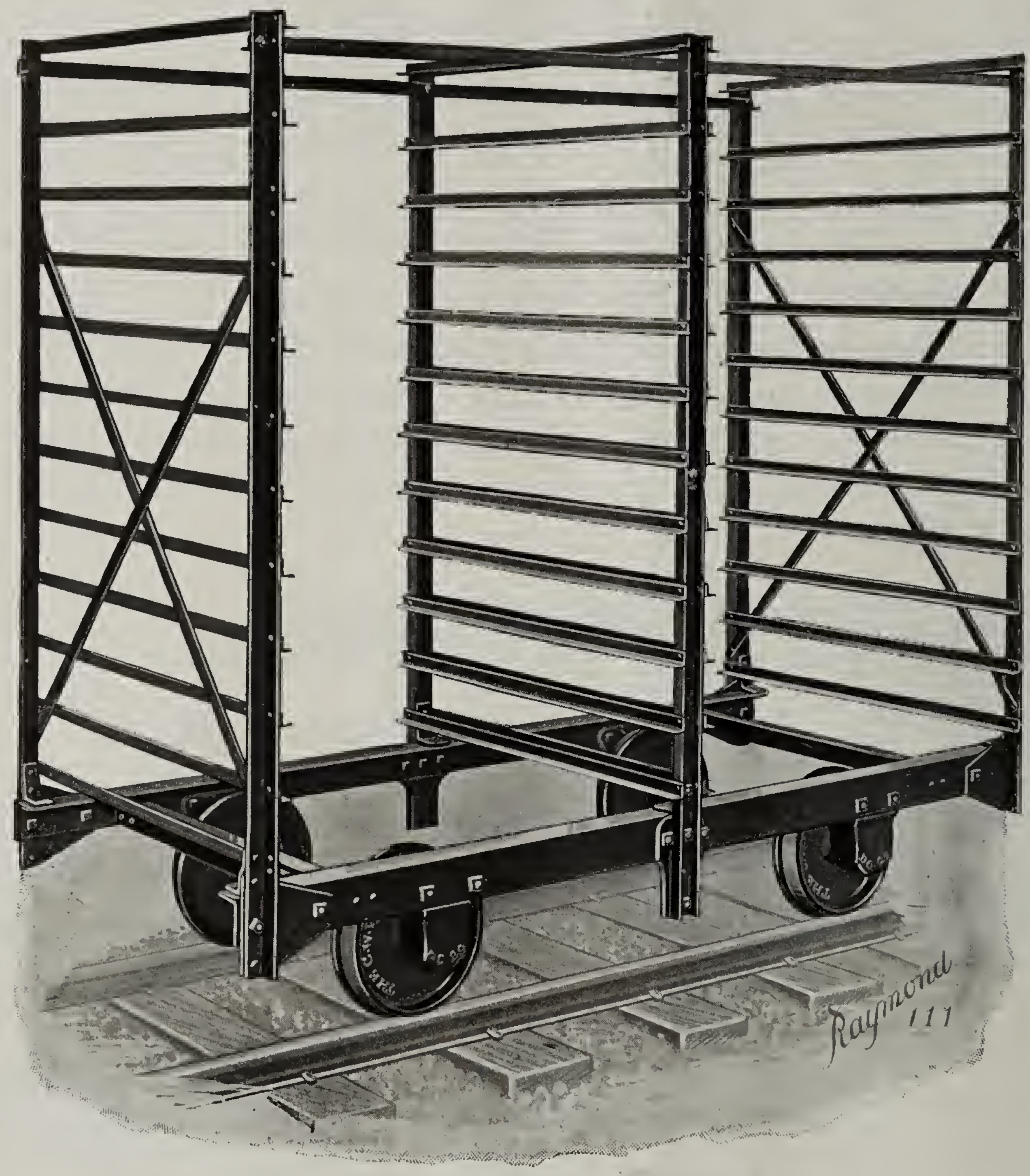
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# A SURE SIGN OF SPRING

Is the "coming out parties" of all kinds of "Cars," automobiles, railroad excursions and many things like that. And the Brickmen have their kind of Cars to get out—Dryer Cars. Perhaps, if you've been running your plant all through the winter, your Cars are about "all in." Then you must get more. While you get busy with catalogs, don't overlook ours. Our Cars are better than ever, and that's saying a lot. We've added many improvements not shown in the catalog, such as new boxes, with roller bushed bearings, on all cars. On Car "F," here shown, the twelve tiers have been strengthened and braced so that vibration is practically "nil." The gusset plates are reversed.



**Car "F'**

The Car as a whole passes anything like it on wheels, and taken part by part, makes others look like common foundry "scrap."

For full information concerning all kinds of cars, write immediately to

## The C. W. Raymond Company

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

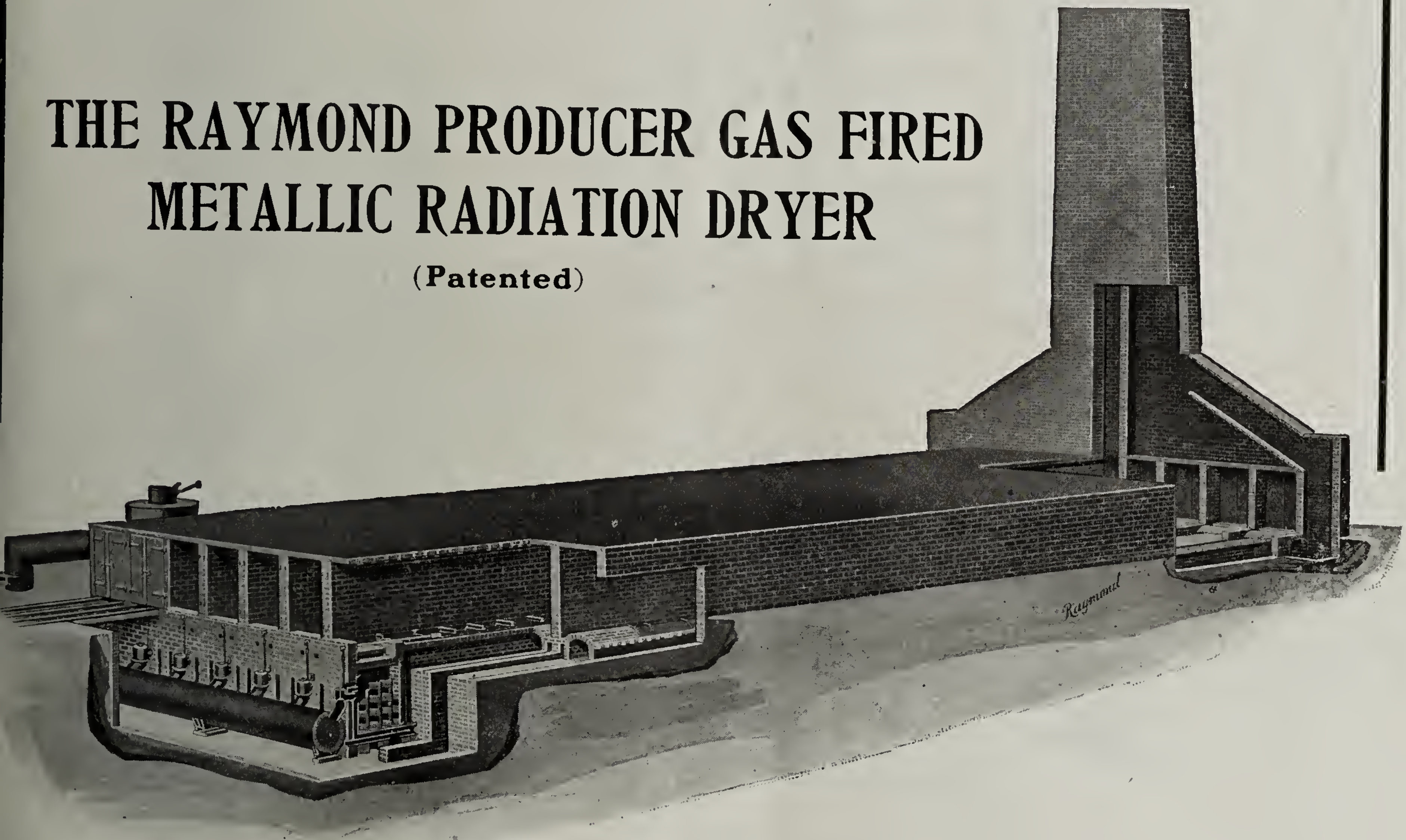
# FOR EVERY ALERT CLAYWORKER

Whether or not you are contemplating the purchase of a new Dryer, it will do no harm to investigate ours. It has been proven to be the most economical means of drying clay ware, whether the clay be tough or tender. That in itself is sufficient to prove it's superiority over any other, but there are more good things that we might mention. For instance, the "Radiated Heat" which allows no outside air to touch the ware. The temperature is also under the control of the operator at all times. Uniform heat, from the best heat radiating materials, the use of one or all of the tunnels; perfectly dried ware; no waste and the fuel bills cut more than half.

These are but part of the advantages of our Dryer. Write now, whether interested or not. If you are **not,** we'll wager you soon will be when you understand the merits of this system.

## THE RAYMOND PRODUCER GAS FIRED METALLIC RADIATION DRYER

(Patented)



**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

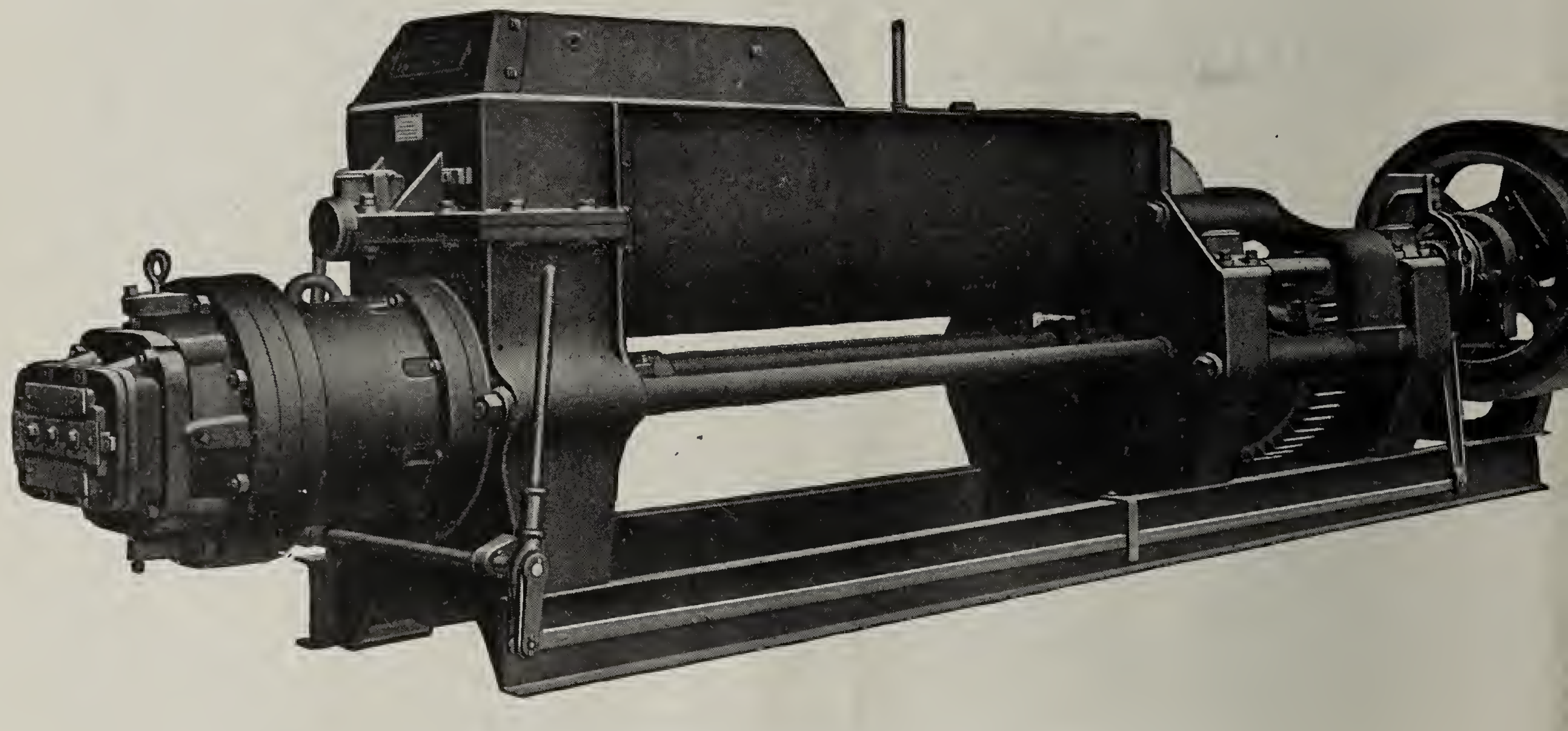
**Dayton Ohio U. S. A.**

# BACK PRESSURE

Few clayworkers entering the hollow-ware field realize the unusually heavy back pressure caused by forcing clay around cores and core-bridges, and through comparatively small openings in the die. This backward thrust is placed upon the thrust bearing on the auger shaft—one of the most important points of a hollow-ware machine.

Each Freese Hollow-ware Machine is equipped with a specially designed renewable multiple-contact bearing, distributing the pressure over a large area but at the same time having only about half the circumferential speed of a single contact bearing with the same area. The tendency of these bearings to heat under pressure is thus reduced to a minimum—a feature you will fully appreciate **after** you have entered the field.

The Freese system of slow-running gearing, and the positive forced feed obtainable with a machine of this design are two other features that mean much to the hollow-ware manufacturer.



UNION HOLLOW=WARE MACHINE

A complete line of automatic and hand power hollow-ware cutters.

---

**E. M. FREESE & COMPANY, 140 South St., Galion, Ohio**

**Dependable Machinery of Proven Efficiency**

Mention The Clay-Worker.

For
Sixty-Three
Years
The Name

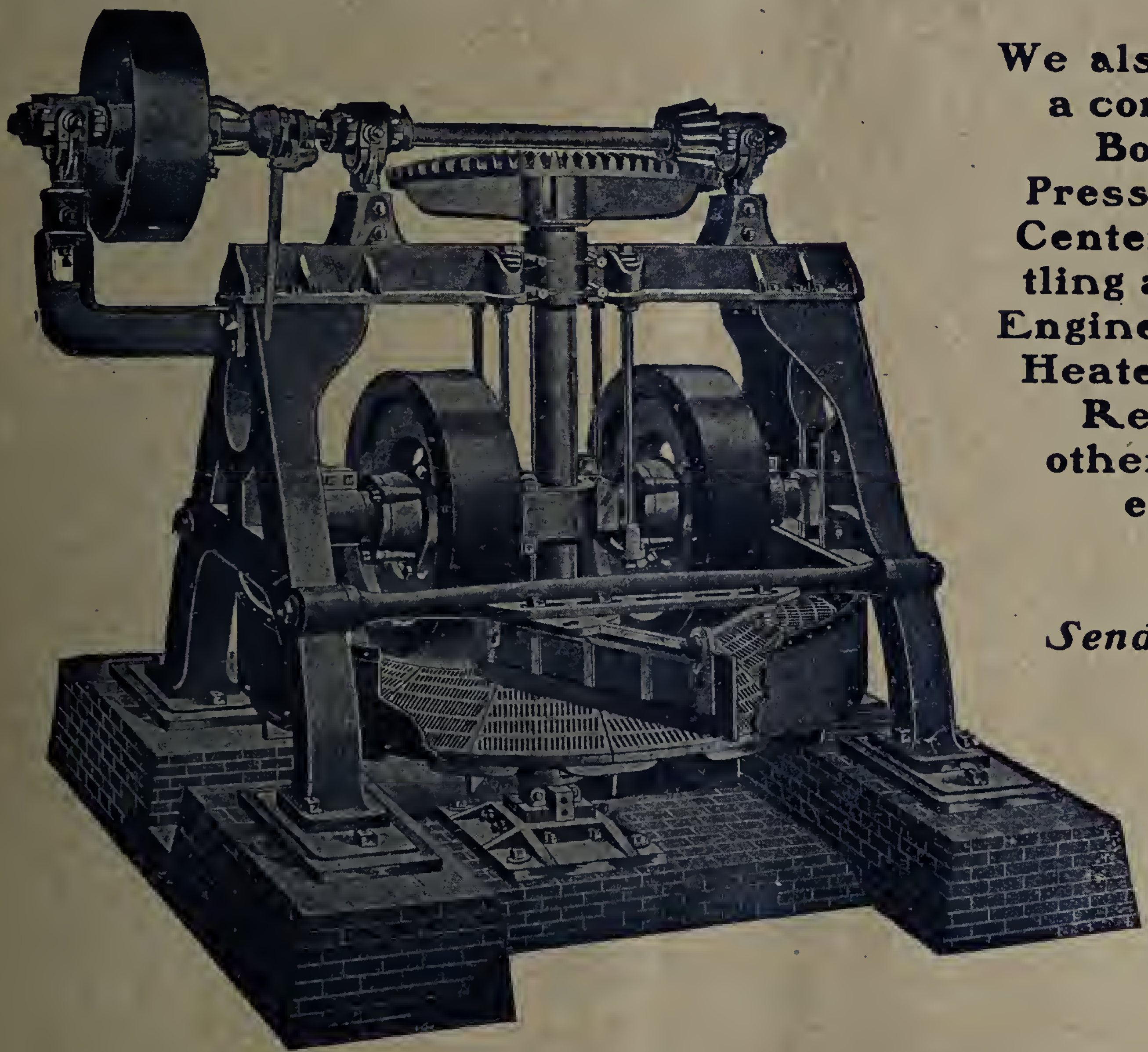
# Frost

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

**There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.**

**WHY! Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.**



**We also manufacture a complete line of Boilers for all Pressures, Side and Center Crank Throttling and Automatic Engines, Feed Water Heaters, Tanks, Air Receivers and other power plant equipment.**

---

***Send for Bulletins.***

## The Frost Manufacturing Co.

Works at
GALESBURG, ILL.

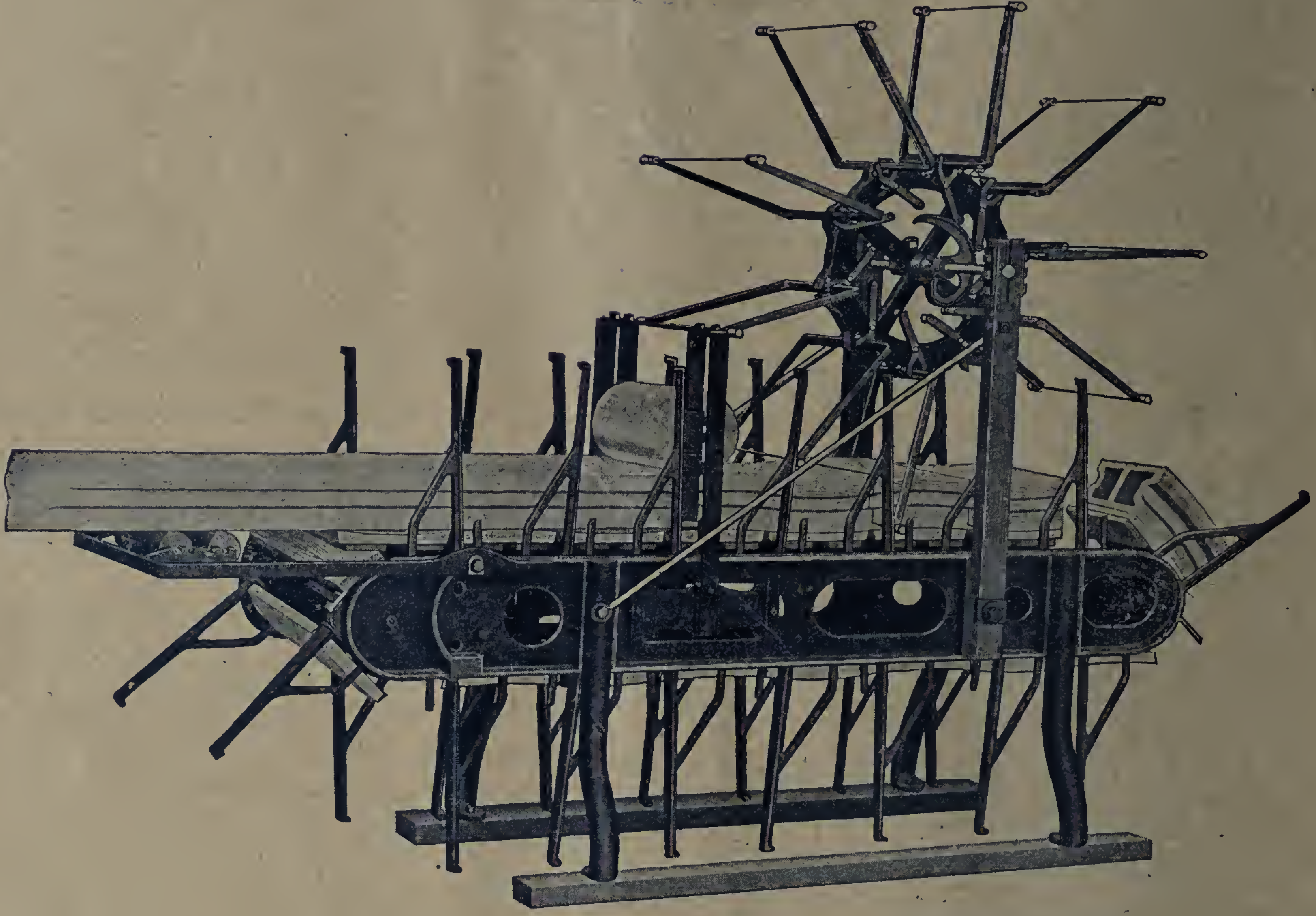
Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

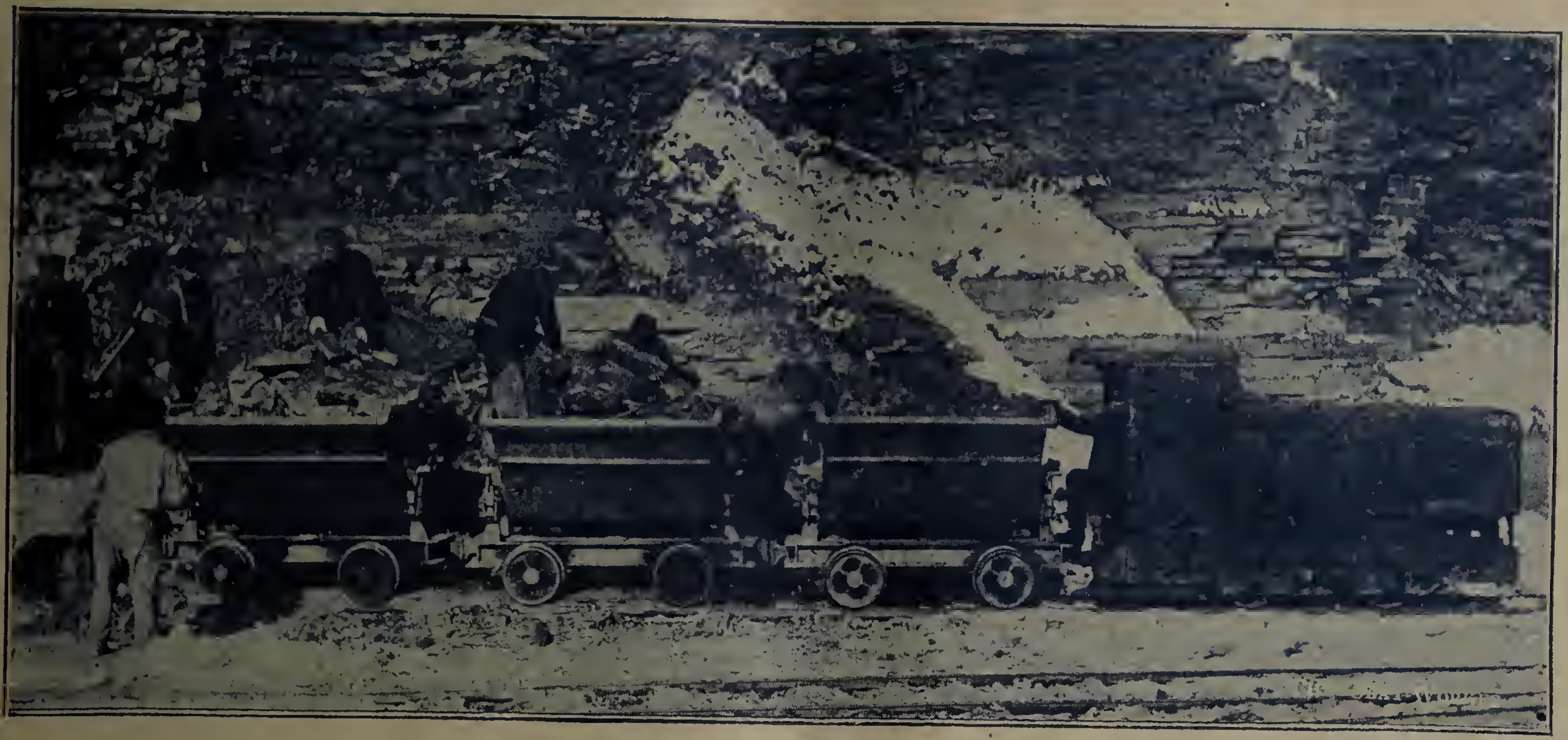
After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

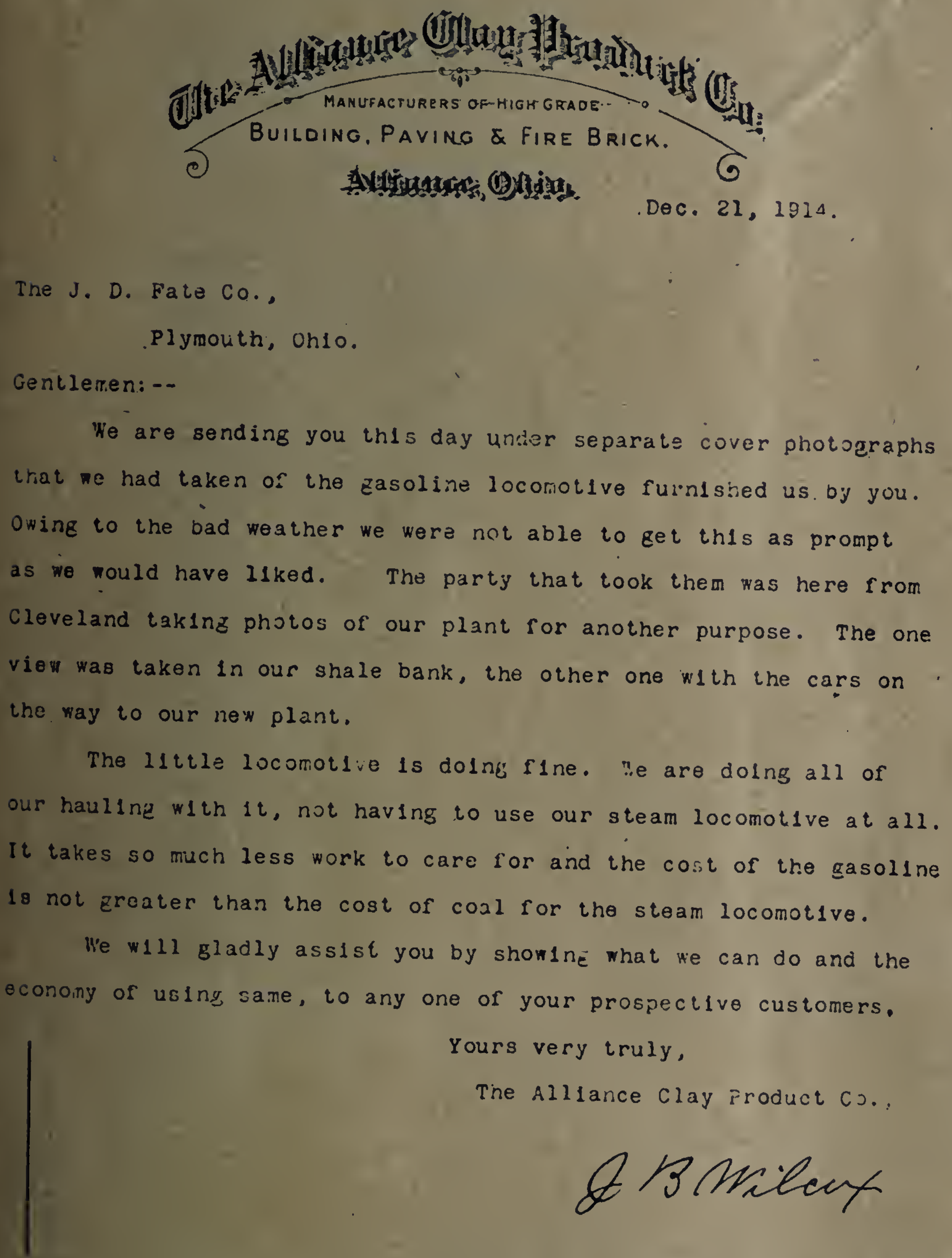
## The J. D. Fate Company

Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O.



The Alliance Clay Product Co.
Manufacturers of High Grade
Building, Paving & Fire Brick.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
Plymouth, Ohio.

Gentlemen:--

We are sending you this day under separate cover photographs that we had taken of the gasoline locomotive furnished us by you. Owing to the bad weather we were not able to get this as prompt as we would have liked. The party that took them was here from Cleveland taking photos of our plant for another purpose. The one view was taken in our shale bank, the other one with the cars on the way to our new plant.

The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers.

Yours very truly,
The Alliance Clay Product Co.,
J B Wilcox

# The "PLYMOUTH" is the IDEAL HAULAGE for CLAY PLANTS.

Efficient, Economical to Operate, Low in Price and Low in Upkeep.

Any Speed—Forward or Backward—Power Equal in Both Directions.

No Licensed Engineer Required.

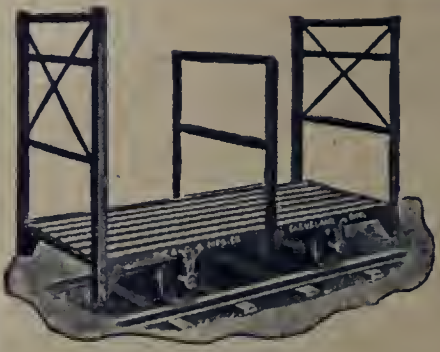
Eats Only When it Works.

Continental 4-Cylinder Motor, Bosch High Tension Magneto, Schebler Carburetor, Hyatt Roller and New Departure Ball Bearings—Power, Brakes and Sand on all 4 wheels, and all parts very accessible. Any Gauge, 20-inch to Standard.

Let us tell you more about them, and how an 8-year old boy operates one in a clay plant at Morrisonville, Ill.

## The J. D. FATE CO.

Eastern Office, Woolworth Bldg., New York City
Western Office, Blake-McFall Bldg., Portland, Ore.



**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

## REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives

Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

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# BAIRD
## POT MOLDING MACHINERY

We specialize
Machines
for the
Manufacture
of Pottery
and Guarantee
Every One We Sell

*Write us for information*

**Baird**
**Machine & Mfg. Co.**
54-56 Jefferson Ave.
Detroit, Mich.

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With Chase Flexible and Reversible Bearing and Folding Deck.

**Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.**

**The Chase Foundry & Mfg. Co., Columbus, O.**

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# "LAKEWOOD LINE CARS"

LAKEWOOD NO. 166

**Dryer Cars**
**Rack Cars**
**Dump Cars**

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
Cleveland, Ohio

Chicago: 555 W. Quincy St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802
Baltimore: Munsey Bldg. Kansas City: N. Y. Life Bldg.

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JUNE, 1915

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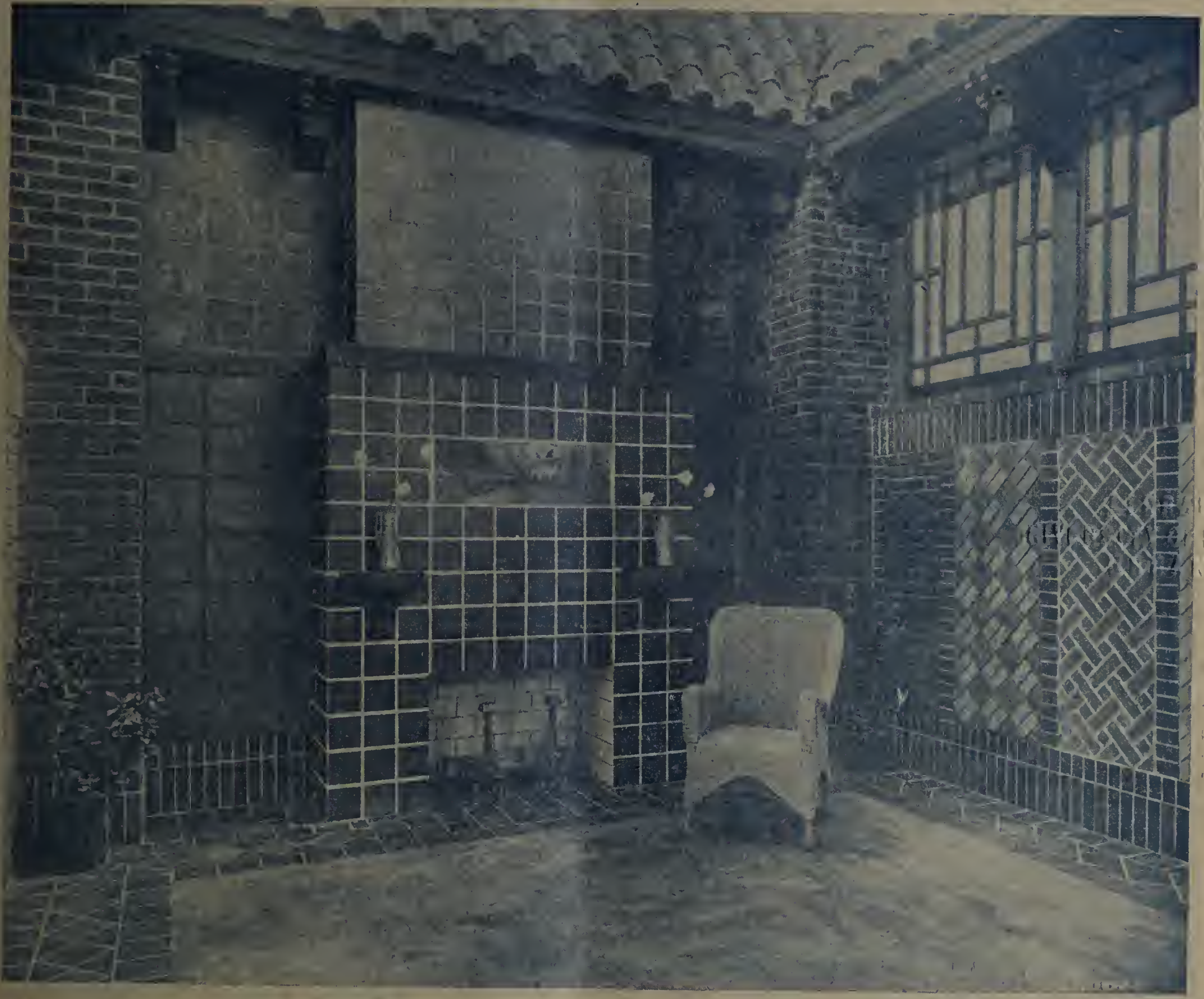
# THE CLAY-WORKER



A Cosy Corner in the Exhibit of the Los Angeles Pressed Brick Co.. Panama-Pacific Exposition, San Francisco. See page 755.

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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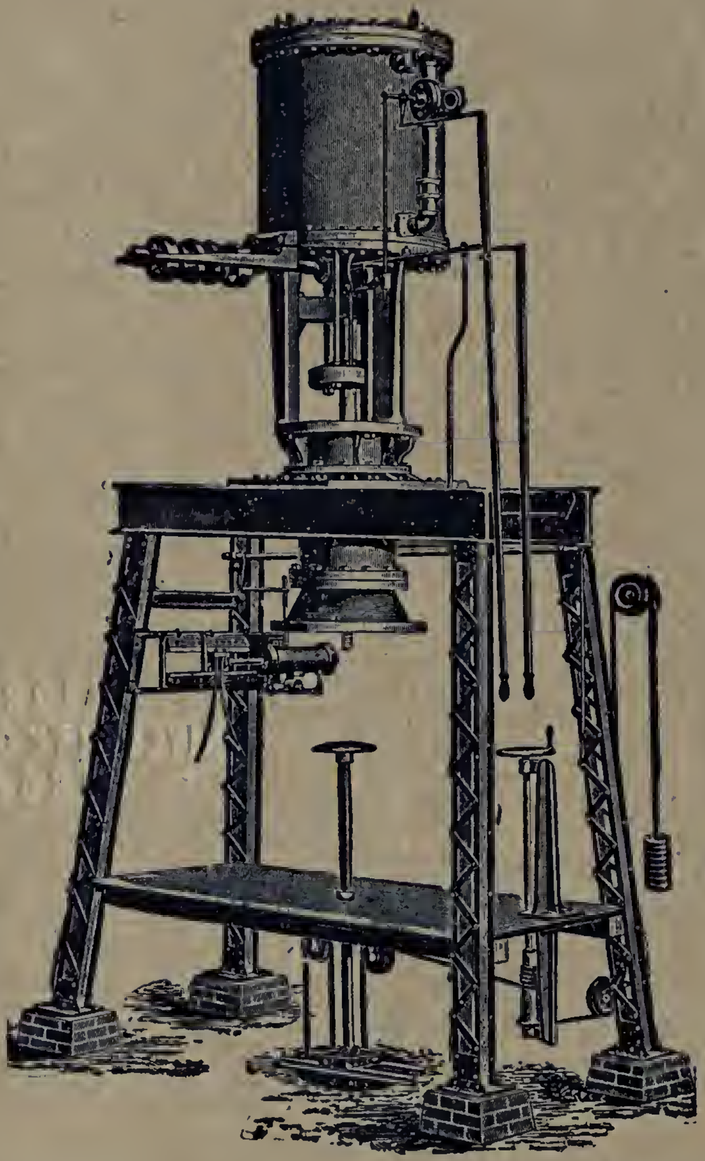
BUYERS' READY REFERENCE LIST
Pages 735, 737, 739 and 741

INDEX TO ADS
Page 815

Ask for a Sewer Pipe Press, Dry or Wet Pan, or other Clayworking Machinery, and there is NO TELLING WHAT YOU WILL GET.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

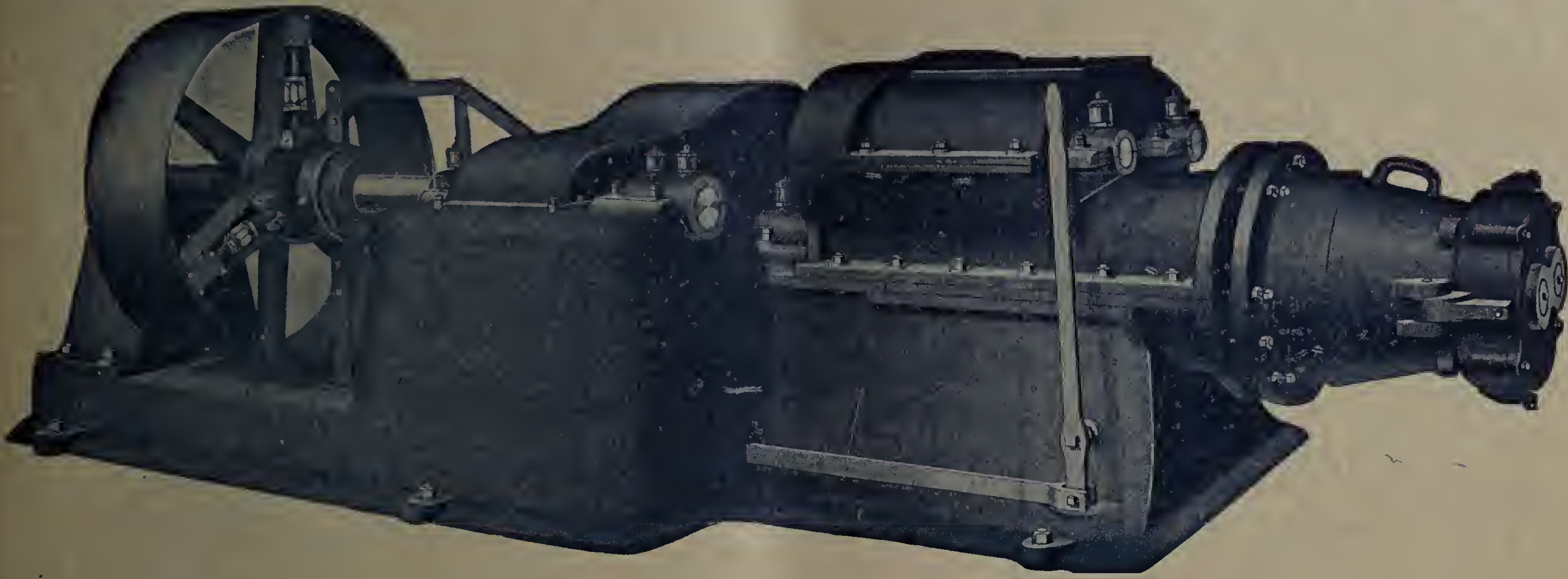
**THE TAPLIN, RICE-CLERKIN CO.**

**Akron, Ohio**

The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

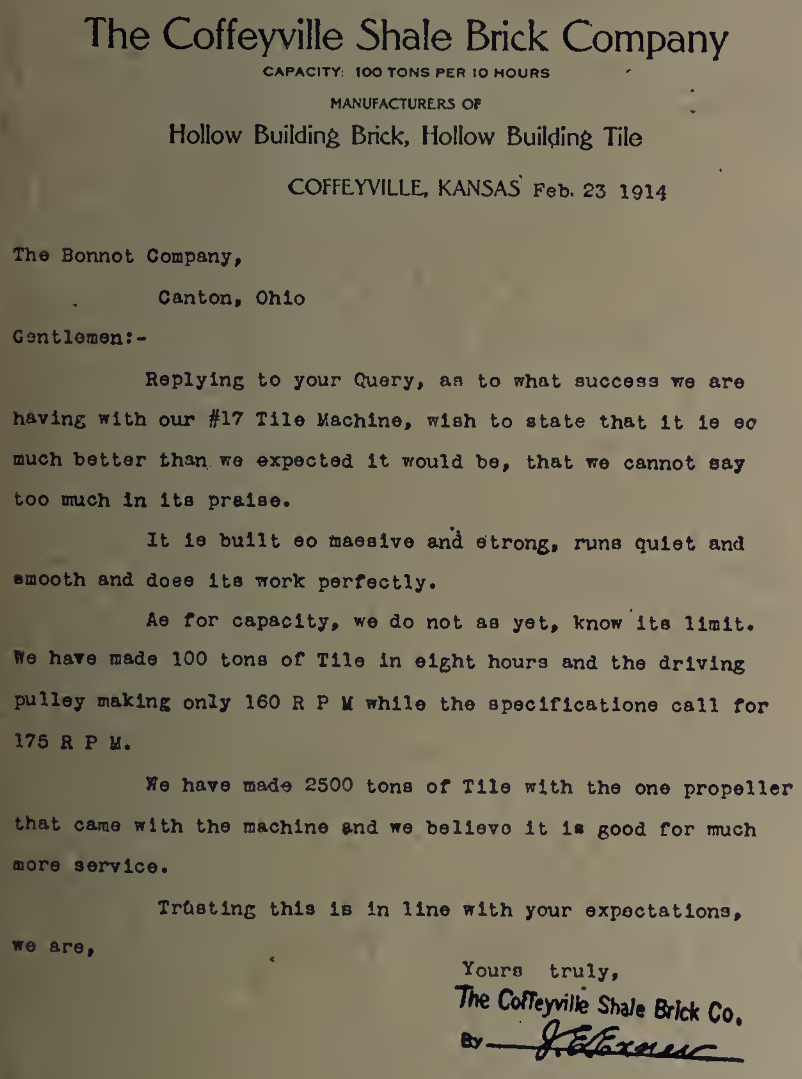
CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

# MAKING HOLLOWWARE FOR PROFIT



## Bonnot No. 17 Hollowware Machine.

Hollowware is made most successfully on a machine built especially for that purpose. The No. 17 is just such a special machine, and it combines also the very best in design and construction from the standpoint of durability and output.



The Coffeyville Shale Brick Company
CAPACITY: 100 TONS PER 10 HOURS
MANUFACTURERS OF
Hollow Building Brick, Hollow Building Tile
COFFEYVILLE, KANSAS Feb. 23 1914

The Bonnot Company,
Canton, Ohio

Gentlemen:-

Replying to your Query, as to what success we are having with our #17 Tile Machine, wish to state that it is so much better than we expected it would be, that we cannot say too much in its praise.

It is built so massive and strong, runs quiet and smooth and does its work perfectly.

As for capacity, we do not as yet, know its limit. We have made 100 tons of Tile in eight hours and the driving pulley making only 160 R P M while the specifications call for 175 R P M.

We have made 2500 tons of Tile with the one propeller that came with the machine and we believe it is good for much more service.

Trusting this is in line with your expectations, we are,

Yours truly,
The Coffeyville Shale Brick Co.
By

# THE BONNOT CO.

## Canton, Ohio

**Branches**

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| 211 Higgins Bldg. | LOS ANGELES, CAL. |

(Sign and mail this coupon)

..............................1915

THE BONNOT CO.
Canton.

Please send me specifications and full information on No. 17 Hollowware machine.

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(Signed)

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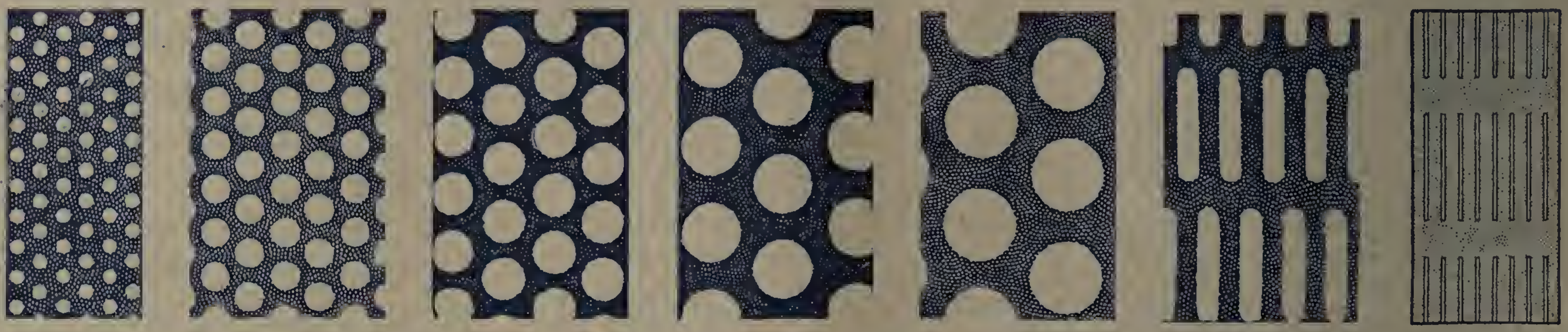
# PERFORATED STEEL SCREENS

## FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

**Anything You Want in Perforated Metal.**



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

# These Men Used to Spend Half Their Time Pushing Empty Wheelbarrows

**The other half was the only part of a day's work that was productive. But the boss had to pay the same price for the empty barrows that he did for the full ones.**

Now the men find their work easy and pleasant, and they are making more money because the boss is more prosperous.

Send for detailed information and illustrated catalog.

## This Gravity Conveyer Solves the Brick-Handling Problem

The Mathews Patented Gravity Brick Conveyer is old enough to be well established, but still young enough to be a novelty to those who have never seen it in operation. In another year or two it will be the only method used for handling brick quickly and economically.

**Mathews Gravity Carrier Co.**

BRANCH OFFICES
IN ALL LEADING AMERICAN CITIES

Main Office and Factory ELLWOOD CITY, PA.
Branch Factories:- TORONTO, ONT. LONDON, ENG.

RODGERS FOR DRYERS RODGERS RODGERS FOR DRYERS

# PLANTS

of all varieties require care.

Neglect them and they soon show the lack of attention.

Plants will not thrive unless given consideration, particularly as to temperature and moisture. **BRICK PLANTS** are no exception. The clay may be all that it should be to insure successful growth of the plant, but each plant must be given individual attention, as to temperature and moisture, if the **BRICK PLANT** is to thrive and develop salable brick.

## RODGERS WASTE HEAT DRYERS

are designed and built to care for individual plant conditions.

## RODGERS DRYER PLANTS ARE THRIFTY

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## L. E. RODGERS ENGINEERING CO.

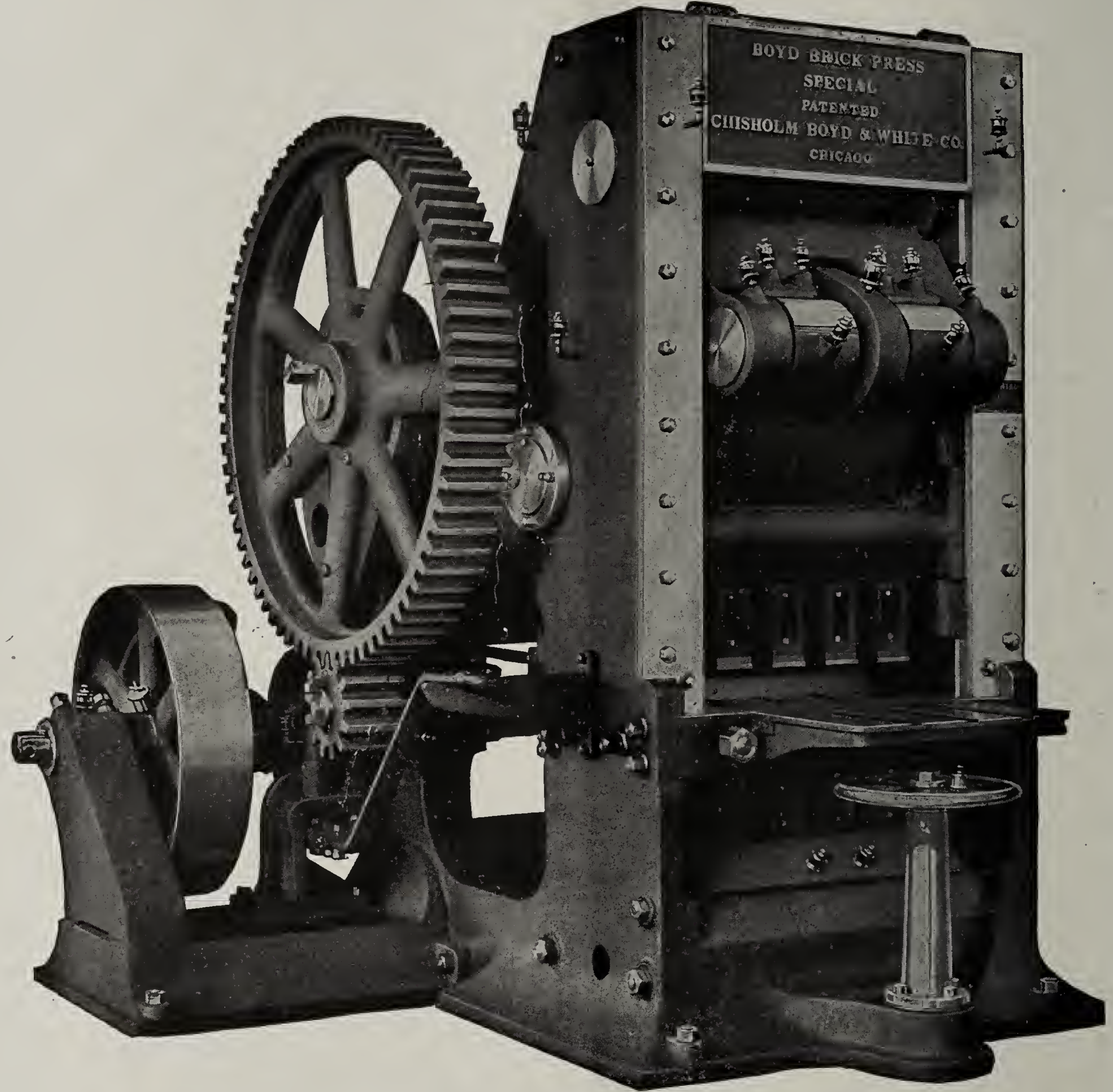
**Waste Heat Dryer Specialists**
**Brick Works Engineers**

**Largest Manufacturers of Brick Drying Equipment in the United States**
**30 North LaSalle St. .:. .:. CHICAGO**

RODGERS FOR DRYERS RODGERS RODGERS FOR DRYERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED=PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

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To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

### Ammeters.
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### Analysists and Chemists.
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Automatic Clay Bin Emptier.
Fate Co., The J. D.
Raymond Co., The C. W.

### . Automatic Cutting Tables.
(See Cutting Tables.)

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H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
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Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Barytes, Carbonate of
Roessler-Hasslacher Chem. Co.

### Bearings, Roller.
(See Supplies.)

### Belting.
Gandy Belting Co.
Sawyer Belting Co.

### Belt Conveyors.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Blowers.
American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

### Brick (Building).
Bloomfield Clay Co.
Hydraulic Press Brick Co.
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.
American Clay Machinery Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.

### Brick and Tile Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).
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Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.
Wellington Machine Co.

### Brick Machines (Stiff Mud.)
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Bonnot Co., The
Brewer & Co., The.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press.)
American Clay Machinery Co.
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Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

### Brick Recutter.
Raymond Co., The C. W.

### Brick Setting Machinery.
American Clay Machinery Co.

### Buffing Machinery.
American Clay Machinery Co.

### Burning and Drying Systems.
American Blower Company.
Boss, John C.
Dennis, F. W.
Koch, J. J.
Manufacturers Equipment Co.
National Dry Kiln Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

### Cars.
(See Dryer and Dumping Cars.)

### Castings.
Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.
American Pulverizer Co.
Arbuckle & Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Clays.
Bloomfield Clay Co., The.

### Clay Dryers.
American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Marion Machine, Fdy. & Sup. Co.
Raymond Co., The C. W.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.
Stevenson Co., The.

### Clay Gatherers.
(See Scrapers.)

### Clay Steamers.
Raymond Co., The C. W.

### Clay Technologists.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.
(See Supplies.)

### Coloring Materials.
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.
Orton, Edward, Jr.

### Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick and Tile.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

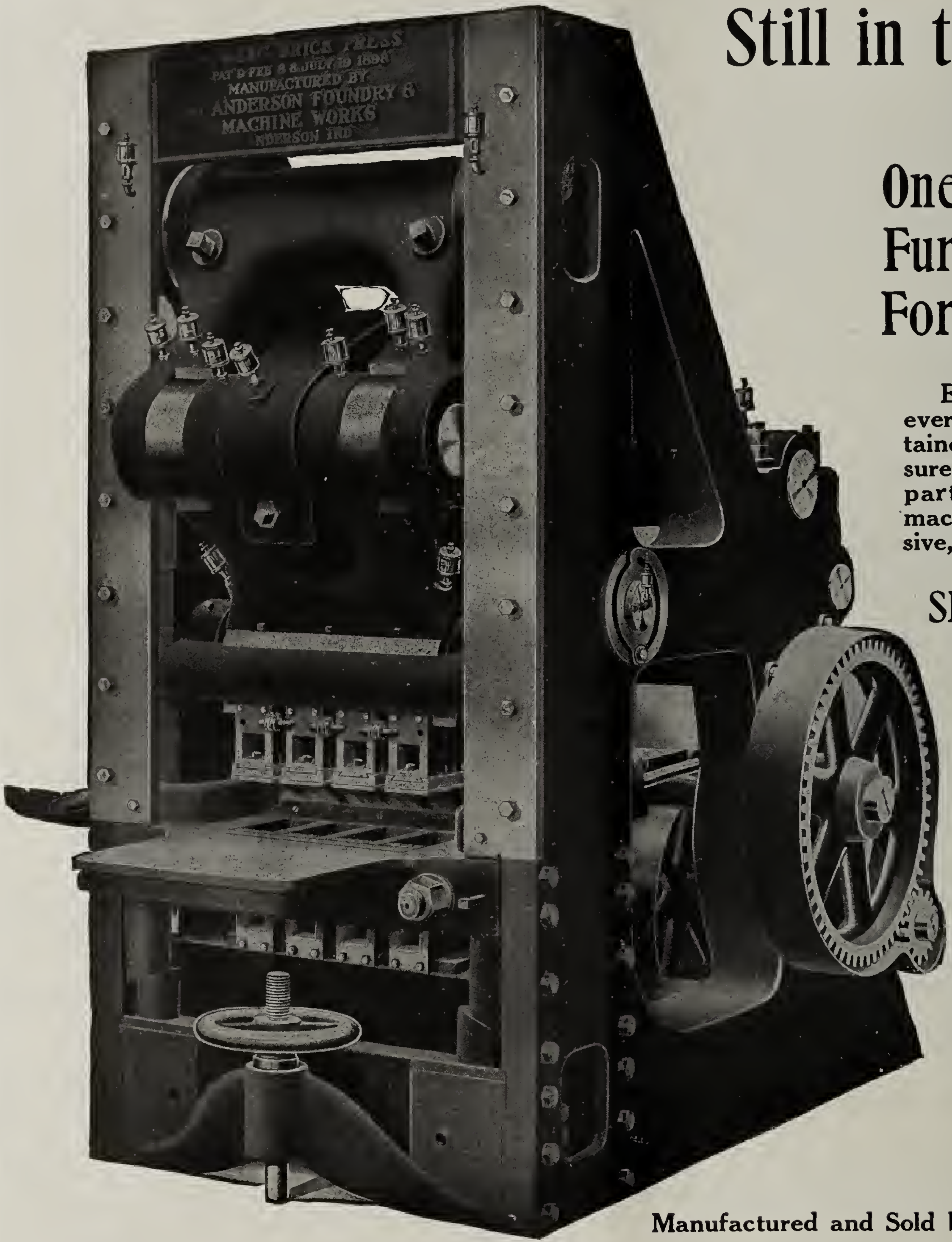
### Dryers.
American Blower Company.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.

(Continued on page 737.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

**SHIPPED IN ONE PIECE.**

**All Machines Are Equipped With**

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

**ANDERSON, IND.**

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Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

**Dry and Wet Pans.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Dump and Clay Cars.**

American Clay Machinery Co.
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Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wellington Machine Co.

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Brown Instrument Co., The.
Thwing Instrument Co.

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Thew Automatic Shovel Co.

**Electrical Furnaces.**

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Richardson-Lovejoy Engr. Co.

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(See Conveyors.)

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Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

**Engineers.**

Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

**Fans.**

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Feed Water Heaters.**

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

**Filler (Paving).**

Barrett Mfg. Co.

**Filter Presses.**

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Fire Brick and Fire Clay.**

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

**Fire Clay.**

Bloomfield Clay Co.

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Chicago Ret. & Fire Brick Co.

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Rockwood Mfg. Co., The.
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**Friction Clutch Pulleys.**

(See Supplies.)

**Furnaces.**

Brown Instrument Co., The.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

**Gas Fire Continuous Kilns.**

Raymond Co., The C. W.

**Gears.**

(See Supplies.)

**Granulators.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Grates.**

Marion Machine, Fdy. & Sup. Co.
Potts & Co., C. & A.

**Gravity Carriers.**

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

**Gravity Haulage.**

American Clay Machinery Co.

**Grouter.**

Marsh-Capron Mfg. Co.

**Hand-Power Presses.**

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

**Hand Winch.**

(See Supplies.)

**Hangers.**

(See Supplies.)

**Hoists.**

(See Supplies.)

**Hollow Block Machinery.**

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Illustrators.**

Lamb, J. & R.

**Insurance.**

Mantel, Tile & Grate Monthly.

**Jacks.**

(See Supplies.)

(Continued on page 739.)

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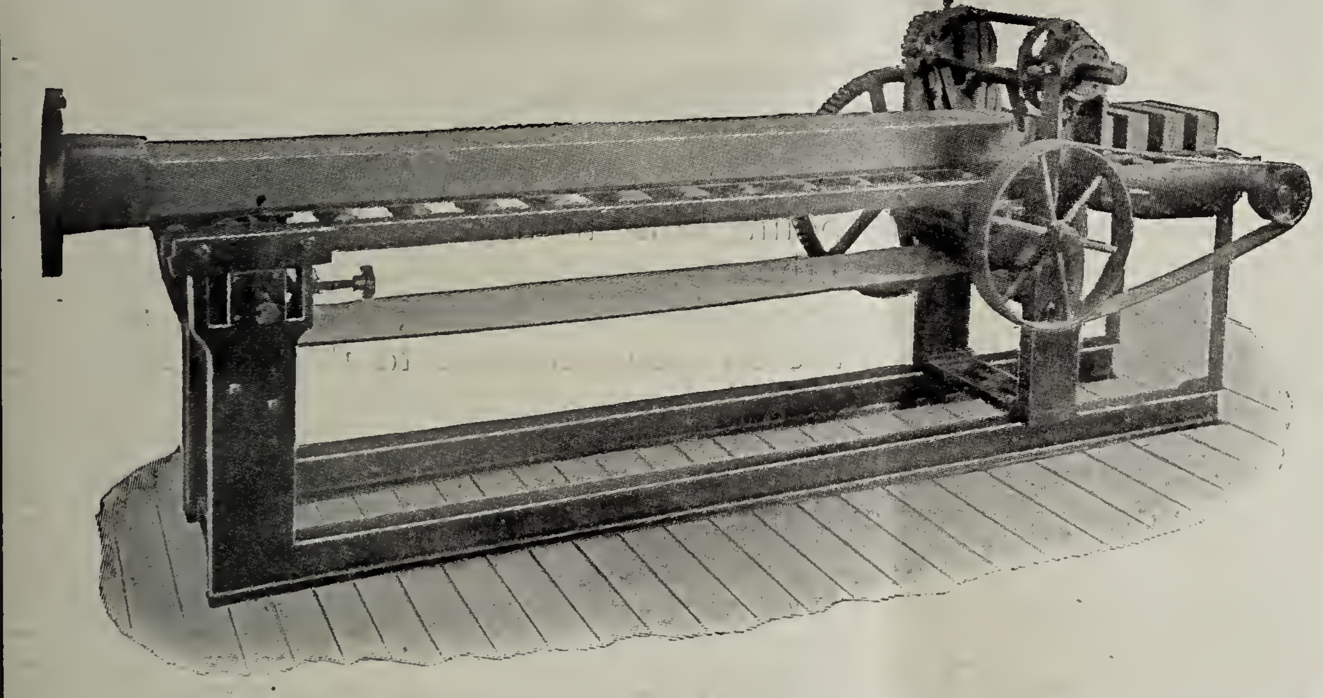
MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

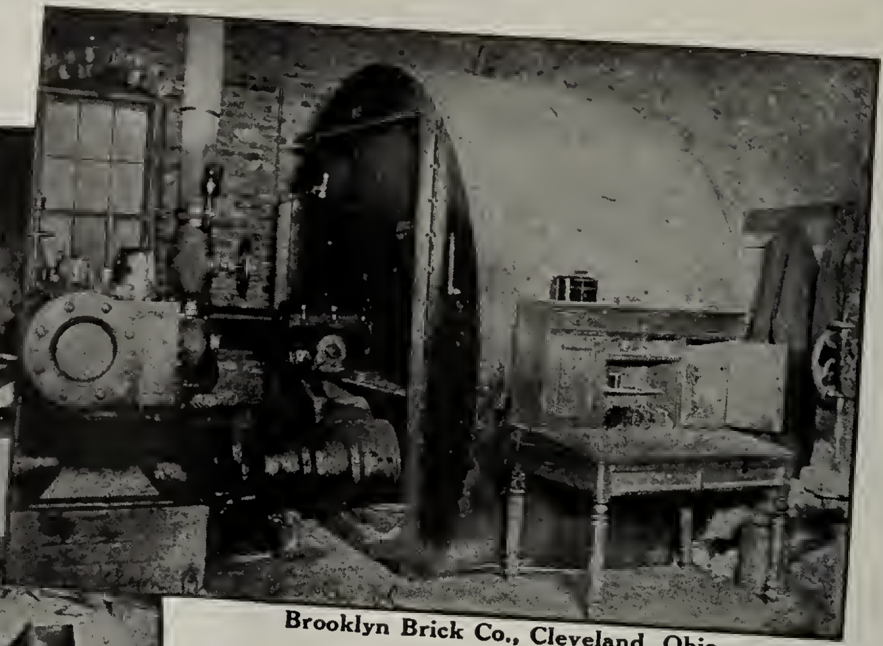
ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

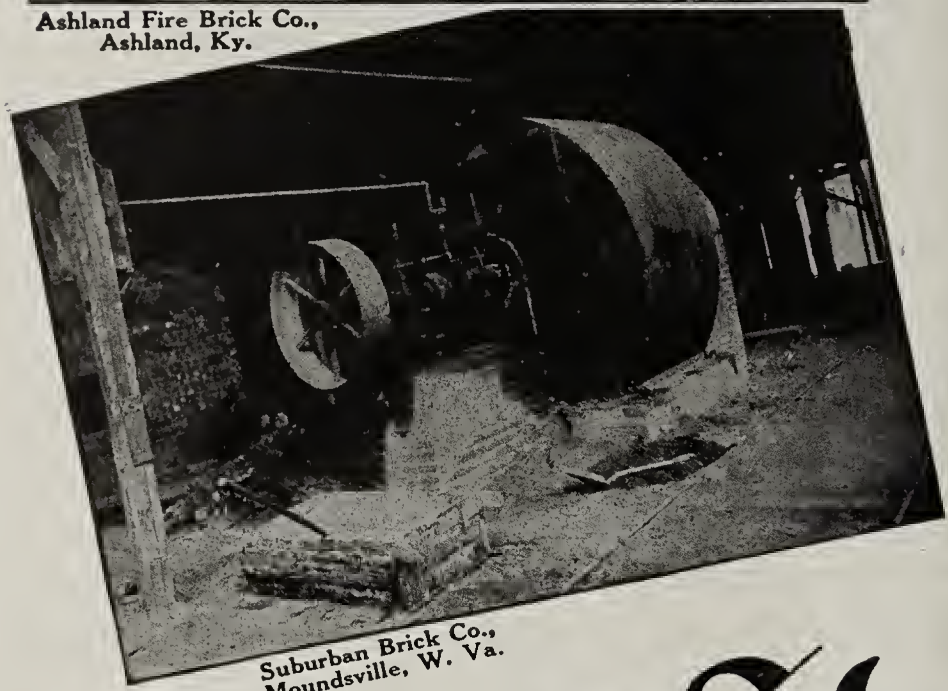
MUELLER BROS.

1436 Macklind Ave. (on Frisco Tracks) ST. LOUIS, MO.

Ashland Fire Brick Co.,
Ashland, Ky.



Brooklyn Brick Co., Cleveland, Ohio



Suburban Brick Co.,
Moundsville, W. Va.

# Economy in Drying Clay Products

## Sirocco

TRADE MARK.

Fan Systems use the heat from the cooling kilns to dry the bricks—that's one form of economy—**The other** is in the efficient way in which the Sirocco Fan handles this heat—the **low power requirements** for the amount of air handled—the low cost of upkeep of the Sirocco Fans due to its good mechanical construction.

Any fan will handle some air but the one that handles the **most** air for the **least** expense is the one **you** want and that's **"Sirocco."**

Our Brick Engineering Department will submit a lay-out applicable to your particular requirements—**just drop us a line** and we'll give you all details.

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
Dallas, Texas, Southwestern Life Insurance Bldg.
San Francisco, Cal., 667 Mission St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lemcke Annex.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

### Kilns.
American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Klose, A.
Klose, K. W.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred.

### Kilns, Doors, Castings and Frames.
(See Supplies.)

### Kiln Floor Tile.
Chicago Ret. & Fire Brick Co.

### Kiln Furnaces.
Illinois Supply & Con. Co.

### Knives.
(See Supplies.)

### Locomotives.
Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

### Manganese.
(See Coloring Materials.)

### Mechanical Draft.
Boss, J. C.
Rodgers Engr. Co., The L. E.

### Mineral Paint.
(See Coloring Materials.)

### Molds (Brick).
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

### Mold Sanders.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

### Mortar Colors.
(See Coloring Materials.)

### Motor Trucks.
Fate, Co., The J. D.

### Oil Burners.
Illinois Supply & Con. Co.

### Paints.
(See Coloring Materials.)

### Pallets.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

### Pans (Dry and Wet).
(See Dry and Wet Pans.)

### Paving Brick or Block.
(See Brick.)

### Perforated Sheet Metal.
Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

### Pitch (Paving).
Barrett Mfg. Co.

### Plows.
(See Scrapers.)

### Poidometers.
Schaffer Eng. & Equip. Co.

### Portable Track.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### Pottery Machinery.
American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

### Power Plant Equipment.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Presses.
(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

### Pug Mills.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Pulleys.
(See Supplies.)

### Pulverizers.
American Pulverizer Co.
Fate Co., The J. D.
Taplin-Rice-Clerkin Co.

### Pumps.
Dean Bros. Steam Pump Wks.
Potts & Co., C. & A.

### Pyrometers.
Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

### Rails and Railway Equipment.
Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

### Rattlers (Paving Brick).
Ceramic Supply and Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

### Recording Gauges.
Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

### Represses.
American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson & Co.

### Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Constr. Co.

### Revolving Steam Shovels.
Thew Automatic Shovel Co.

(Continued on page 741.)

SCUMMING AND EFFLORESCENCE

BY

ELLIS LOVEJOY, E. M.

This is the finest treatise on the subject ever written. Every angle of the cause and best method of overcoming the scumming and efflorescence on brick is given in detail.

ONLY FIFTY CENTS THE COPY.

Address

T. A. Randall & Co. Indianapolis, Ind.

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Wellington Machine Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Central Iron Works.
Eagle Iron Works.
Illinois Supply & Con. Co.

### Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

Thew Automatic Shovel Co.

### Steam Specialties.

Dean Bros., Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

### Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Switches.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., H.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

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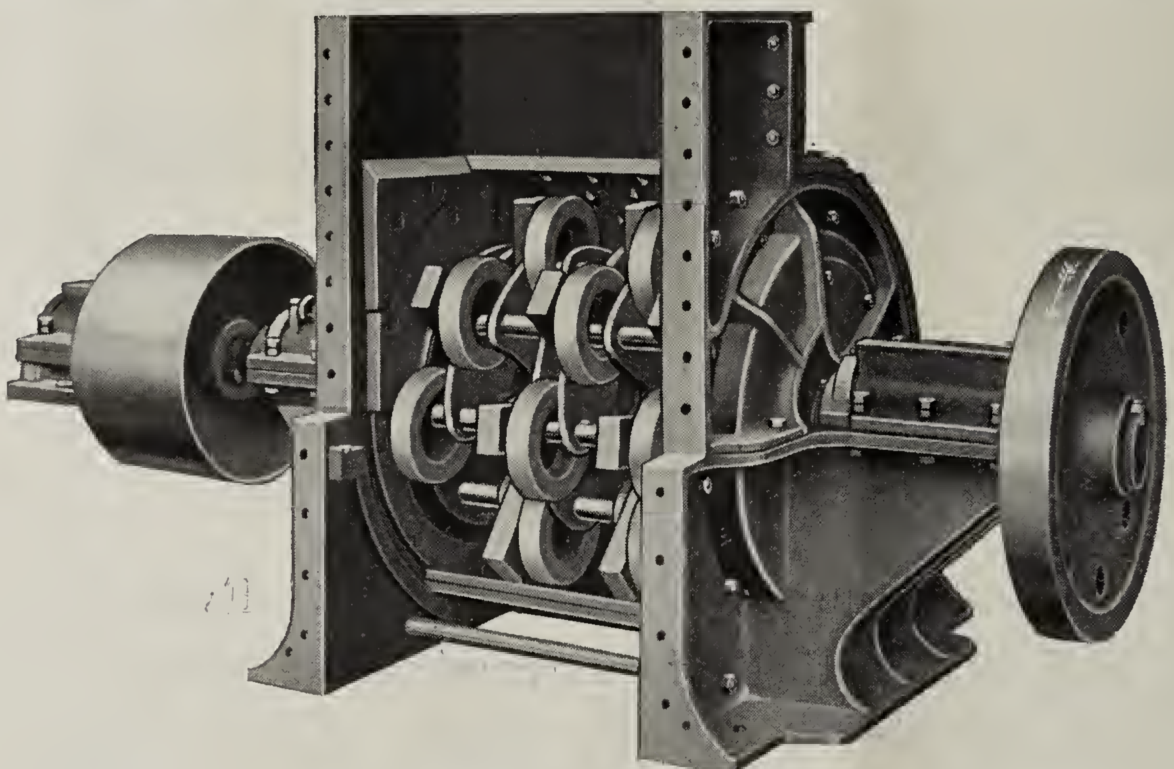


Powerful Housing—fully lined with chilled iron and Manganese Steel. 5 in. diameter shaft.

All crushing and grinding parts are made of

**MANGANESE STEEL**

**IF YOU WANT A GRINDER, GET THE BEST.**

Webster City, Iowa, April 29, 1915.

Gentlemen—Before deciding upon the kind of Clay Grinding Machinery to install in our factory, we made a very careful examination of the different makes of Dry Pans and Hammer Pulverizers. After watching them while in actual operation in several different factories, and after hearing the reports of those using the various makes, we were very much in favor of your Ring Pulverizer, and installed same spring of 1913.

Our clays and shales are quite difficult to grind. Some stratas are soft and some are extremely hard. A Dry Pan could not handle all these different stratas satisfactorily, but your Ring Pulverizer No. 48 is surely a hummer to turn out the ground clay. In the winter our clay is usually frozen hard, and nothing but your machine will handle it with sufficient rapidity to keep a plant the size of ours going.

We consider ourselves very fortunate, indeed, in having decided upon your machine. It does the work of two or three ordinary Dry Pans, and considering the tonnage obtained, is as cheap, if not cheaper, to operate and maintain.

Yours truly, NATIONAL SEWER PIPE CO.,
P. W. Hearn, Secretary.

Write us. Describe your material—Tons per hour—Screen fineness.

**AMERICAN PULVERIZER CO., East St. Louis, Ill.**

THE THEW SHOVELS

FULL CIRCLE SWING THEW HORIZONTAL CROWDING MOTION STEAM SHOVELS

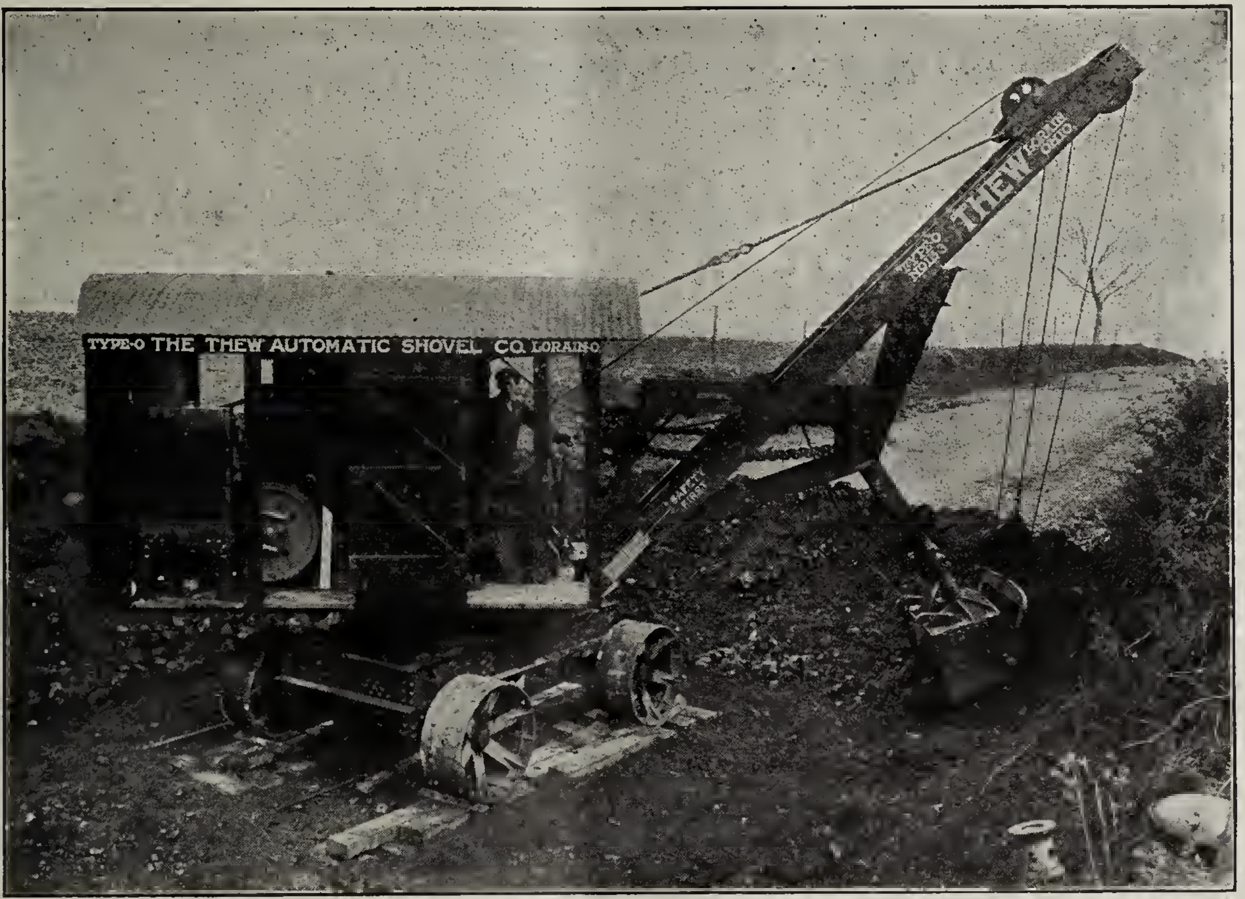
# The Thew Gasoline Shovel---

## A DEMONSTRATED SUCCESS

No fireman necessary—strictly a one man shovel.
No licensed engineer required—No state or local boiler rules to be observed.

## FUEL COST PER HOUR---TWO GALLONS GASOLINE---20 TO 30 CENTS.

No expense for hauling coal—No extra time getting up steam or banking fires.
No difficulty about water supply—No freezing in winter.
No boiler insurance, no boiler injector troubles, no expenses for boiler maintenance.



**Type 0 Thew Shovel---3/4 yard dipper.**

THEW STEAM SHOVELS have achieved an enviable reputation. This is a modification of the steam shovel only as affecting the operating mechanism and the power unit.

THEW ELECTRIC SHOVELS have been in successful use for more than ten years. We have taken the standard electric shovel and have merely substituted for the twenty-horse power motor a thirty-five horsepower two-cylinder gasoline engine of approved design and established reputation. NOT AN EXPERIMENT.

**The Owner of a Thew Gasoline Shovel writes:**

"The THEW gasoline shovel outclasses steam two to one. A green operator loaded one hundred and ninety-five two yard wagons in nine hours, good hard digging on a six per cent grade loading in the rear and waiting for teams at least ten per cent of the time. I think it the coming shovel."

Sign and mail or use for memorandum.

The Thew Automatic Shovel Co.,
Lorain, Ohio

Send me detailed information regarding The Thew Automatic Shovel as advertised in The Clay-Worker

Name ..........................

Address ..........................

*WRITE FOR DETAILED INFORMATION.*

**THE THEW AUTOMATIC SHOVEL CO.** LORAIN OHIO

Trautwein DRYERS

# INSURE YOUR CAPACITY

To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

## ASSURANCE

Of Increased Capacity
Greatest Economy
And Largest Profits

OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

**Trautwein Dryer & Engineering Co.**
**Manufacturers-Engineers**
**417 South Dearborn Street Chicago**

# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP-TO-DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

**Claude Smith Company**
**KILN BUILDERS**
**Plymouth Building Chicago, Illinois**

## JOIN THE

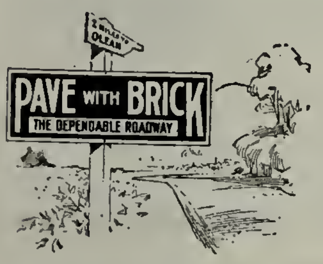
**BOOST** **BOOST**

# BUILD WITH BRICK

## CAMPAIGN

A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

### THE BUILD WITH BRICK MOVEMENT.



IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.

It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.

Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background. These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.

Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.

---

**T. A. Randall & Co., Publishers The Clay-Worker.**

Gentlemen:

You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ....................................................

..........................................................

**(Cross out the items not wanted, fill in and mail us the coupon.)**

**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country,"
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

**SHAWMUT VITRIFIED PAVING BRICK WORKS**
Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION
**The Barr Clay Co.**
C. C. Barr, Pres. • Streator, Ill.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED
**KUSHEQUA**
Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

**PROMENADE TILE**
Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

**Tile Underdrainage.**
By J. J. W. Billingsley. Price 25 Cents.
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

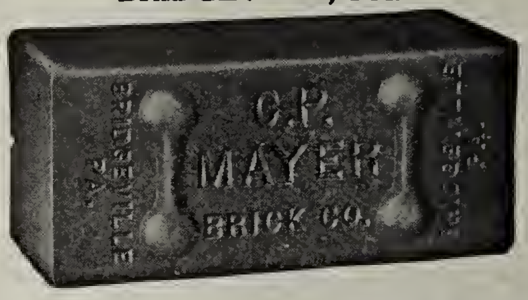
**THE DECKMAN-DUTY BRICK CO.**
CLEVELAND, OHIO.
THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

**ALTON BRICK COMPANY**
Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

**McAVOY VITRIFIED BRICK COMPANY**
PHILADELPHIA, PA.
"McAVOY BLOCK"

**VITRIFIED PAVING BRICK.**
A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of $2.00.
T. A. RANDALL & CO., Publishers, Indianapolis.

**C. P. MAYER BRICK CO.**
BRIDGEVILLE, PA.



The MAYER BLOCK is Unequaled in Abrasion Test.

"Best Paving Block Made"

Daily Capacity
500,000
The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

**IRONSTONE BLOCK**

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

**Terre Haute Vitrified Brick Co.**

TERRE HAUTE, IND.

**Murphysboro Paving Brick Company**

Manufacturers of

The Celebrated

**EGYPTIAN PAVING BLOCK**

The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

**Do You Want Clay?**

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

**Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.**

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,
(C. A. Bloomfield, Treas. and Manager)
P. O. Box 413. METUCHEN, N. J.

**CLINTON PAVING BRICK CO.**

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

**Clinton Paving Brick Company**
Clinton, Indiana

**PAVE WITH BRICK**

THE DEPENDABLE ROADWAY

**Bessemer Limestone Company**

Youngstown, Ohio.

Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

**PURINGTON PAVERS**

ARE MADE OF

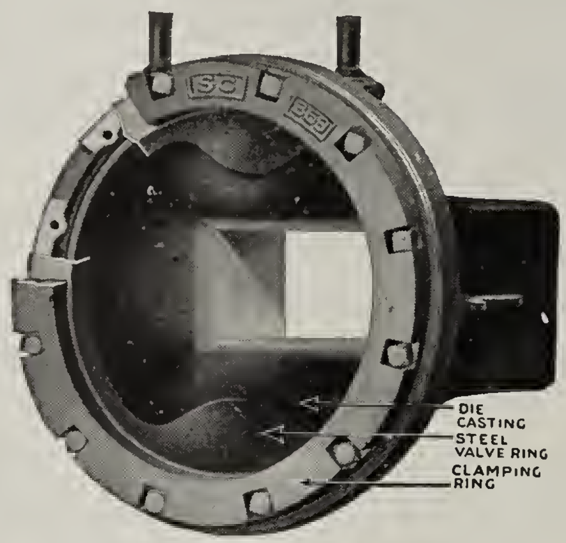
**GALESBURG SHALE**

**PURINGTON PAVING BRICK CO.**

GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

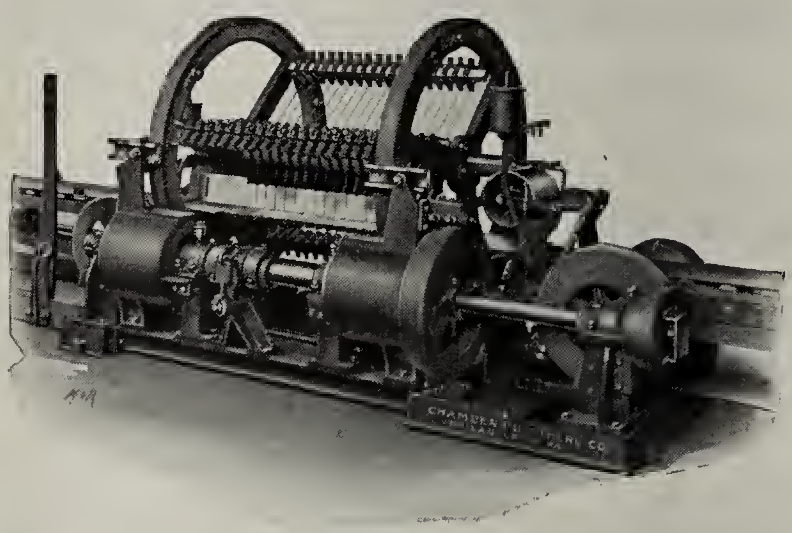
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

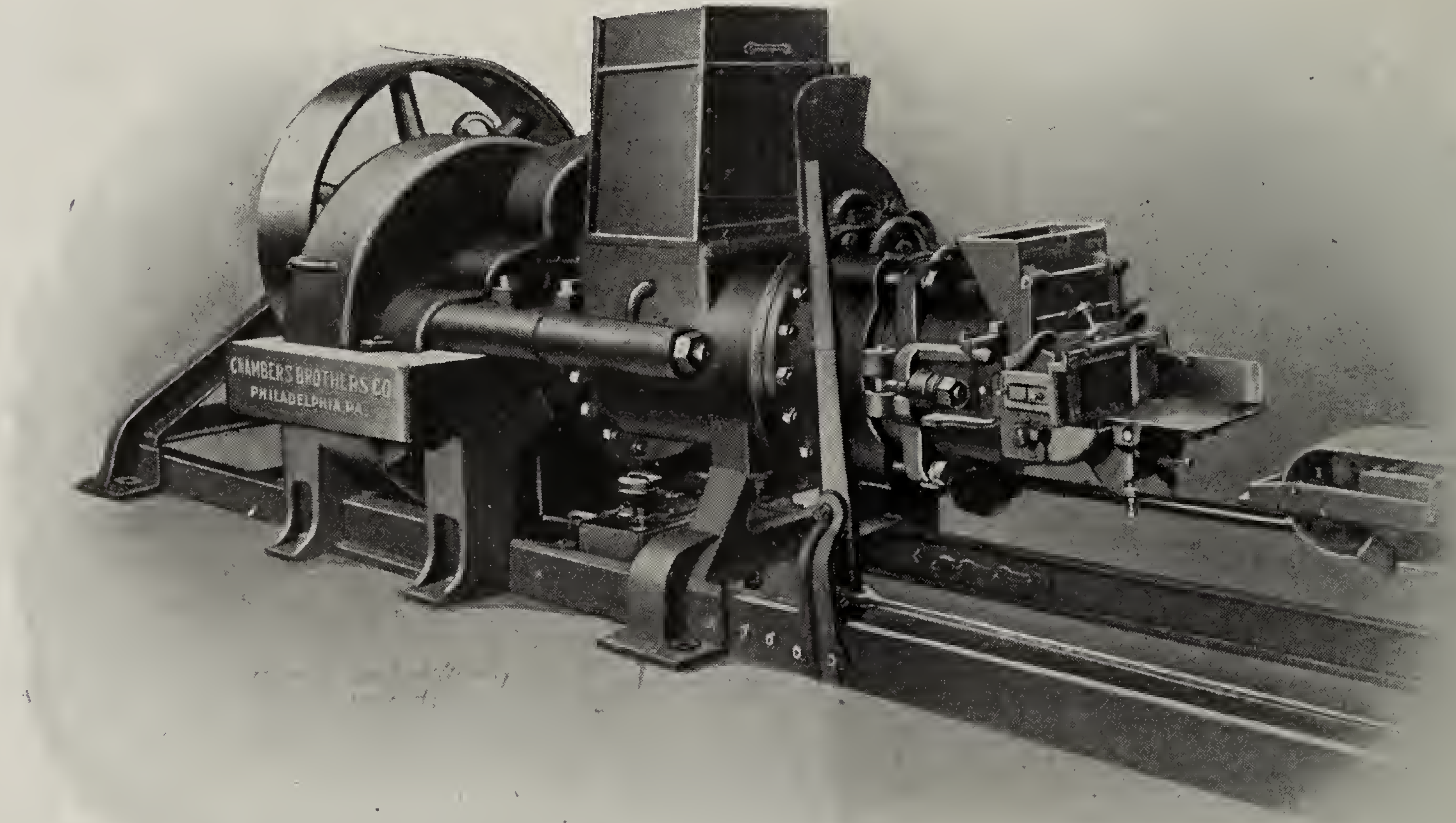
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

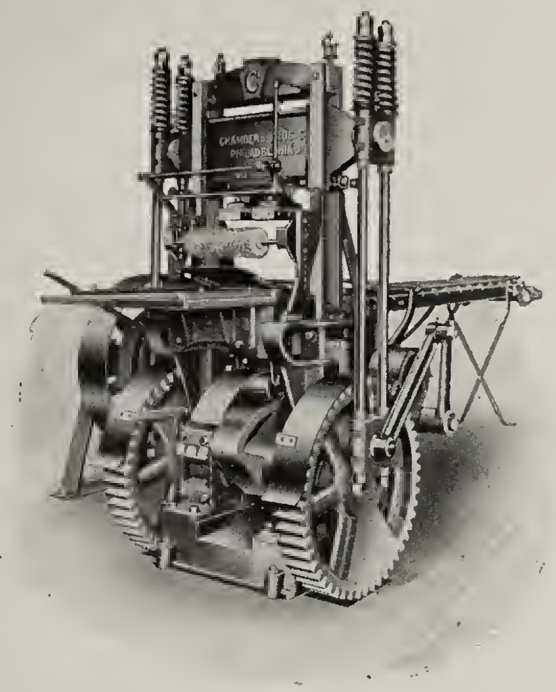
# Chambers Brothers Co., Philadelphia, Pa.

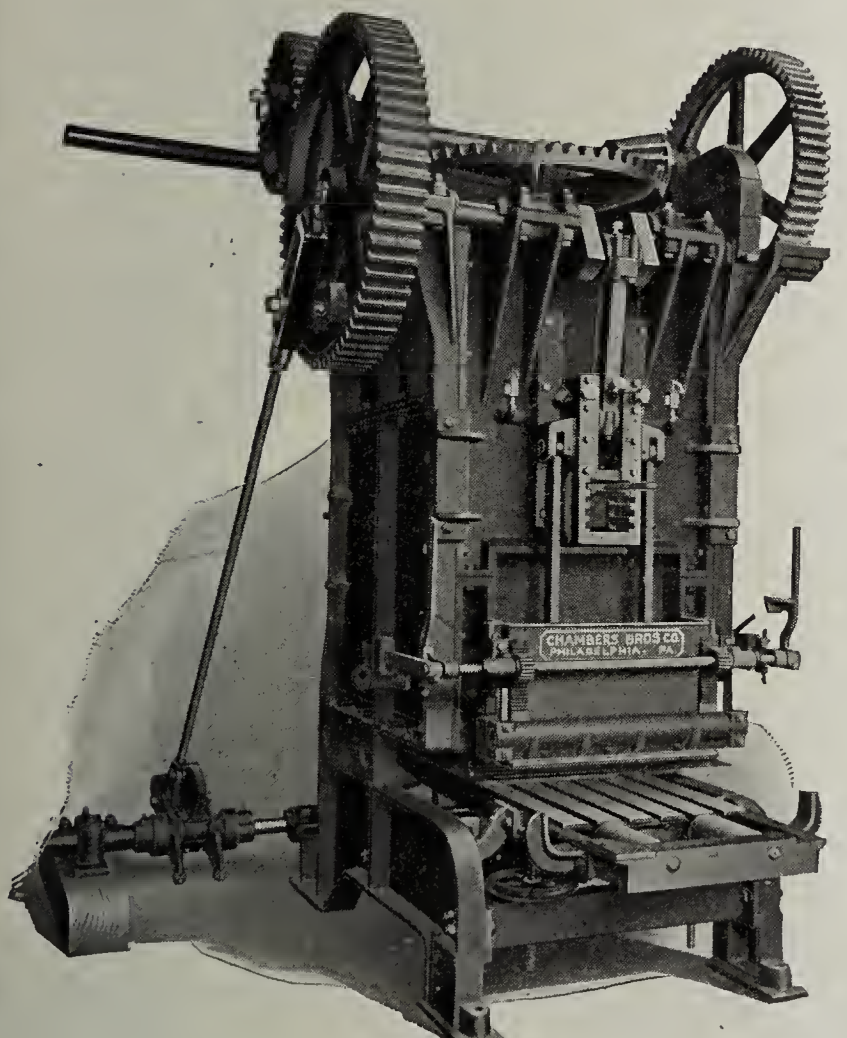
## Clayworking Machinery Developed Through a Careful Consideration of the Criticisms of Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





THE BELMONT
SOFT MUD BRICK MACHINE

## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

Molds sharp clean edge brick as stiff as can be dumped from the molds.

# Drying Troubles Disappear

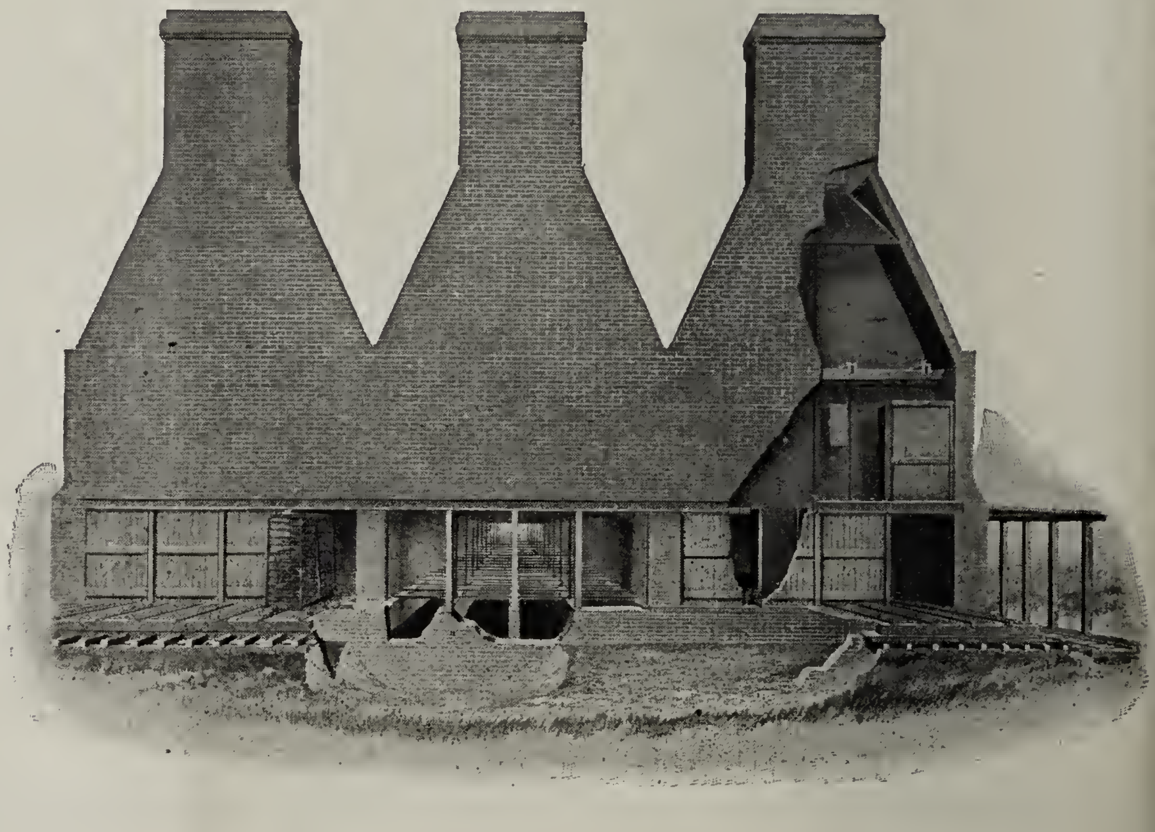
wherever The Standard Natural Draft Drier is installed. Here is a drying system so far perfected that it *really is* adaptable for *all varieties* of clays. In

# The Standard Brick Drier

the drying elements are so easily and so exactly controlled that anyone can operate it with the most satisfactory results.

Ask brickmakers whose clay is the same as yours. We'll send you names of many users with our catalog on request. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.

This picture, with walls partially cut away to show the interior, illustrates the up-to-date fireproof construction of The Standard Drier. Note the absence of timber. The walls and stacks are of brick. The roof may be either tile, concrete or brick.



THE CLAY-WORKER

The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIII. INDIANAPOLIS IND., JUNE, 1915. No. 6

Written for The Clay-Worker.

# THE STABILITY OF BRICK.

## Remarkable Examples of the Indestructible Character of Building Brick.

A PHOTOGRAPH in one of our exchanges suggests a thought or two in connection with the flapping of wings and cackling done by our concrete brethren anent the alleged "vindication" of reinforced-concrete in the recent Edison fire. A rather sickly vindication, it seems to us, when we look at the pictures of ruptured columns, broken walls, crumbled floor slabs and general wreckage the fire made of most of that concrete,—the vehement protestations of Wizard Edison and the other manufacturers of cement that the concrete buildings are intact (!) to the contrary notwithstanding.

Ruins of the Baths of Caracalla, Rome, Italy, from Which Millions of Brick Have Been Taken and Used in Later Day Constructions.

The photograph referred to is of the Pons Fabricus, the oldest bridge in Rome, built in 62 B. C. It shows the bridge submerged, in the recent disastrous flood, almost over its arch-tops. That bridge has withstood just such a terrible racking and pressure in more than a hundred such devastating floods, it has been assailed by earthquake and by fire, history tells of floating galleys piled high with burning wood being moored to it in an attempt to destroy it, it has been attacked not once but many times by human foes as well as by two thousand years of Time, yet it stands serenely, undamaged and in all its pristine glory.

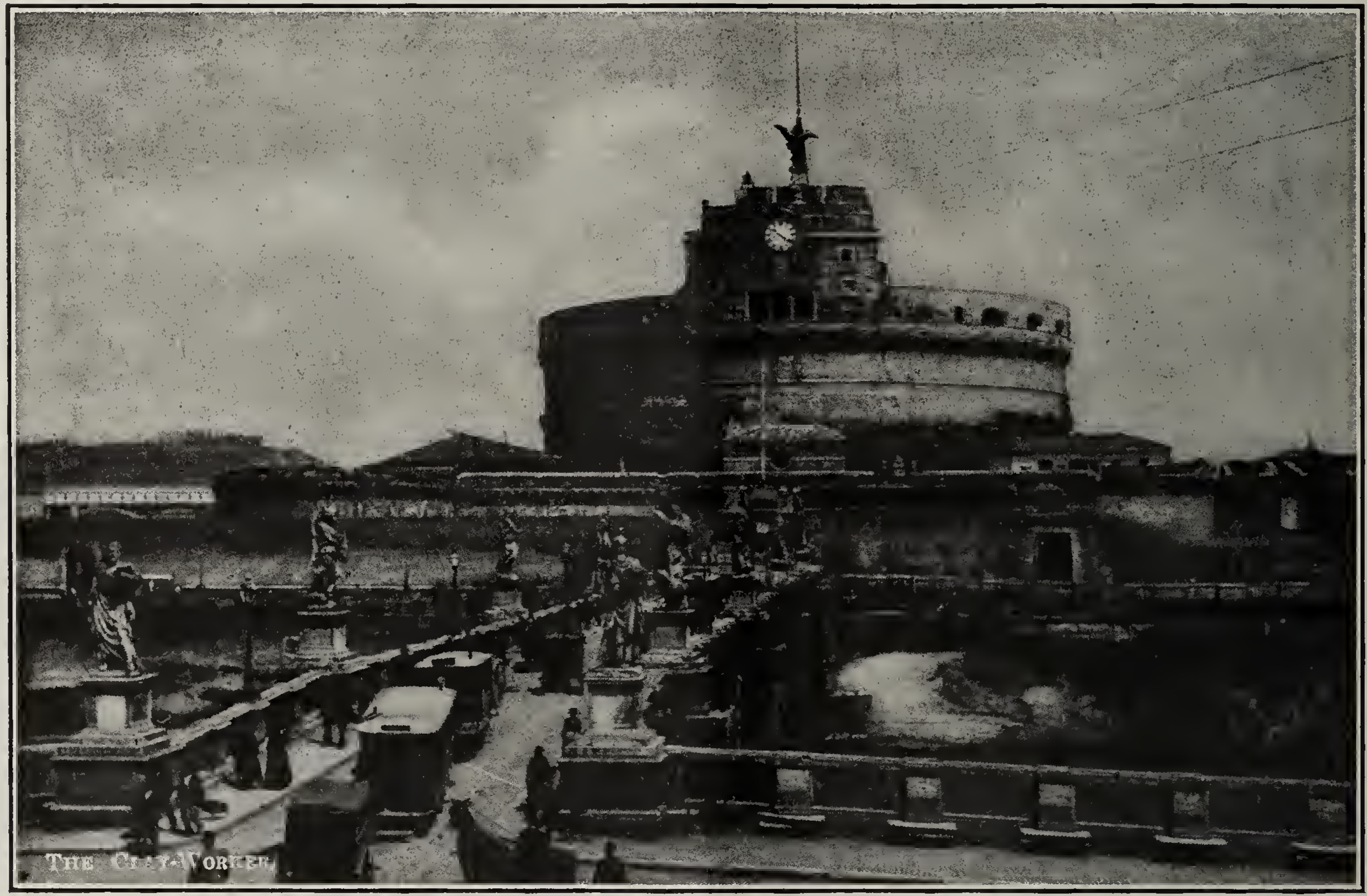
Observe that is a brick bridge with face voussoirs and copings, ornaments, of Traventine stone. Indeed, virtually all the Roman works that have been preserved to us in anything like completeness are similarly brick constructions, though decorated and veneered and columned with stone and precious marbles. It was the boast of Augustus that he "found his Capital built of brick and left it of marble." We may add for him, however, that though he did face his buildings with costly marbles, often the plunder of Greece and other vanquished nations, their structures were as before, nearly always of brick. Subsequent conquerors and vandals stripped those buildings of their decorative marbles, but left most of the structures standing (of brick) to be remarbled in time by other restorers.

Another ancient Roman structure, one-half of which still stands despite the natives who carried off both marble and brick with which to build their homes, is the famed Temple of Minerva, of the time of Decius (the third century), a brick structure entirely denuded of marble and of plaster and surmounted by a splendid hemispherical brick dome 113 feet from the pavement.

Indeed, nearly all the Roman buildings of past ages, as of the present, are similarly constructed with brick as the main supporting or structural material. Comparatively few buildings, even the great triumphal arches, are of solid stone or marble, instead these decorative materials were supported or backed up with common brick.

Whatever deterioration or ruin there may ever have been in the brick buildings of antiquity or of modern times has never been caused by disintegration or of any inherent fault of the material itself, but has always occurred through the failure of the binding material, the mortar used in cementing those parts together. The concrete enthusiasts point with pride to the noble Pantheon at Rome as the very apogee of concrete construction, the greatest piece of vaulting ever done in the olden times. It may be well to add, lest we forget, that the main ribs of the magnificent vault are built, not of concrete, not of stone, not of steel, but of a far more perfect material than any of these—Brick. The whole building, in its structural parts, is of brick, and concrete finds its true place in construction, viz., in masses, in the filling in, in the panels of that dome.

Burnt clay is unquestionably the most fireproof, the least damaged by excessive heat and the ravages of time of anything that has ever been or is known and used in the building trades! And it is not of yesterday or the day before. Like gold that has been the standard of value from time immemorial, so is burnt clay the most resisting material, the standard material of imperishable construction. Examine the ruins of ancient Greece and Rome and you will find monuments of stone and of marble crushed and battered and decayed and their dates a matter of question and speculation; but whatever you find of burnt clay is intact, clean cut, exactly as it was fashioned by the hand of the primitive clayworker. In Egypt, in Assyria, in Babylon even, we have the sun-baked brick 3,000 and 4,000 years old and as good as new. At first Christian works were fashioned in the clay products and the art was carried to great perfection in the first capital of Christendom, Byzantium. And since that time—cavil and carp at that notion as we may—we must concede that Persian art and then Arabian art (preserved to us by a strange anomaly by the so-called barbarian and all-destroying Moslem) has been the refining influence of our modern art. And the perfection of its expression is to be found in its sub-art of ceramics—the burnt-clay products.



Castle of St. Angelo, Rome, Italy, Built of Brick in 62 B. C. In the Foreground is the Famous Brick Bridge, Pons Fabricius, Which Has Withstood Floods, Earthquakes and Conflagrations All the Intervening Centuries.

## THE MATTER WITH KANSAS BRICK.

According to the statistics of the United States Geological Survey, Kansas produced in 1912 145,986,000 common brick, the returns for which were only $584,273. The same year Iowa, the next state on the list alphabetically above Kansas, produced 148,472,000 common brick, for which it received $1,017,097.

In other words, for practically the same brick output Iowa obtained returns almost double the returns in Kansas. This is enough to remind us of the occasion in times gone by when a certain editor became famous from asking the question, "What's the matter with Kansas?" and then proceeding to answer it.

The answer to the matter with Kansas in the common brick business is found in the table of average prices. In this, Kansas shows up as the lowest state on the list, with an average price for 1912 of only $4.00 a thousand, while the average price for common brick in Iowa for the same period was $6.85 per thousand, and the average for the whole country was $6.05. It means that Kansas didn't get the price it should for the brick. It has been getting splendid prices for wheat and corn, and certainly if there is any state in the Union in good shape to pay the full price for brick and clay products, it is Kansas. Kansas should have received a round million dollars for that brick output in 1912, and might just as well have received it as to have sold it for a little more than half a million dollars. It looks like somebody must have taken a club and knocked brick prices on the head out in Kansas.

We hope the situation has improved since 1912, and today the brick manufacturers of Kansas are getting a reasonable price for their brick. If they are not, it is largely their own fault, and they should get together and then get into the brick-boosting business by joining in the Building Brick Bureau and by local exploitation increase the demand for building brick until they can obtain a reasonable price and prosper as they should. To make and sell brick at an average price of $4.00 a thousand, is to court financial disaster, no matter how well equipped a man's plant may be and if he does not count his raw material as being of value. The average price for the country of $6.05 per thousand was low enough; too low, in fact, and common brick should really be worth from $6.50 to $7.00 per thousand the country over, and, of course, more than that in certain sections where there are difficulties of manufacture that involve higher costs.

Kansas should take this fact home to itself, and then get busy to remedy the things that are the matter with the brick business there. There is no section of the country where the people are better able to pay, and in competition with lumber and other building material, brick at fair prices should have a good showing, for Kansas is not a lumber state and must pay pretty high freight rates for this material. Consequently, it ought to be practical to get a good price for brick, and at the same time develop a more extensive use of brick in home building. To have both the bigger trade and a better price, it is simply a matter of getting hold of the right idea and going to it. We believe the folks in Kansas can do this. The question is, will they?

## OUR FIRE BRICK PRODUCT.

The next item to common brick, in importance in the brickmaking industry, both in distribution and total value of the product, is fire brick. The total value of fire brick for the year 1913 was $20,627,122. This total is exceeded by pottery, but not by any other brick product, aside from common brick. The quantity produced in round numbers was practically a billion, and the average price received for fire brick was $19.57. Fire brick showed a remarkable range in prices, the variation being from $50.78 per thousand in Arizona to $7.33 in West Virginia.

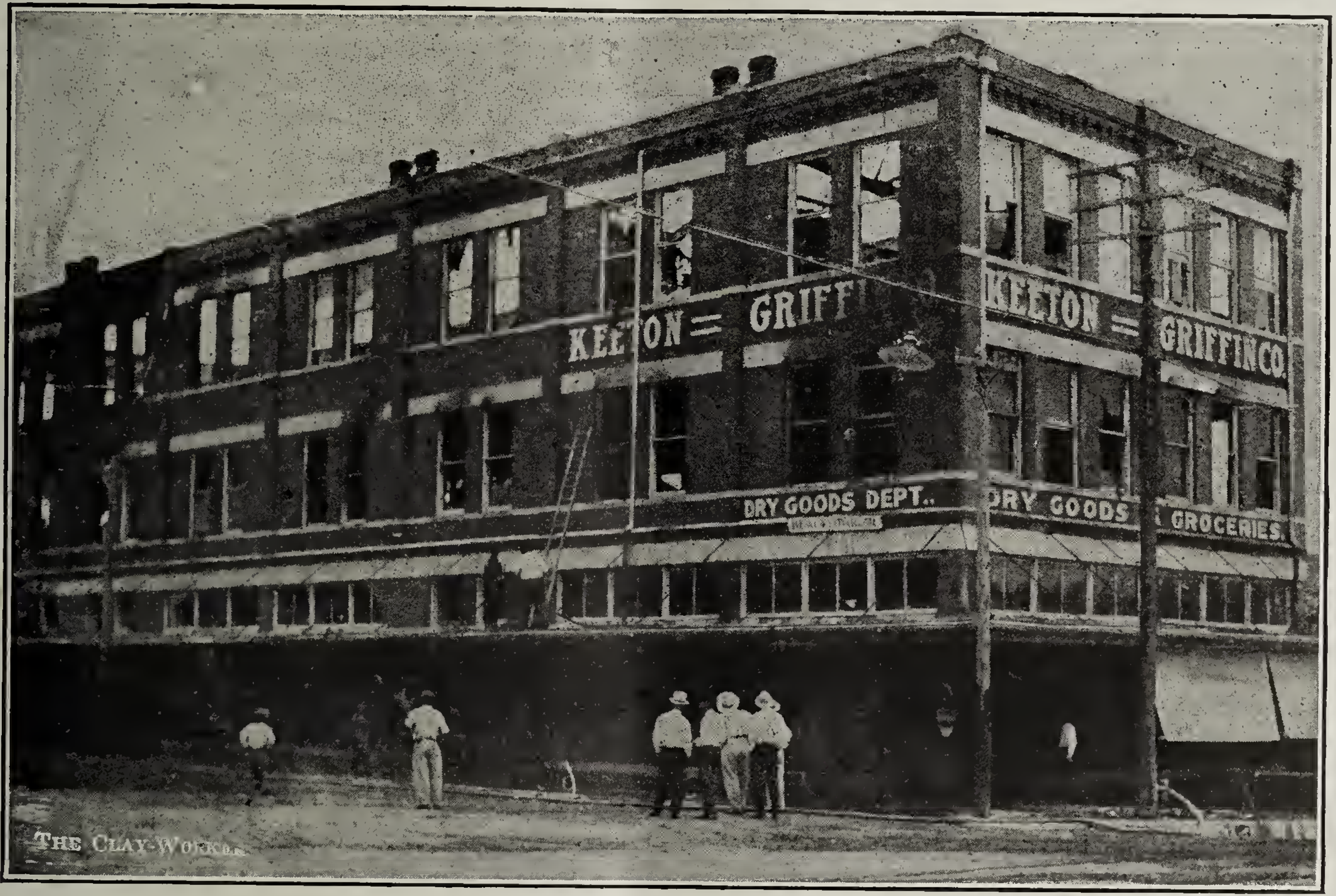
The great center of fire brick production is Pennsylvania, which produces over $6,000,000 worth a year. Other states producing from a million to two million are Kentucky, Missouri, New Jersey, Ohio. Among the western states, California comes to the front considerably and produces more than half a million dollars worth a year, and Colorado has also shown quite a lot of development. Illinois, Indiana, Maryland, New York, Texas and West Virginia are fairly important producers of fire brick, and other states are coming to the front. Among them Alabama, in which the fire brick industry has naturally developed considerably along with the requirements of the iron industry.

Extensive development of fire brick manufacture in any given section of the country is often a direct result of demands created by the development of other industries requiring the use of fire brick, especially blast furnaces and such industries as require extensive quantities of fire brick and blocks. Of course, some of the centralizing of the industry is around those sections which furnish the more suitable material for fire brick, but while it requires special material, there seems to be enough of it in the country that whenever any section shows a great demand there will be a discovery and development of material for fire brick manufacture.

Taken all together, the fire brick industry is one of the big factors in the clayworking business that goes right ahead and has less said about it than any other lines of brick and clay products. Fire brick and other fire clay products enter into home building for fireplaces and flue linings, and this use is discussed and exploited somewhat, but the fire brick industry has never received the attention in the general discussion of the clayworking industry that its magnitude and importance entitle it to.

## A MODERN INSTANCE.

MUCH IS being written these days about the durability of structural materials which compete with brick. As a matter of fact, there is not any building material in the world quite as durable and dependable as building brick. Brick has withstood the test of time for ages, and the claims that competing materials are "just as good" is simply just a repetition of the trick of competition in offering a substitute for a standard commodity. Seldom or never is the substitute the equal to the standard material. Our feature "story" on ancient brick work is full proof of the everlasting qualities of brick, but we do not have to delve into ancient history for similar and equally convincing proof. We are pleased to offer the readers of The Clay-Workers an illustration of this fact in the accompanying view of a brick structure at San Marcos, Texas. It was erected in 1910, and was occupied as a department store until a recent fire destroyed the contents, including floors and the roof. The fire was intense, and notwithstanding the fact that the hot walls were drenched with water by the fire department, they remained intact. They were solid brick walls from foundation to top, and this building has since been re-equipped, new floors and new roof added, and is now again occupied for store purposes. The building was built of good hard burned brick supplied by the De Hanis Brick and Tile Company, of De Hanis, Texas, and it stands today a monument to the perfection of brick as a building material and a credit to the De Hanis Company. Will any reader with the least experience in structural work claim that a building of any other material could have gone through such a siege of fire and water and remain intact, to be refurnished and used, as did this brick structure? The moral is plain—"Build with Brick."



A Modern Brick Structure Which Passed Through the Fire and Was Not Found Wanting. Proof of the Permanency of Solid Brick Walls,

Written for The Clay-Worker.

# BUTTON-HOLE TALKS.

## STILL JOGGING ALONG—No. 5.

SEATING OURSELVES comfortably in the big lounging room, my companion looked fixedly for a time at a man sitting across the aisle from us, and then called my attention, saying, "Look at the Man with the Absent Chin." Then, without waiting for an answer, he continued:

W. D. Gates.

"He is evidently and absolutely not a self-made man. No self-made man would use that pattern in the making. No, he never did it; he took what was wished on him, just as the rest of us have to do. We all take what we get. He has to wear his sign, wear it openly and above board, written big and plain on his face for all to see. So plainly written that "He who runs may read," and, as a matter of fact, also written, in his case, so plainly that he who reads can, and indeed will, run. He's fastened to it and just has to wear it. He has become more and more attached to it. A rough wrapper may cover a good cigar, a torn bill may be good at the bank, a black cake may be chocolate and not dirt, and you will take a chance with any of them, but you will shy off at the evidence God has written plain on a man's face and take no chance with him. You know he may be better on the inside than he shows on the outside, but you are willing to miss the chance by passing him by. He may be much better than the man with the Apollo form, who may have gone wrong inside, in spite of his outward signs, but you will still be guided by those signs and take no chances, even though you know you may sometimes miss hidden treasure occasionally concealed back of just such misleading outside indications. He is, in a way, doubtlessly straightforward and dependable, not at all two-faced. You can bet heavily that he is not that, for if he had another face he never would go around wearing this one the way he does. Anyway, he doesn't go around wearing a wig or filling out and parading lavender spats. By the way, you were so interested in listening to your wig friend that you did not notice, perhaps, how I got the Lavender Man going."

Just then there lurched up in front of us the Man with the Jag, the same old jag—evidently, from what we had seen of it before, a continuous jag. He stood weaving slightly, standing right before us and looking at us intently, just as he had before, and we readily saw that it was to be the same old question, that he was still on the same old hunt. My companion was quick; this I had noted before, and now he showed it again, for he took the initiative himself, went right to it quick, and before the jag man had formed his question, he himself went to it. Speaking up sharply and authoritatively, he said: "Hullo, Bill Johnson, you're no good. What you doing here?" The Jag gasped—just stood humbly gazing at us—then said, in a most apologetic tone: "'Scuse me, gents; I'm drunk. I'm drunker'n I thought I was. Been looking for myself all this time, have I? Drunker'n I thought I was. Here, boy, put me to bed; I got 'nuff—time I sobered up." Under the guidance of the boy he disappeared.

"He will be all right and will sober up now, and if I can catch him to-morrow, when he first comes out, I will throw a scare into him that will keep him right for a while. He won't have any idea as to what he has been doing for the past week and I will feed him a batch, from my imagination, that will keep him good and quiet.

"Some months ago I was down in Arizona—quite a different country from this, down where it's hot and dry. Their home song there is, 'Little drops of water and little grains of sand make a h—l of a difference in the price of land.' But it's a great country, all right, a wild, magnificent country. You have never appreciated a drink of water until you have had an Arizona thirst, until you have evaporated and dried up, and have forgotten what moisture is—and then, when you can let the water gurgle, you have the most glorious sensation of your life. Of all the luxuries in the world there's nothing like it. It's the most common thing in the world, but the very best and most luxurious when you lack it, have been without it, thirsted for it—that's it, THIRSTED—and then when you get it at last—well, it's worth the experience, and you'll never forget the sensation. But the visions you can see down there are wonderful. The painted desert, the distant mesas, the great, broad plains, where the rising sun creeps up over the horizon and throws its rays on and on, catching up every shadow and carrying it on and along, way out over the level plain, jumping the canyons and crevices, and only losing the shadow, or dropping it, as it nears a mesa. And when it has dropped it it only does so that it may jump, with its light, to the top of the mesa and crown it with living, throbbing, liquid gold. And then the sun chases the shadows back, shortening them, beating them farther and farther back, and flooding all the plain with its golden light—pouring it out lavishly until it floods all the plain—flooding it until it overflows and spills down into the valleys, drips down into the chasms, and gilds them and glorifies them. Way off, as a rim to the golden dish, there stands out the rim of the distant mountains, a violet circlet woven in as a frame, misty and delicate. But it's all dry—dry as dust, and fine, powdery dust. Those gilded rays of sunshine that look so bright and golden, and that so glorify the landscape, are hot rays, blistering rays, that shrivel and dry up all they touch." He went on in this way till I was gasping, with my tongue hanging out of my mouth, and he himself grew husky and hoarse, so that we both had to go take a drink, and that stopped his story.

As we were coming out from the thirst parlor, wiping our mouths on the backs of our hands in the accustomed manner, my companion stopped and called my attention to a man sitting alone on a settee. "Look at the Man with the Protruding Teeth," said he. "When a man has the accustomed assortment of dental work he just averages up with the general herd and excites no comment, but when he has so many teeth that his mouth won't hold them, then he grows interesting to me. I love to look at the display, to watch them in action, to see them jump out of his mouth and glisten and shine. Excuse me, it's a hobby of mine; I can't resist it. I'm going over to shake up that bundle of ivory and study the display." So over he went; seating himself beside his victim, he made some remark, whereat the glittering display turned toward him, the lips drew back and the teeth were so prominent and pronounced that they were all you saw; they dominated the scene, and held even me, distant as I was, enchanted and watchful. As he threw in an occasional remark they flashed more and more, until I feared they would fly out and litter up the floor. They were protruding teeth and there seemed to be too many of them. There wasn't room for them inside, so they had to come outside. The lips tried, in quiet moments, to cover them, but even then were unsuccessful, and the moment their owner was roused from the quiescent attitude the lips gave up the struggle and let all the teeth loose, to go as they pleased and have their own way. My companion of the Square Toes was on his mettle and kept the display in action. I studied the display until it got on my nerves and I could see nothing but teeth, so I hunted other scenes and left them at it.

Coming out from my breakfast in the morning, I discovered the Man with the Jag crowded into a corner of a lounge, while over him, holding him captive, entranced, abject, horrified and humiliated as he was, the Man of the Square Toes was feeding him more and more of his inventive humiliating acts during the past days and leaving him filled to the brim with horror and abhorrence for the liquid libation. Evidently the Man with the Jag hated himself and would be a good citizen—for a while. My esteem for him of the Square Toes rose still higher, for he was, evidently, a missionary doing good, but without outward signs and credentials and without the hypocrisy that spoils the work of some missionaries who display the sign more conspicuously. GATES.

# WHY IS THE BUILDING BRICK BUREAU?

## A Few Pertinent Facts Relative to its Object, and the Usefulness of Same in the Advancement of the Brick Business.

WHY IS THE BUILDING BRICK BUREAU? What purpose is it intended to serve and how will it be of assistance specifically here and there throughout the country?

These and other questions along the same line illustrate natural points of inquiry on the part of those who have not been actively engaged in the work of the original formation of the Building Brick Bureau and, therefore, are not thoroughly conversant with the details of its aim and purposes, what it intends to do and how it intends to go about it. It is fitting, therefore, that we undertake to set forth specifically and in more detail just why the Building Brick Bureau was organized and what it intends to do, and how it intends to go about it.

The general purpose of the Building Brick Bureau is to promote the exploitation of building brick, and to assist in directing the efforts of exploitation to the end that the greatest returns may be secured for the money and effort put forth by the individual brick manufacturers.

### A Three Fold Purpose.

The bureau expects to do some general exploiting itself, but was not conceived primarily to conduct a nation-wide campaign from a central bureau. The main idea underlying the formation of the Building Brick Bureau is to have it as a sort of power station and clearing house for the development of local advertising all through the country, on the theory that general local advertising, when we have enough of it in diferent sections of the country, constitutes within itself nation-wide advertising in which every man does his own work in his own community and receives direct benefit accordingly.

The bureau already has a sort of three-fold task mapped out for itself in this connection and others may be added from time to time. The three primary lines of activity are to encourage advertising on the part of brick manufacturers throughout the country, to assist in preparing advertising matter and in directing the lines of exploitation work, and to collect and furnish specific data for its members that will be of value in the promotion of brick as a building material against all competitors.

### Data as to Comparative Cost of Building.

To take the last item first, there is certain specific data every brick manufacturer needs from time to time in his business of talking brick in comparison with other building material. There is data as to comparative cost, not only between brick and frame construction in the building of modest homes, but in the larger undertakings, in warehouses and factory construction, chimney building and in many lines where brick comes in competition at times with other material. This is data that The Clay-Worker has inquiries for from time to time, enough of them, in fact, that it is easily apparent that an important part of the work of the Building Brick Bureau will be to collect data pertaining to all the features of brick construction as compared to other material, both in point of first cost and in the many points of quality that may be introduced.

This data will at first be prepared in leaflet and pamphlet form, but eventually, as the great mass of it which it is possible to obtain is collected, it should be put in book form and made into a sort of reference work that every brick manufacturer can keep before himself, and put in the hands of his selling agents everywhere so that they may have authorative data which will answer all questions that may come up and will show brick up as the best building material on earth in the final analysis.

The other two lines of activity may well be considered together, that of promoting and directing advertising or exploitation on the part of individual brick manufacturers throughout the country. Exploitation is the biggest proposition in the building brick business right now. There is no question of that. It has been thoroughly demonstrated already by individual efforts. Also, the Build With Brick slogan, which was started by The Clay-Worker a little more than a year ago, has accomplished wonderful results in arousing the interest of the country in the subject of building brick. It is a splendid example, too, of how nation-wide advertising may be accomplished through local effort, by everybody doing the same thing at the same time. Incidentally, it illustrates how a central bureau can be of valuable service to the brickmaking fraternity by developing simultaneous and uniform activity.

### Exploitation the Life of Trade.

It is an accepted truism now that exploitation is the life of trade. We talk about competition and other things putting life into trade, but all they really do is lead to active exploitation and it is the exploitation that puts the ginger into things and livens them up.

Now, then, when a man starts out to spend money advertising, he must recognize that it is important to do his advertising in an enlightened manner. This thing of buying so much space in the local papers or giving an order to print so many circulars, without devoting any great deal of thought to the composition of the matter going into this advertising, is to waste money. This is becoming so well known that advertisers, both large and small, all around us, all the time, are turning to what is called advertising experts to look after this matter for them. They realize that it is the part of economy to pay out good money for expert service to the end that the main fund expended in advertising may be properly used to get the best results.

The amount paid for this advertising service varies from 10 per cent. of the sum expended up to 25 per cent. in some cases, much depending upon conditions and the nature of the service undertaken. The matter of importance for consideration right now, however, is the fact that those who spend money in advertising today realize that they should employ qualified talent to direct the expenditure of their money, so that they may get back from it what they should in the way of returns.

This is one of the duties to be performed by the Building Brick Bureau. It will not only compose and submit various sample advertisements of different sizes and kinds for local papers, but will investigate every possible field of endeavor for exploitation, including getting out circulars and literature and making displays at fairs and expositions, and will follow up every idea of this kind that looks like good publicity for brick, and will advise its members accordingly.

### The Bureau Clearing House.

In other words, instead of each manufacturer who is taking up with the idea of advertising having to go out and employ an expert advertising man, all he needs to do to get advertising data and suggestions is to become a member of the Building Brick Bureau, contribute to it his pro rata for maintaining the bureau and agreeing to make proper use of its efforts by doing a reasonable amount of local advertising in various forms. That means the Building Brick Bureau becomes the advertising man for every member, no matter where he may be located, and being a central body, concentrated upon the promotion of one industry alone and receiving ideas and suggestions from all parts of the country, it is confidently believed that the Building Brick Bureau can render better service in this way to its members than can be had by the individual employment of the best advertising men in the country.

Before all this service, however, the thing that comes first, before the furnishing of advertising counsel and data and reading matter of interest and value and the data necessary to follow up inquiries and settle arguments, there is the first and original proposition of the Building Brick Bureau to act as a sort of power station to stimulate active exploitation by every brick man in the country.

It is to be the source of power and enthusiasm, to arouse the advertising spirit. Advertising is the first and most important thing of all, to get everybody awakened to the fact that a campaign of exploitation must be waged all over the country if we are to have anything like the quantity of brick used in building operations that should be used. The Build With Brick slogan has demonstrated what can be accomplished in the way of arousing people to activity with an idea. Also, it has shown something of the results that may be obtained from concerted action of this kind. It was this campaign of Build With Brick and its results that led directly to the formation of the Building Brick Bureau. The Building Brick Bureau is simply a logical outcome of this, the establishing of a permanent central bureau to encourage and direct the exploitation of building brick, to furnish the necessary data, to support brick against all competitors in any argument that may come up.

All that is necessary now to make the Building Brick Bureau the biggest thing that has ever happened in the clay-working industry is for everybody to get in line, join in the work and benefit from it.

## THE LINCOLN HIGHWAY.

The Lincoln Highway, that great roadway being developed from New York to San Francisco, is the longest good roads proposition in the world. It is not only a monument to a great American statesman, but in time it will be a monument to the enterprise of the American people, and we hope that some day it will be paved with brick from one end to the other, for then, indeed, it will be a world's wonder, as well as the greatest roadway it is possible to build.

Written for The Clay-Worker.

# DRYING OF CLAY WARES.

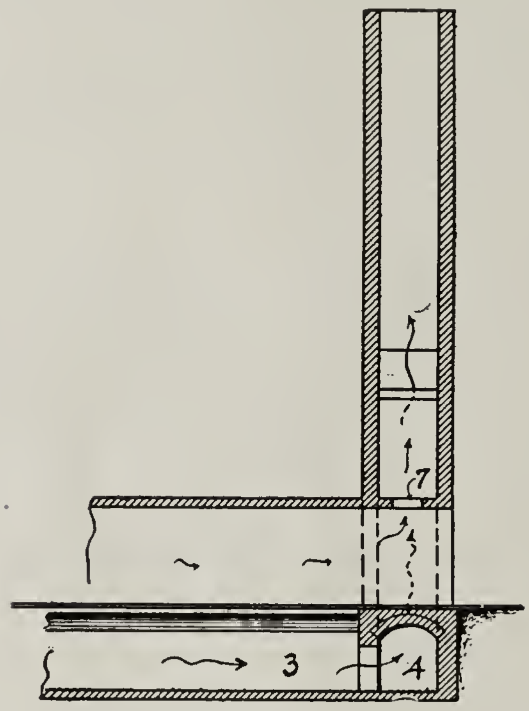
By Ellis Lovejoy.

## PART XVI—RADIATED HEAT DRYERS.

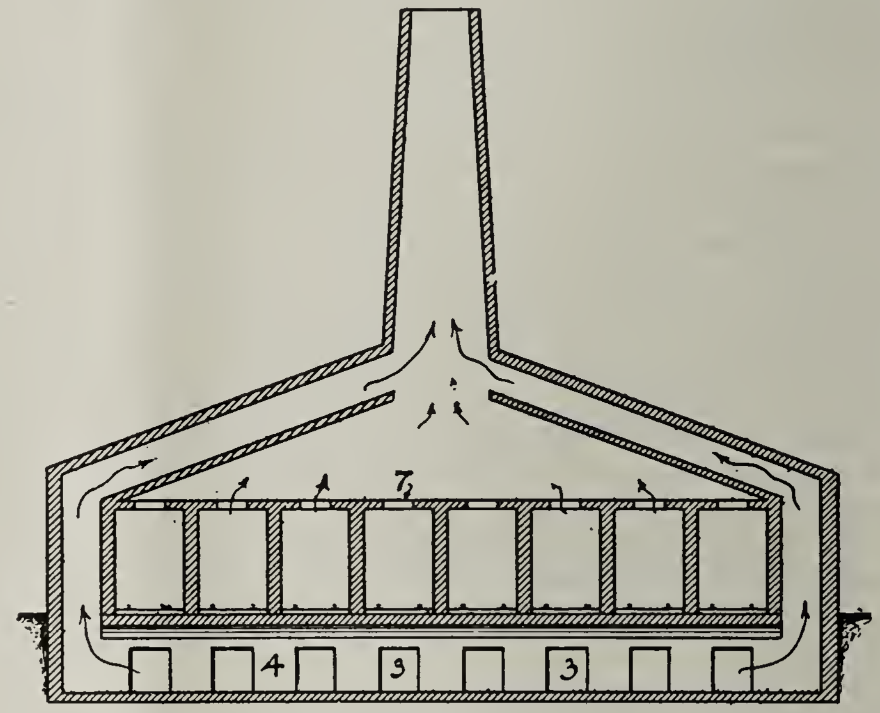
A MORE USUAL FORM of radiated heat dryer exhausts the air and moisture through the tunnel roof at the end. Figs. 69 and 70 are sections through the exhaust stack of such type. As will be seen, the smoke flues (3) connect with an underground cross-duct (4), which leads to either side of the dryer, thence up the back over the dryer to a center stack. The moisture outlets (7) are in the tunnel roof and the exhaust air and moisture are directed into the smoke stack.

The hot radiating flue under the cars of ware induces a circulation, as indicated in Fig. 71, which we do not get in the typical waste heat progressive dryer, and with this circulation there is slow progression of the air toward the exhaust end.

The value of this circulation is too often overlooked in the setting of the ware on the cars. The bottoms of the cars become heated by direct radiation, thus giving an upward impulse to the returning air flowing under the cars. We frequently find the ware set in such a way as to prevent the passage of the air; particularly is this true in paving brick manufacture where standard cars are used. Standard cars have slats proportioned and spaced for standard bricks, and paving blocks on such cars overlap the spaces and close them to the passage of the air.



Long'l Section
Fig. 69



Cross Section
Fig. 70.

A brief discussion of the merits and efficiency of a radiated heat dryer may not be out of place. We are often confronted with the inquiry in regard to the proper dryer. Naturally, this cannot be answered without full information in each individual case, but some general principles may be discussed.

There are many plants with scove, updraft or continuous kilns from which little waste heat is recoverable. (Note: We may be criticised for including the continuous kiln in this category, since in a number of installations heat for the dryer is taken from a continuous kiln. We hold, however, that it is not waste heat, since it must largely be replaced for the kiln operation, but concede that such a kiln may be an economical place in which to generate heat. However, as a general rule, the greatest economy results when the heat is generated where it is to be used. The absurdity of the continuous kiln waste heat claim becomes apparent when one realizes that in a number of plants less fuel is consumed in the kiln than would be required in the dryer. We cannot rob the kiln of all its fuel value, and more, and have left the necessary requirement for heating up, watersmoking and burning the bricks.) If, also, the steam power is low, as is often the case, or the plant is electrically equipped, a direct coal-fired radiated heat dryer is essential. If the steam power is high, then a steam pipe progressive dryer, which is quite as truly a radiated heat dryer, should receive consideration.

A steam-driven plant, with down-draft kilns, is no place for a radiated heat dryer, especially the coal-fired dryer, but if the plant is electrically driven and near the coal fields, where fuel is cheap, it may be economy to lose the kiln waste heat in order to save the cost of power required to drive the fans necessary to recover the waste heat.

The selection of the type of dryer, then, is dependent upon the kind of kilns, the character of the power, the cost of fuel, and also necessarily upon the product to be dried.

The radiated heat dryer may justly claim efficiency when in its proper place and properly installed.

The heat carried away in the combustion gases is essential to create draft, both for the furnaces and the tunnels.

The relative high temperature at the air exhaust end causes loss only in case the saturation is correspondingly low, but in view of the small volume of air, of its slow movement through the tunnels, and of the circulatory tendency, as illustrated in Fig. 71, there is no reason why the saturation should not be practically complete, in which case the high exhaust temperature becomes an efficiency factor.

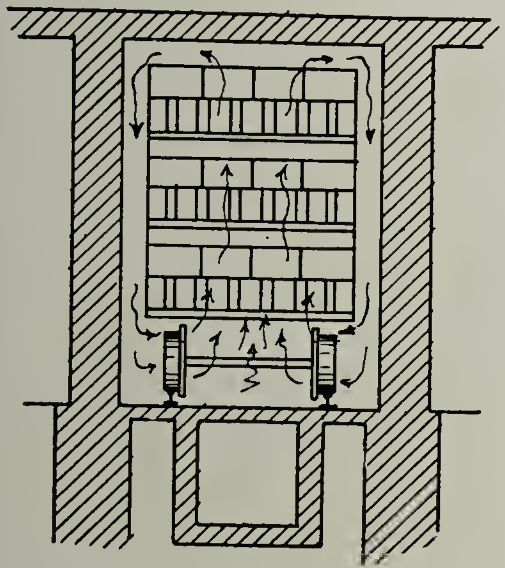


Fig. 71

The circulation of the air gives in some degree a vertical movement through the ware which is more satisfactory than horizontal draft, and the slow forward movement in connection with the rotary circulation relieves us of the necessity of fitting the dryer closely to the mass of ware.

The horizontal movement of large volumes of air through a tunnel dryer requires that there be little free space in order that the air may be forced among the ware, otherwise there is little drying and excessive loss. It is difficult to adapt such a dryer to several kinds of ware on the same yard—tile on double or triple-deck cars, brick on single or double-deck cars, pallet rack cars—and in such installations the radiated heat dryers are more efficient.

(To be continued.)

Sometimes we have a spell of speculating on what has become of all the money people claim has been lost in the clayworking business, and whether or not it has all been lost.

## FINE EXHIBIT OF LOS ANGELES PRESSED BRICK COMPANY AT PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

ONE OF THE most instructive and pleasing brick and tile exhibits ever assembled on the Pacific coast is to be found in the display of the Los Angeles Pressed Brick Company, for which the United Materials Company, of San Francisco, is the northern California representative, in the Varied Industries Building at the Panama-Pacific International Exposition. Besides showing the extent and diversified use of these materials, from the standpoint of beautification, this exhibit also represents in marked manner really high-class examples of brick and tile laying. The exhibit further provides pleasure as a resting place and headquarters for many visitors.

Its chief interest, however, is for architects and builders and others interested in such work.

The exhibit was designed by Architect E. G. Bolles, of San Francisco, who has admirably used his skill in creating a display showing the dignity and extreme effectiveness of these materials, and at the same time allowing opportunities for a wide exhibit of the many bricks and tiles manufactured by the Los Angeles Pressed Brick Company.

Upon entering the exhibit one is at once impressed by the thoroughness and attention to detail. Two well-executed pillars of red ruffled brick support a hand-welded and wrought ornamental metal arch, and are topped by an artistically wrought pair of lamps. The pillars are laid up in plain bond and the joints are raked. An excellent piece of bricklaying is exemplified by the insertion of a large star in brick in the pillars.

Buff tile, size 6x6, surround a staff near the entrance and forms the background for the insertion of a panel of faience pattern tile, on which is carved the name of the exhibit and the company.

The exhibit is floored with 3x6 buff tile, encircled by a border of 6x6 red quarry tile.

The side walls offer one of the most interesting features of the exhibit and depict in a striking manner the beauty of brick. On the right wall is shown old gold pressed brick, buff pressed brick, golden ruffled brick, combinations of cream and gray pressed brick, combinations of medium and light old gold pressed brick and paving brick, the whole being surmounted by a running border of red pressed brick in indented fashion. The various examples of laying brick are well executed. The use of herring-bone pattern, bond, plain bond, interwoven bond, checker board and basket patterns has been carried out on a wide scale. This feature alone is well worth attention, as it is at once evident that the builders have overlooked nothing that might operate to increase information and knowledge on this important subject.

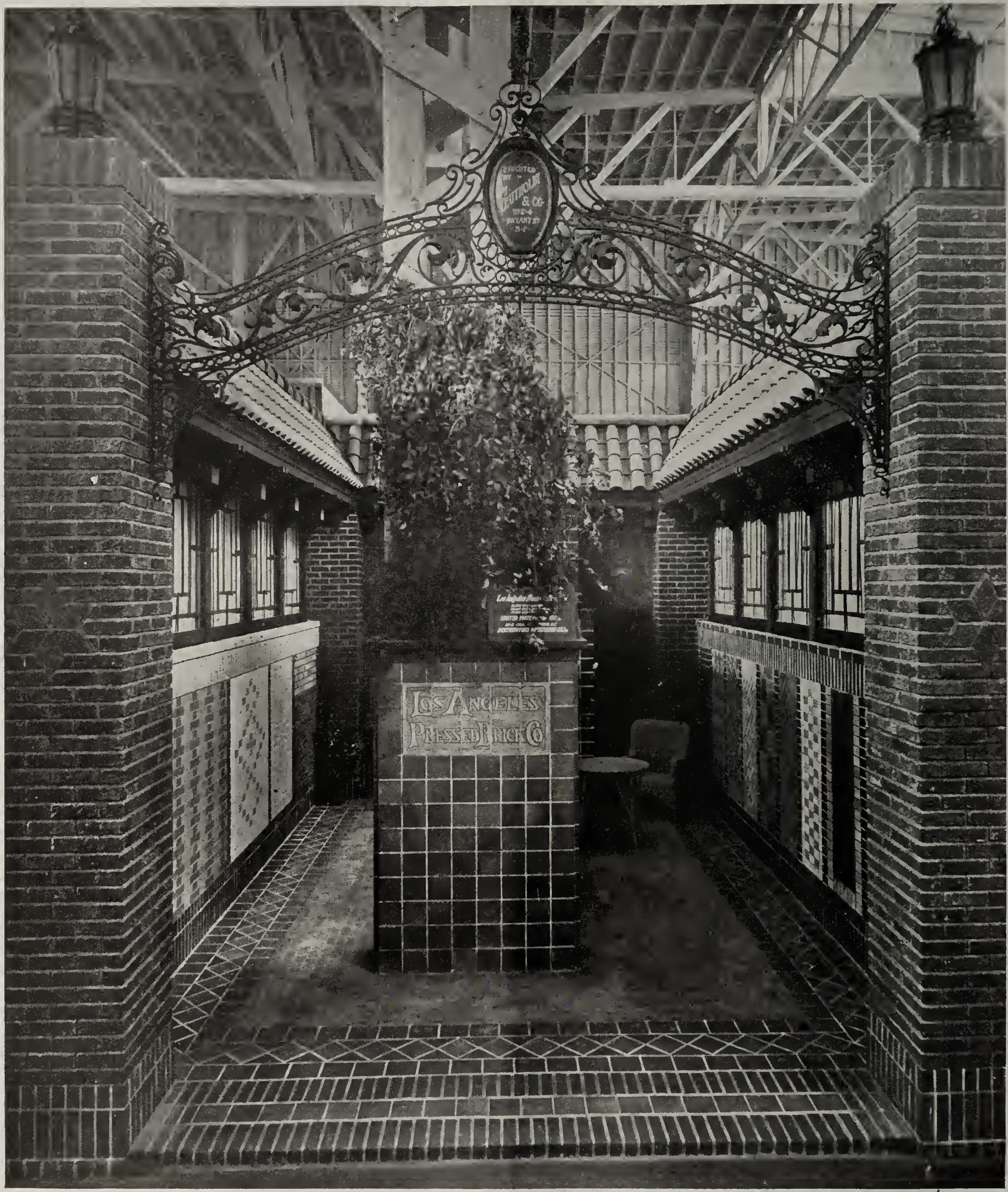
The opposite wall is devoted chiefly to a display of the new rug brick recently brought out by this company. It is shown in about nine shades, and is laid up with the wide joints. Rug brick is the latest product of this company in a rough texture brick, and is one of the most desirable and desired bricks on the market to-day. The exhibit of this brick plainly shows that any shade or blending of shades absorbs the light and presents a restful and pleasing effect to the eye.

The rug brick panels bear a remarkable similarity to the soft and alluring tones of a Turkish or a Persian rug. Its manufacture is the result of the present-day demand for an artistic rough face brick, showing adaptability for the needs of western territory.

The rug brick panels are one of the most pleasing parts of this exhibit, and, although several shades of brick are used, there is not a jarring note in evidence—rather there is a most harmonious blending with the other grades of brick and tile.

Some very fine samples of enamel brick, displaying ivory, white, buff and cream patterns, divide interest with the rug brick.

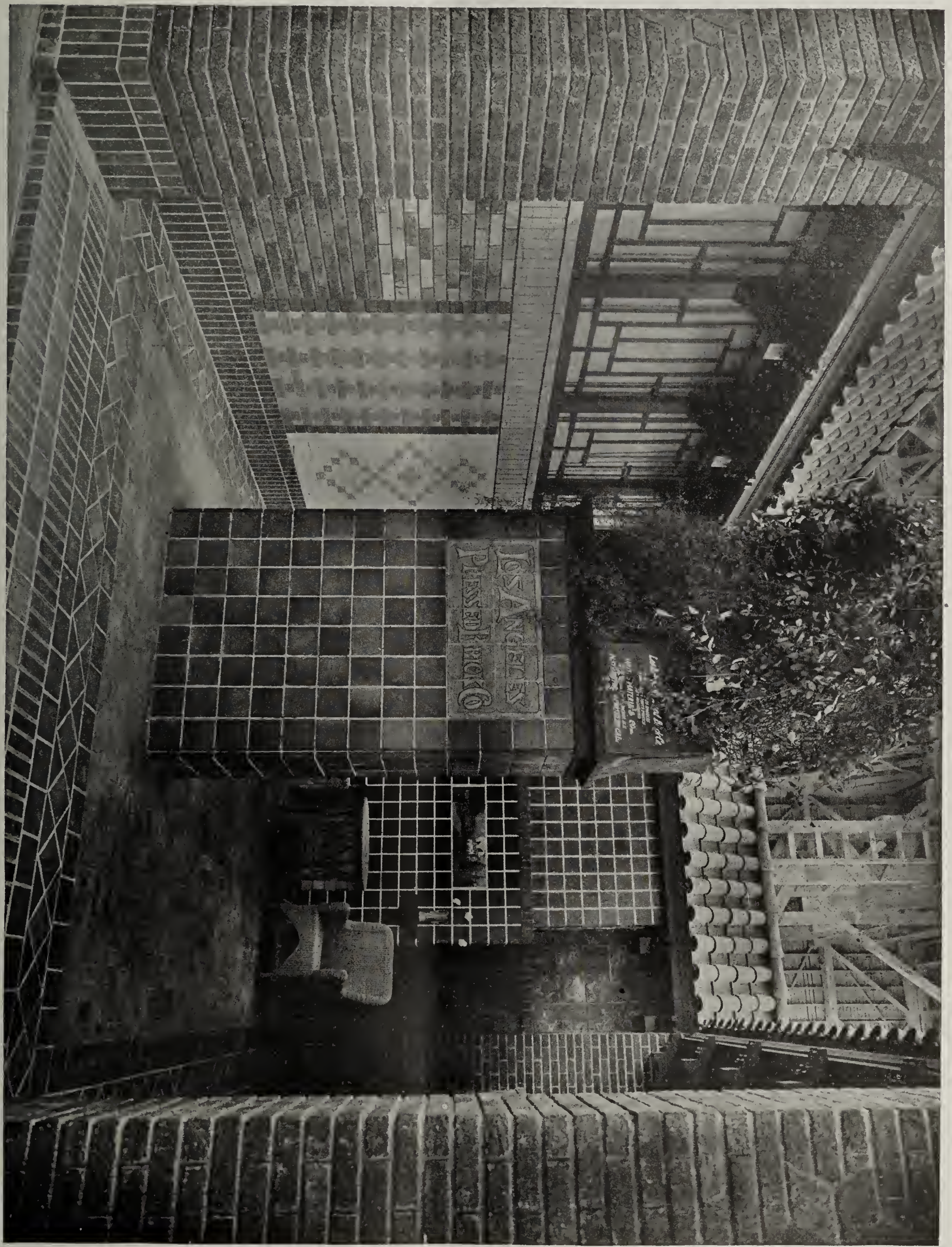
The walls support three styles of roofing tile made by this company, Mission, Spanish and Italian. The visitor is able to make a nice distinction between the various patterns of tile and the method of laying up same. Needless to say, the work is of the best and merits one's deepest interest.



Courtesy of The Architect, Formerly The Pacific Coast Architect.

Splendid Display of the Los Angeles Pressed Brick Company at the Panama-Pacific International Exposition,

The crowning touch to the ensemble is given by the handsome tile fireplace at the far end of the room. Over the fireplace there is embodied a tile panel in colors, illustrating most splendidly an old castle sequestered in a beautiful garden spot. This panel shows in vivid style the manner in which this product can be used for purposes of decoration. Hill and dale, trees and shrubbery are represented distinctly and harmoniously. Even the sky and cloud effect is portrayed in true manner. The color work is exceptional. This panel is constructed of what is known as the faience tile. The walls of the fireplace proper are finished in 6x6 green enamel



Courtesy of The Architect, Formerly The Pacific Coast Architect.

Another View of the Los Angeles Pressed Brick Company's Exhibit. Note the Handsome Fireplace.

tile, the firebox in white fire brick, and light and dark green tile has been used on the mantel.

The flanking walls are finished in green mottled tile, surmounted by white mottled tile.

Reed chairs and tables and the use of potted plants add doubly to the interest and comfort of the exhibit. It is open at all times, and it is hoped that visitors will go there and make themselves at home.

The Los Angeles Pressed Brick Company also conducts an exhibit in the Contra Costa county section in the California State Building, which represents the firm's activities at Richmond, the location of the northern California plant and the factory of this concern. A third exhibit is installed in the Mines Building.—Courtesy of The Architect, formerly known as The Pacific Coast Architect.

## LOAD CARRYING PROPERTIES OF FIRE BRICK.

The American Gas Institute and the American Refractors' Association are carrying on investigations to determine the load carrying qualities of fire brick when built up in the form of small piers and subjected to a load of 40 pounds per square inch at different temperatures. This is a continuation or an extension of some work of this kind a few years ago, where single brick were tested for load carrying qualities under different temperatures and the idea, of course, is to determine the compression or load carrying strength of fire brick when heated to various temperatures to which it is likely to be subjected while in use. The result of these experiments should be of value to both the manufacturers and the users of fire brick if they are carried far enough to determine the relation between fire brick of different compositions.

## BRICK AND THE EXPORT TRADE.

The Bureau of Foreign and Domestic Commerce has issued an interesting resume of the export trade in building materials. In the building material list is included many items likely to be overlooked by the average man, but the interesting feature to the clayworking industry is what they state concerning brick. Included in this list of building materials last year there was fire brick to the value of $976,335; tiles, other than drain, $779,323; building brick, $623,115, which makes a total of $2,378,773 of clay products entering the export trade under the head of building material. This is a fairly good item when we consider that we have always regarded the brick trade as a domestic trade almost exclusively and quite largely a local trade, even in the domestic field. There is room to enlarge this trade, too, especially in certain lines of fire clay products, flooring tile and decorative tile, as well as in fancy face brick.

## BRICK AND TILE IN COLOMBIA.

Consul Ross Hazeltine, of Cartegena, Colombia, has reviewed the brick trade prospects in that country recently for the benefit of those interested in trade extension and gives it as his opinion that there is no chance to market common building brick, but there is some market for fire brick, paving brick and, while he does not say so, it is evident that there is some chance for developing trade in fine face brick.

Heretofore England has been capturing more of this trade than the United States, especially in fire brick and in tile. Right now the opportunity should be good for our own manufacturers to get the bulk of this by proper exploitation. Business is handicapped a little now by excessive freight rates, which run the cost up considerably, the price of fire brick delivered down there being given now as $14 per hundred, which means $140 per thousand, and that is some price even for fine brick.

There are no great iron industries to use enormous quantities of fire brick that are consumed in this country, but there is a call for fire brick for furnaces, and ovens of various kinds, and there has been some demand for paving brick and this demand will evidently increase now with the return of more normal financial conditions in the recovery from the shock of the war in Europe.

It seems that brick is a favorite building material down there and that most of the houses are built of brick, though many of them are plastered over with cement or a colored lime solution which develops many variegated colors, giving a picturesque aspect to the buildings. This ought to furnish some opportunity to develop business in face brick.

There seems to be a splendid trade in roofing tile, as red tiles are used extensively for roofing, and also all the better houses have colored tile floors. Much of this tiling is manufactured locally and it is a question if American manufacturers can meet the competition and get into this trade. Yet, there is some trade in fire brick and paving brick, and to what extent this may be enlarged can only be found out by inquiry.

The Bureau of Foreign and Domestic Commerce at Washington will furnish names of importers of brick into Colombia, to those interested, on request.

## THE BUREAU OF STANDARDS ASSISTS.

The Bureau of Standards of the Department of Commerce at Washington has been industriously rendering what assistance it could to the clayworking industry right along, and during the war period it has exerted itself in co-operation with the industry and, with other branches of the government, to assist the pottery industry in meeting the needs in certain lines. One of its reports tells of assisting, at East Liverpool, Ohio, a china company, by furnishing compositions of bodies and glazes for the manufacture of chemical porcelain. There was also supplied drawings of a suitable kiln. It is also said that a Trenton, N. J., concern has decided to adopt the casting body worked out in the Bureau of Standards for casting sanitary ware. The bureau has also arranged to test out very thoroughly some Texas kaolin deposits in co-operation with an Ohio pottery company.

## PASSING OF A CONCRETE ARGUMENT.

One of the stock arguments that was used extensively in promoting the use of concrete in the hurrah days, was that it did not require any expensive skilled labor for this work. This was one of their biggest stock arguments, which is now passing into the discard because the uncertainties of concrete in the hands of unskilled labor are so great that it is being passed up in many instances.

An illuminating example of this comes in a consular report from China, where they are taking up with modern building ideas. This report stated that the risk of faulty mixing of concrete and the incorrect placing of reinforcing are matters of serious concern, especially in employing unskilled workmen, consequently the disposition is to use steel framing rather than concrete, because it is safer and more dependable.

This is but a confirmation of argument that has been put up by The Clay-Worker and its many contributors repeatedly, that when concrete work is cheap it is not good, and when it is good it is not cheap.

That unskilled labor dodge won't go any more in the concrete world, in fact, it has proven a sort of boomerang. There has been so much concrete work done by unskilled labor that has turned bad afterward that the final result is almost the undoing of concrete itself when it comes to dependable work.

It is not the purpose here to argue that good foundation work and structural work, too, for that matter, may not be done with concrete. It can. Concrete, properly used, is one of our splendid structural materials and we need it for many purposes. Moreover, splendid, substantial work can be done with it. It must, however, be carefully done by people who understand something of the scientific requirements of the work, and when it is properly done it is not cheap work. It really requires more skill to properly put up concrete than it does to lay a brick wall. We repeat that when concrete is cheap it is not good, and when it is good it is not cheap.

Written for The Clay-Worker.

# A WELL BUILT FIRE-SAFE HOME.

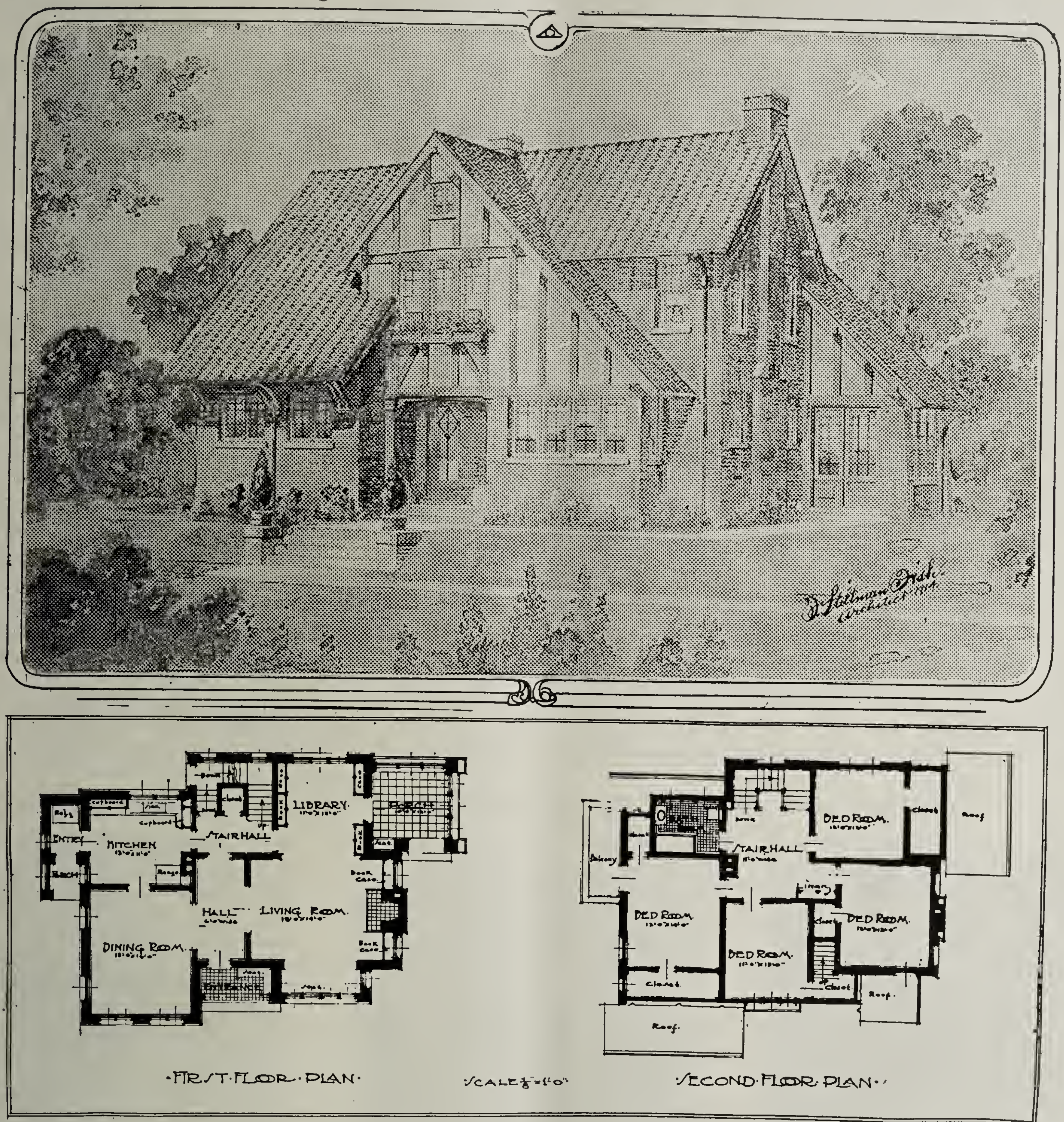
A TRIP THROUGH the better residential districts of most any city only is necessary to convince one of the popularity of clay products as home building materials. Brick, tile and terra cotta everywhere are conspicuously in evidence, thus testifying to their utility as well.

The newer rough-surfaced or "texture" brick have opened up a new field in residence building by overcoming the objection to the older types of face brick that they required years of weathering to rob them of their look of "newness." With the face brick of the present, one may have an "old" looking house at once, in defiance of time.

The active campaign for fire-safe homes being made in Cleveland has resulted in an exceptional demand for this type of house, at a price not excessively high. Quick to realize this demand, architects are giving a great deal of time and attention to the design of these moderate priced houses. The house shown is one of these. It is exceptionally well designed, having character enough to be a neighbor to most any house, no matter how costly, without suffering by comparison.

This home contains many features not usually found in those of moderate price. Of these the enclosed porch is an important one. Another is the library—a real necessity often omitted from present day houses. The living room is large and well lighted, as also are the bed rooms. A low attic over the entire house provides an ample air space and insured the coolness of the second-story rooms.

This house was built on the "Heights," Cleveland's new residential suburb. Its cost was $7,000, built of tile, faced with brick and with tile roof.



An Attractive Fireproof Brick Home in Cleveland, Ohio.

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**BUILD WITH BRICK.**

# A NEW DEPARTURE IN PERMANENT BRICK PAVING.

## Cement Filled Brick Pavement Resting on a Rigid Concrete Base, Laid Near Paris, Ill.

IT has been the writer's experience that the excess of sand cushion has been one of the elements of uncertainty in the construction of a cement filled brick pavement, and for many years has made an effort to reduce the depth of this sand cushion to the minimum, realizing that the only function of this bed of sand was to compensate for the irregularities of the surface of the concrete base and the depth of the paving block.

Since tiled floors and, in a few instances, paving brick had been successfully laid on a rigid base, there would seem to be no reason why country roads could not be more economically constructed by eliminating the curb and laying the brick directly on the green mortar.

Some experimental sections were made, using a cured concrete base, on which was placed a one-inch dry mortar cushion mixed in proportion of one of cement and four of sand, compressed with a hand roller, upon which were placed the paving block, then rolled, and sufficient water applied to saturate and set up the dry mortar cushion. This proved to be a success and perfectly practical in its execution.

The above experiment suggested the laying of the brick directly on the green mortar and some small sections were made in which the bricks were laid directly on the green concrete.

Mr. A. J. Parrish, a contractor of Paris, Illinois, and myself made many sections in experimenting with laying brick on the green mortar, using first a moist concrete, then using the usual amount of water, making the aggregate fairly wet. We found that in cutting the concrete with a template the surface was left somewhat rough, owing to the pulling out of the large particles of stone, and therefore tried spreading a thin film of the sand and cement, after they had first been mixed dry, over the surface, by raising the template slightly—about three-sixteenths of an inch—and cutting off this surface and spreading a thin film over the entire surface, filling all of the depressions and leaving the surface true on which the brick could be laid.

This suggested the plan of constructing a double template, one cutting the concrete base, the other spreading the thin film of the dry mix sand and cement.

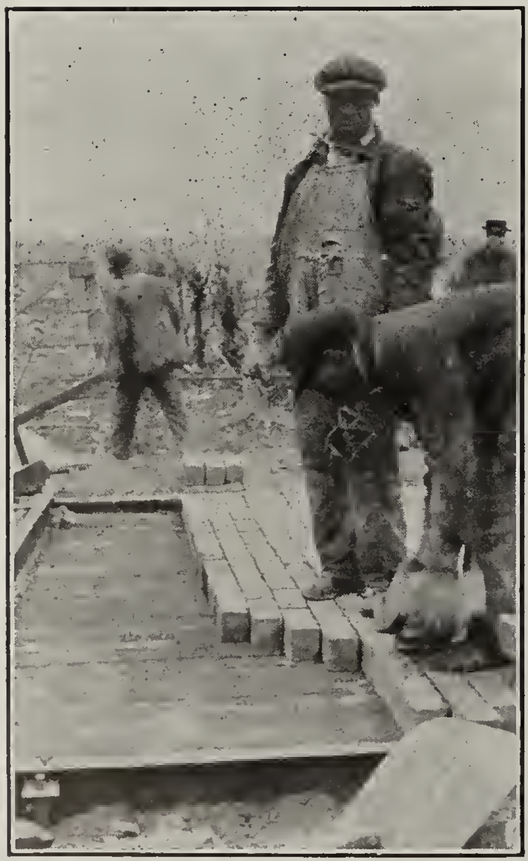
Mr. A. J. Parrish had a contract for extending one of our State Aid roads, and wishing to try out the experiment, I secured the consent of Mr. W. W. Marr, the Chief State Highway Engineer of Illinois, also the consent of the State Highway Commission, to construct this section of road, ten feet in width, eliminating the curb, laying the brick directly on the green mortar.

The roadway was first excavated to the proper grade, and the sub-grade thoroughly compacted by repeated rolling with a five-ton self-propelling tandem roller. Steel forms, specially designed for this type of work, of convenient length and eight inches in depth were set true to line and grade. These forms were provided with a flange extending out a sufficient distance to allow it to be drilled for a three-quarter-inch hole, through which an iron pin passed, pin then passing through a sleeve supplied with a set screw that enabled the form setter to set them exactly to grade and line. This will be illustrated in photograph No. 1. Note in this paragraph how the brick set upon the foundation.

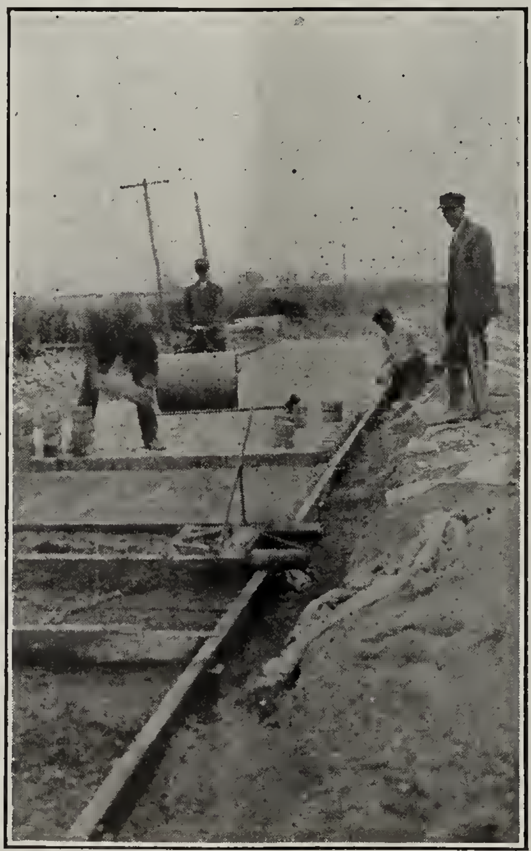
The concrete was mixed in proportions one part of cement and six parts of the combined aggregate of sand and gravel, in a small batch mixer, and spread over the sub-grade in depth a little over that required, as indicated by light wooden template resting on forms as shown in photograph No. 2. After the concrete is placed it is well to tamp the edges with a light tamper, not more than five inches in either dimension on its face.

A steel template, consisting of an "I" beam and channel iron, and placed two feet apart, supported by a carrier supplied with two rollers carrying the weight on the forms, was

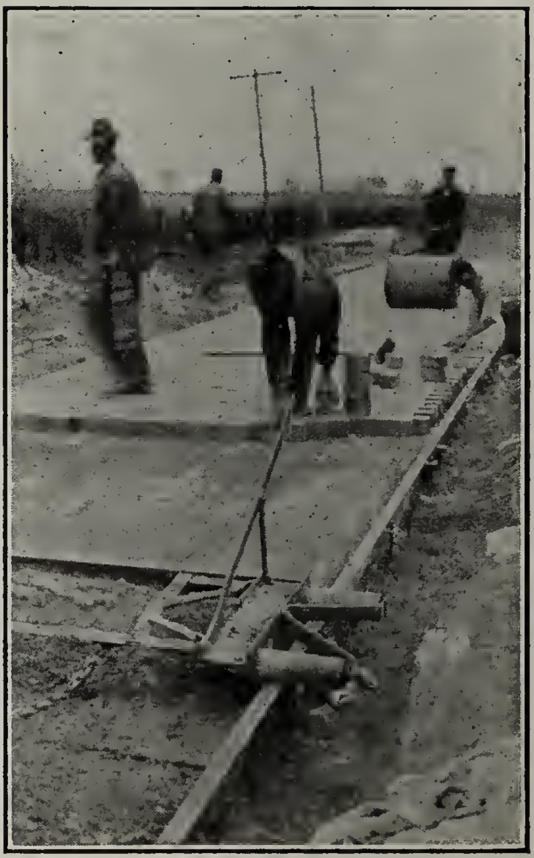
Progressive Views Showing the Several Steps in the Construction of a



No. 1.



No. 2.



No. 3.

drawn over the concrete base, the "I" beam cutting the concrete to grade, and in between the two members was kept a mixture of sand and cement, which was first mixed dry and deposited in front of the rear member, so that the concrete base was covered with a thin film of dry sand and cement, in this case only three-sixteenths of an inch in depth, which almost immediately took up the moisture from the base, leaving an ideal surface upon which to lay the brick. This will be illustrated in photographs No. 2 and No. 3.

The bricks were laid with the best face up and the lugs in one direction. The carriers were instructed not to carry in defective brick, and they were required to place the brick on the pallet, so that when they were delivered to the setter they could be easily laid in the roadway with the best face up and lugs in one direction. The batting was kept close to the laying, and, in fact, the pavement was finished, except the grouting, at all times within twenty feet of the depositing of the concrete base.

The steel template referred to is one of the essentials in securing accurate results in this type of construction, and credit is due Mr. J. C. Gordon for the development of the template and carrier used. Mr. Gordon is Mr. Parrish's foreman, and I feel that we are indebted to both Messrs. Parrish and Gordon for working out the details and carrying into successful execution the construction of this type of roadway.

Immediately after the brick were laid the surface was rolled with a hand roller 30 inches in length and 24 inches in diameter, filled with water, making it weigh something over 600 pounds. I would suggest that this roller should be 30 inches in diameter and made in two sections, giving it additional weight and still leaving it very easy to operate. This roller seemed to iron out the surface perfectly and give it the appearance of a tile laid on a floor, rather than a brick surface rolled in the ordinary manner. This can be easily seen by examining the surface in photographs No. 2, No. 3 and No. 4.

The brick at no instance were creeled or imbedded in the base, but merely made smooth, leaving the joints entirely open, as illustrated in photograph No. 5. Wire-cut-lug brick were used, leaving perfect separations for the filler.

The filler was applied in a modern method, one part of sand and one part of cement, having been mixed dry in a small batch mixer, was conveyed to the grout box resting on the brick surface, where sufficient water was applied and thoroughly mixed, making it of the consistency that would readily flow into the joints after being removed from the box with a scoop shovel.

The surface was finally finished with a squeegee, leaving the joints entirely filled and the surface smooth. After the filler had sufficiently set up the forms were removed, leaving the surface and edge of the pavement as shown in photograph No. 6.

After sufficient time had elapsed that there would be no danger of disturbing the pavement with the grader, the side berm was constructed and the earth road graded and thoroughly compacted. This paved portion was a little to one side, leaving room for a 10-foot earth road.

Some of the advantages of the new type are the removing the hazard of the sand cushion, the construction will not be injured at any time by the interruption of rain storms, as the pavement, with the exception of the filler, is completed at all times, and the filler is never allowed to be left out more than six hours after the laying of the brick; however, should storm intervene, no damage could be done by delay if traffic is kept off of it, as there is no sand cushion there to become saturated nor worry about rolling the brick surface.

The certainty of having a four-inch depth around every block for the cement filler cannot be ignored.

The support of the individual unit of the paving block on the rigid base certainly cannot be questioned, as it relieves the condition of suspension where the bricks are solidly cemented together and the sand shrinking away from any portion of the under surface.

In the country road, especially, this type is more easily and cheaply constructed.

Every element entering into the construction of this type of pavement is positive.

A true and uniform surface can be more easily obtained.

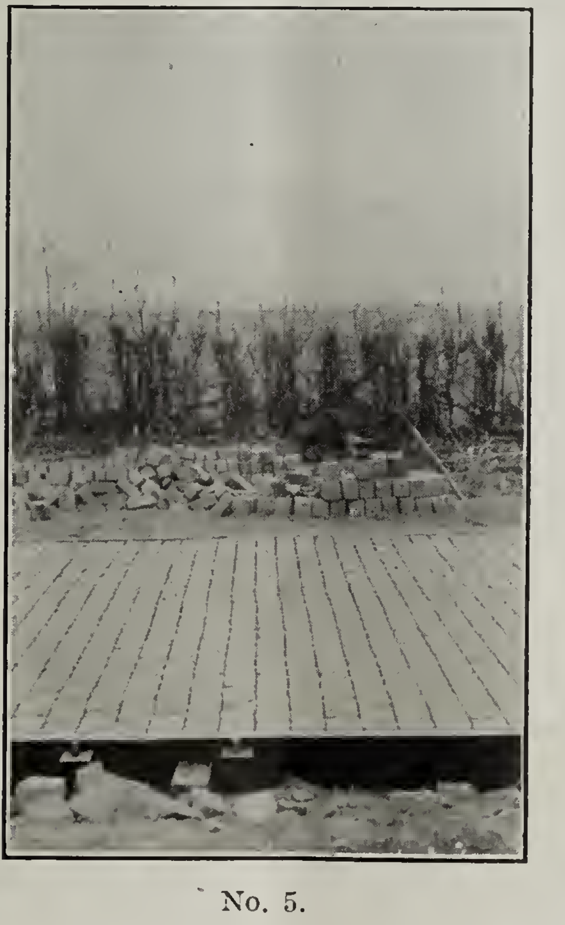
This type of construction eliminates the necessity of an edging, thus reducing the cost of the roadway.

We have built two country highways, one 10 feet and the other 13 feet in width, and one city pavement 30 feet in width, using this type of construction. It was a little more difficult to construct the template for the 30-foot pavement with a five-inch crown.

The work in progress has been examined by many engi-

## Permanent Brick Pavement, Made With Dunn Wire-Cut-Lug Brick.

No. 4.


No. 5.

No. 6.

neers and highway commissioners, and has universally been pronounced a success. The State Highway Department will construct a country road at Eldorado, Illinois, using this type of construction.

It is my opinion that this will make a more durable and more economical brick pavement, and will provide for the successful use of both the three-inch and three and one-half-inch, as well as the four-inch, paving block.

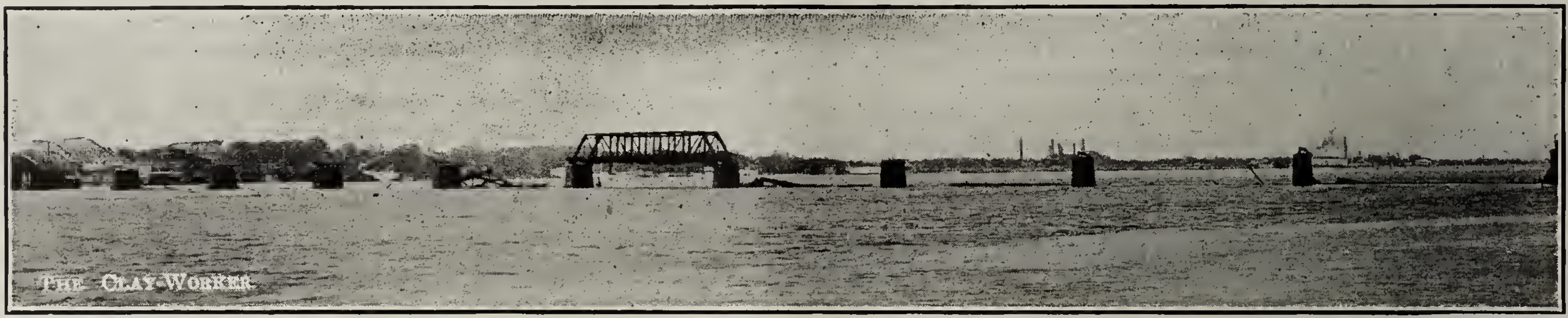
W. T. BLACKBURN.

Paris, Illinois.

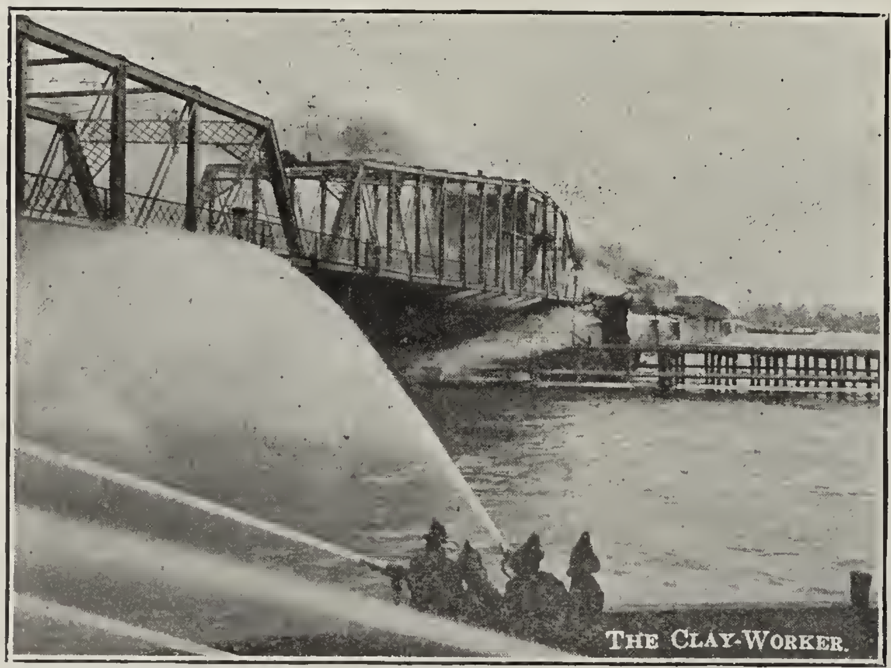
# A WOODEN BLOCK PAVEMENT CAUSES THE DESTRUCTION OF A MILLION-DOLLAR BRIDGE.

## Remarkable Conflagration at Detroit—Some Narrow Escapes When the Steel Bridge Connecting the City With Belle Isle is Wrecked by Fire.

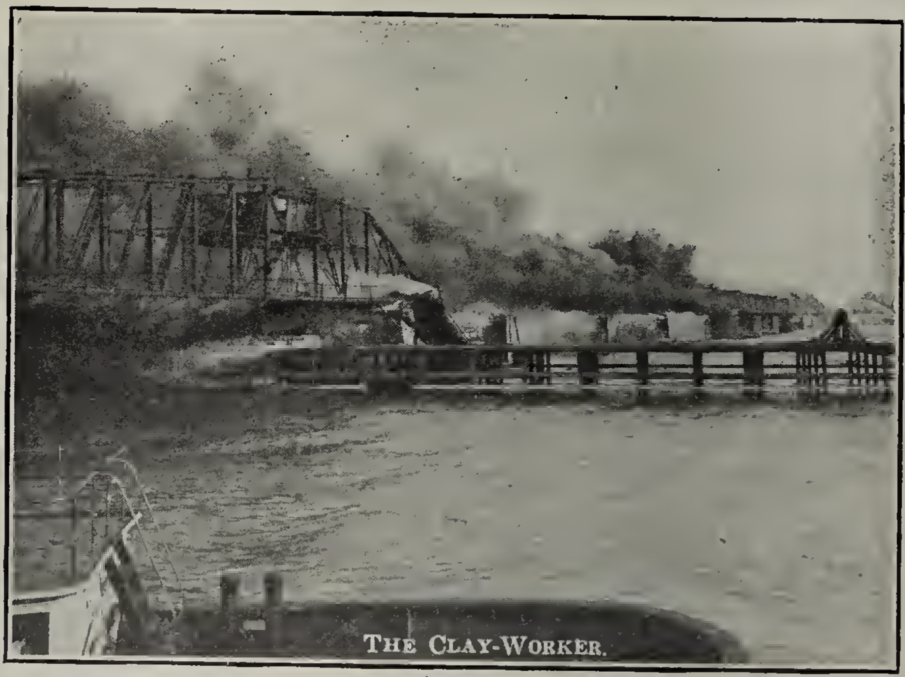
PLEASURE SEEKERS spending an afternoon at Belle Isle, the splendid pleasure resort of Michigan's metropolis, were treated to a rare scene recently when the bridge connecting the island with the mainland was wrecked by fire, which was first discovered about 3 o'clock in the afternoon. It started in two places at the same time, and was due, it is supposed, to coals from a tar cart belonging to the city, which was being hauled over the bridge for the purpose of making repairs. When the fire was first discovered there were several motor cars and many pedestrians on the bridge, going to and from the Island. The fire spread so rapidly that a number who were caught between the two fires had narrow escapes, but there were no casualties reported. The wooden block pavement had become thoroughly saturated with oil and gasoline from passing automobiles, and proved a veritable tinder box. Despite the efforts of the fire departments, supplemented by two great fire boats, the bridge was completely wrecked, a part of the draw and the stone piers being all that was left standing of the great structure, which was nearly a half of a mile in length. The heat from the burning block and other timber work warped the steel work, all of which fell into the river. Plans are under way for a new bridge, costing $1,000,000, to take its place. If the builders are wise, it will be paved with brick, and so will be made fireproof and timeproof.



One Span and the Stone Piers, All That Was Left of the Steel Bridge.



Detroit Fire Boats Making Vain Efforts to Save Bridge.



The Bridge Thirty Minutes After the Fire Started.

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Mr. George Bernard Shaw was invited by a friend one night to hear a string quartet from Italy. Expecting a treat, he accepted the invitation. Throughout the program he sat with a stony look on his face.

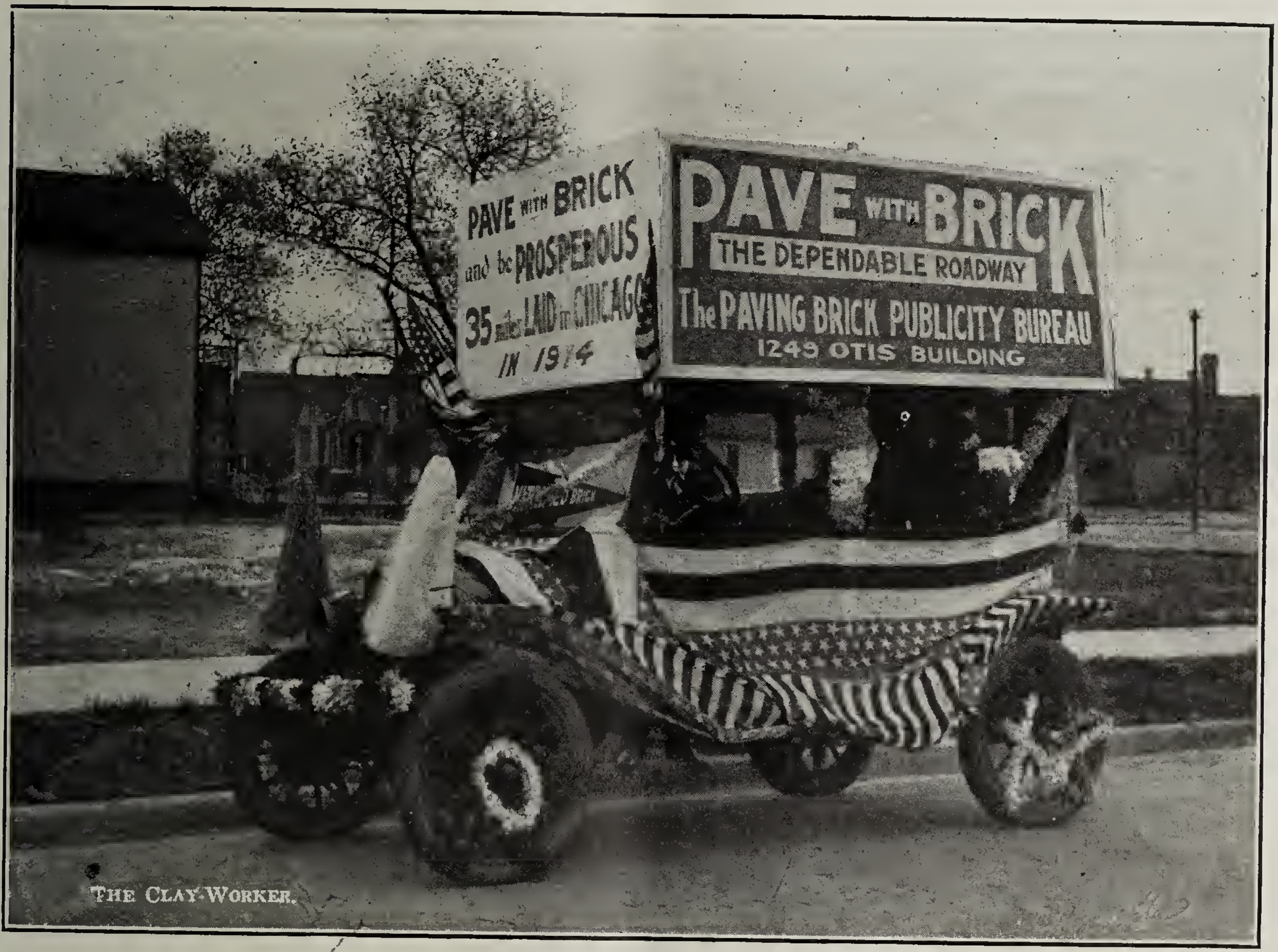
The friend, to draw a little praise from him, said: "Mr. Shaw, those men have been playing together for twelve years."

"Twelve years?" said the other in an incredulous voice. "Surely we've been here longer than that."

Written for The Clay-Worker.

## "PAVE WITH BRICK AND BE PROSPEROUS."

THE ABOVE quotation is a happy thought well expressed. It appeared on the attractive float of The Paving Brick Publicity Bureau, which was one of the hits of a great industrial parade which occurred in Chicago recently. The reader will notice in the accompanying photographic reproduction that The Clay-Worker's slogan, "Pave with Brick the Dependable Roadway," was made the chief feature of the ad on wheels. The manager of the Bureau, Mr. W. M. Hansen, appreciates a good thing, and so do the people of Chicago, as is indicated by the statement on the float that thirty-five miles of brick pavements were laid in Chicago in 1914. From present indications, a much greater mileage will be laid this year. Taxpayers are learning that in the long run brick pavements are the most economical and satisfactory roadways for both city and country highways. When laid properly, according to approved specifications, a brick pavement is perfectly smooth, is in every way sanitary, comparatively noiseless, and good for many years of continuous service, with no cost for repairs whatever. Whenever a brick paved thoroughfare lacks any of these virtues, it will be found on investigation that some important element of good construction has been neglected. It is one of the functions of the Paving Brick Publicity Bureau to see to it that the brick pavements being laid in Chicago are constructed properly, and the growing popularity of brick paved streets in Chicago is due in no small degree to the good work done in that direction. If every city in the land had a similar bureau doing similar work the measure of happiness and prosperity of all would be multiplied many times.



Prize Winning Float in Chicago's Industrial Parade.

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**PAVE WITH BRICK.**

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Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

THE BUILDING SEASON has opened up fairly satisfactory all over Wisconsin, although operations at some points are hardly equal to those of a year ago. Milwaukee, for instance, is falling behind just at the present time, although Building Inspector W. D. Harper says that there have been enough large projects planned to later bring up the total to a point where it will at least equal the building record of 1914. During the month of May there were 467 permits issued for structures to cost $1,188,700, as compared with 537 permits and a building investment of $1,743,607 during the corresponding period a year ago. This represented a loss of more than $500,000.

M. A. Tulgren & Son, Milwaukee architects, are preparing plans for the erection of a $170,000 apartment building of brick construction, to be erected at Astor and Martin streets.

Among the large building projects under way about Wisconsin, which will be of interest to brick men, are the following: Hamilton Beach Manufacturing Company, Racine, Wis., factory of brick and mill construction, 50x250 feet in dimensions, to cost $30,000; Edmund B. Funston & Company, Racine, architects. Rebuilding of the McCartney National Bank building at Green Bay, Wis., at a cost of $75,000; of stone and brick construction; Foeller & Schober, Green Bay, architects. Erection of a $10,000 building at the Indian school at Tomah, Wis.; brick construction.

Joseph D. McCord, 610 Majestic building, Milwaukee, has been awarded the contract for supplying the terra cotta for the Y. M. C. A. building, which will be erected at Racine, Wis. Mr. McCord has also secured the contract for the terra cotta on the N. D. Fratt school at Racine.

Considerable brick paving is to be done by various Wisconsin cities this season. The common council at Marshfield recently voted in favor of vitrified brick as the material for paving Central avenue and awarded the contract for the work to the C. Peterson Construction Company, of Kenosha, Wis., at the contract price of $66,398.45. The common council at Merill recently decided to pave portions of Main and West Main streets in that city with vitrified brick. This is the first time in the history of Merrill that action has been taken to lay permanent pavement, as, up to this time, only tar macadam and crushed rock has been used. More money was voted at this particular meeting of the council for paving work than has been spent for similar work in several years. Stevens Point and several other large cities are planning on doing considerable paving and it is expected that brick will be the most popular material.

A brand new gubernatorial candidate was launched in Wisconsin last week, when Thomas E. Dever, genial sales manager of Ricketson & Schwarz, well-known brick and building material firm of Milwaukee, announced his candidacy for governor while en route with the members of the Merchants' and Manufacturers' Association of Milwaukee on their annual trade excursion, made this year through eastern and northern Wisconsin and northern Michigan. Mr. Dever declared his political aspirations at Menominee, Mich., his announcement being made from the rear of the train platform. He inferred that he had withheld his announcement until reaching Michigan because he expected to make many friends while in that state and he wanted to give them an opportunity to move into Wisconsin and vote for him.

The plant of the Wisconsin Tile & Brick Company, located on the line of the Chicago & Northwestern railroad, at Granville, near Milwaukee, was destroyed by fire about a month ago, entailing a loss estimated at $6,000. It is not known how the fire started. It is understood that the plant will be rebuilt.

Gunther Brothers, of Port Washington, Wis., placed their brick plant in operation during the latter part of April this year, the earliest date in the history of the concern. Many of the brick plants about the state started rather early this spring, as stocks on hand were light.

The Burnt Clay Building Material Company, formerly located at Marinette, Wis., has moved to Green Bay, Wis., and has opened its headquarters in the new Platten building. The concern represents the Belden Brick Company, of Canton, O. The firm was first started by J. A. Gagnon, who recently took into partnership D. S. Colburn, formerly an architect of Green Bay.

The Jefferson Brick and Tile Manufacturing Company, of Jefferson, Wis., has completed the work of installing its modern, new brick machinery and the equipment is now being used to advantage during the rush season.

The Manitowoc Clay Company, recently organized at Manitowoc, Wis., to succeed the Manitowoc Clay Products Company, is now erecting its new kilns and buildings, which will greatly increase the capacity of the old plant. The capital stock of the new concern was placed at $200,000. Tile will be turned out in addition to brick. H. H. Titsworth, manager of the Chicago Clay Products Company, of Chicago, who will superintend the erection of the new buildings and the installation of the new machinery for the concern, was in Manitowoc recently and was enthusiastic regarding the project.

A BADGER.

## BUILD A POND.

This is a fine time for pond building. The need of it has been duly impressed. There's no water to bother during the construction of the dam. But don't fail to put a pipe through the dam close to the bottom while you're building it. Then there will be no trouble later when you want to fence the pond to keep out the stock. A stock tank and an automatic valve below the dam will give the stock clean water.

# THINGS A LUMP OF COAL CAN DO.

THE UNBELIEVABLE variety of things which modern science is able to evolve from the sable modesty of a lump of coal is shown in graphic fashion by the Barrett Manufacturing Company in its exhibit at the San Francisco Exposition.

An enormous block of soft coal is shown, surrounded by its innumerable children. The first generation consists of ammonia, illuminating gas, crude benzol, coal tar and coke.

The crude ammonia is the parent of household ammonia and of the anhydrous ammonia used in producing artificial ice. Then there is ammonium chloride, an important element in electric batteries. Ammonium nitrate is used in the production of high explosives. Ammonium bicarbonate is valuable in the modern baking of food, and, most important of all is ammonium sulphate, a powerful soil nitrifying agent, which is becoming of enormous importance to American farmers as a fertilizer. Plants of various kinds are shown that have been grown with and without the ammonium sulphate under identical conditions, exhibiting a striking difference in the strength of the crops.

Illuminating gas burns up in a blaze of light and leaves no heirs.

Crude benzol, the next of King Coal's daughters, has a beautiful progeny of analine dyes in al lthe colors of the rainbow. It is also of great importance in the manufacture of automobile tires and in the production of artificial leather. Then there is toluol, a basis for modern high explosives, and much in demand for the war.

Exhibit of the Barrett Manufacturing Company at the San Francisco Exposition.

Coal tar, the fourth of Coal's immediate descendants, is the mother of Tarvia, the bituminous binder for building automobile-proof roads, which is now being used on many thousands of miles of macadam all over the United States. Barrett Specification Roofs, consisting of tarred felt and pitch, are used for practically all the great commercial buildings, such as the New York skyscrapers. There is also a long list of ready-roofings used by farmers for their barns, felt and building papers for the lining of walls to keep out heat and cold, and waterproofing felts, which are used with pitch for the lining of excavations, basements and tunnels to exclude dampness of the soil. Then there is paving pitch, used in the joints of block pavements for city streets. Creosote oil, which can be impregnated into wood, thereby makes it proof against decay, and gives us wood block street pavements, durable piling and long-lived fence posts and mine timbers. Creosote alone is worth $25,000,000 a year to the country in its ability to prolong the life of fence posts.

In addition, coal tar is the parent of innumerable chemical and medical products, especially phenol, or carbolic acid, an indispensable medical disinfectant, with innumerable industrial uses, including the process of manufacturing phonograph records.

Naphthalene or coal tar camphor is useful in keeping moths out of clothing.

Among the other great-grandchildren in the carbolic branch are picric acid, a high explosive, and a long list of bactericides and disinfectants, including the wonderful Pyxol, which is twenty times as powerful as carbolic acid, and is death to germs of all kinds, yet perfectly harmless to animal life.

Coke is useful as fuel and has special value in the steel industry.

All told, coal has the largest variety of derivatives of anything that is dug out of Mother Earth. The Barrett Company's exhibit shows many of the processes and has been well planned. It is in the Palace of Mines and Metallurgy and is always surrounded by a group of amazed spectators.

Written for THE CLAY-WORKER.

## AMONG PHILADELPHIA BRICKYARDS.

AS A RESULT of the opening up of the building season, there has been an improvement in the local brick business, and conditions current during the past few weeks have been of a far more satisfactory nature with the brick manufacturers. Not only has there been an increase in the number of contracts being let for this material, but orders have increased in individual quantities as well.

At a majority of the local building brick manufacturing plants, seasonable operations are in force, while several are operating to capacity. Reports from brick manufacturers located in the adjacent sections of this state, New Jersey and Delaware are to the effect that business with them has improved materially within the month and they are thoroughly optimistic over prospects for a still greater business in the immediate future.

Vitrified paving brick manufacturers, although deploring the fact that business this year was somewhat slow in opening on new work, have been the recipients of a stronger demand and a greatly increased number of inquiries, which they point out as substantiating previous optimistic reports made by them to the effect that this branch of the industry in eastern Pennsylvania would soon be moving along normal lines by at least the middle of June.

Common brick, sewer brick and terra cotta products are said to be receiving proper attention from the consumers of these products. With a great amount of building work now being planned for and a great number of new operations just being started, things generally, as confined to the Quaker City brick manufacturers and relating to the future, trend toward bigger business.

Samuel B. Dobbs, head of the S. B. Dobbs Brick Company, 303 Bailey building, this city, reviewed business conditions with this industry most optimistically. In outlining the situation, Mr. Dobbs incidentally said: "As far as we are concerned, 1915, to date, has been one of the best years we have experienced within the past ten. We have a large number of contracts on hand for future deliveries and a number of orders for immediate shipments. One of the noteworthy contracts upon which we have just completed shipments is that for the Hotel Traymore, at Atlantic City, N. J., for which we supplied approximately 1,500,000 rough texture brick."

A formal request for the appointment of a receiver for the United Fire Brick Co., of Uniontown, Pa., has been made to the court by G. B. Burchinal, of Bedford, and George Whyell and William Taylor, of Uniontown, through ex-Judge H. Umbel. The petitioners allege that the business has been mismanaged and that half of the company's receipts have been paid out in extravagant salaries. The company's assets are estimated at $700,000, with liabilities of $225,831.93.

Articles of incorporation were recently granted the Pennsylvania Vitrified Brick Company, of Camden, under the laws of New Jersey, with a capital stock of $800,000, by Frank R. Hansell, of Philadelphia; George A. B. Martin and John A. MacPeak, of Camden. The new enterprise will be established in Camden and will engage in the manufacture of paving brick, etc.

The Chamber of Commerce of Clearfield, Pa., is circulating a petition incorporating an appeal to the State Highway Department to have vitrified paving brick used in the reconstruction of the highway, Woodland road, between Clearfield and Woodland, Pa., instead of macadam.

Interest in the Dobbs-Frazier-Henderson Company, which was organized by S. B. Dobbs and other Philadelphia brick interests, and incorporated under the laws of New Jersey as from Camden, to engage in the manufacture of building brick and general building materials, has been sold. E. H. Cramwell, a prominent New York contractor and head of the Kittaning Clay Products Company recently established at Templeton, Pa., is the principal purchaser in the Dobbs-Frazier-Henderson Company and, it is believed, will head this enterprise also.

William Conway, head of the brick manufacturing firm of that name, Fifty-eighth and Walnut streets, reports business as being of an improved nature and is now operating his plant to normal capacity. Mr. Conway is thoroughly optimistic over the outlook for good business with the trade of this locality during the coming several months.

At the annual meeting of the Manufacturers' Club of Philadelphia, held on May 17, Cyrus Borgner, president of the fire brick manufacturing firm of Cyrus Borgner Co., Twenty-third and Race streets, was elected vice-president. A full quota of the club's members were on hand and took great interest in the election of officers. A musical program and smoker followed the business session.

Preparations for the making of several improvements to the plant of the North Philadelphia Brick Works, at Third and Luzerne streets, are now being made. Among other things along this line, which have been planned by Manager George W. Keeley, is the installation of equipment designed toward the further elimination of smoke emitted by the furnaces. A complete new producer gas plant has been purchased and it is believed will be ready for operation within the next few weeks.

John C. McAvoy, secretary of the McAvoy Vitrified Brick Co., defined the local vitrified brick business as having been somewhat quiet during the past several weeks. Although there have been numerous inquiries, being received by the manufacturers on material for new work, there is a tendency on the part of consumers to hesitate in the transaction of actual business.

It is with regret that the death of William S. Hancock, vice-president of the Trenton Potteries Co., of Trenton, N. J., which occurred at his home in Brown's Mills on Tuesday morning, May 25, is learned of by the trade. The deceased had been suffering since last December with a complication of diseases, from which he seemed unable to get relief and which caused his death. He was born at Trenton, N. J., on October 19, 1854, and had been a resident of that city all his life, merely taking temporary residence at Brown's Mills for the benefit of his failing health. He was educated in the public schools and later attended the Trenton Business College. With Charles H. Cook, Mr. Hancock organized the Crescent Pottery Company of Trenton, in 1881, and which was consolidated with the Trenton Potteries Company in 1892. Mr. Hancock was head of the Crescent Pottery Company at the time of the formation of the then new concern, the Trenton Potteries Company, and was then elected its vice-president, which office he continued to occupy until the time of his death.

A. QUAKER.

# SILO FACTS.*

SILOS have been in use and fully tried and tested in this country for more than a third of a century.

The economy and value of the silo has been so thoroughly demonstrated, in recent years, and its use so widely extended that farmers are now more easily convinced of its utility than formerly and can erect it without having their sanity called in question.

The educational and demonstration work, which in the near future will lead to the general use of the silo, has already been done.

The time is coming, and not very far distant, when the unquestioned economy and absolute necessity for the silo will be forced upon the attention of every progressive farmer in Illinois.

The silo is one of the most valuable innovations pertaining to agriculture that has been introduced in recent years.

The building of silos, the growing of alfalfa and the feeding of well-bred live stock on the farms of Illinois, and the return of the manure to the land, will stop the soil deterioration that has been depleting these farms for years, restore them to their former productive capacity, and add immeasurably to the wealth and prosperity of the State.

Grain farming, as practiced to-day, is the bane of the Illinois farmer, and is bringing ruin and devastation to the farms of Illinois.

That method of grain farming carried on with a view to permanent soil fertility is, no doubt, theoretically correct, but the method in actual practice is but the forerunner of ruin and destruction.

The foundation of successful farming is soil fertility. All crops are limited by the supply of plant food in the soil. The feeding of the products of the farm to live stock and the retaining of the fertility, as far as possible, on the farm, is a necessity.

Without live stock there is no use for the silo, for silage is a stock food and nothing else.

With live stock and the silo, the growing and feeding of alfalfa is an economic necessity.

Thus we have the three most important factors for the improvement of Illinois agriculture at the present time—the silo, alfalfa and live stock.

What is a silo? The subject for consideration to-day is the silo, and the question is a pertinent one.

A silo is, in effect, any kind of a receptacle, box, barrel, excavation or place in which green fodder may be stored and preserved for months or years, until wanted for feed.

A silo has been designated as a structure designed for the preservation of food in a green and succulent condition. The name may be applied to a hole dug in the ground or a structure of wood, stone, brick, concrete or any other building material or combination of materials when made to meet certain requirements.

There is no one material or method of building silos, so far as the successful preservation of silage is concerned, that is superior to all others.

Past experiences in the use of the silo have developed certain fundamental requirements which must be possessed by all silos in common.

**The silo must be air-tight.** The making of silage is largely a series of fermentation processes.

Certain bacteria or germs pass into the silo with the corn or other material, and, after a short time, begin to grow and multiply in it. The more air which comes in contact with the bacteria the further the fermentation will proceed, to the detriment of the fodder or silage. If a supply of air is admitted to the silo or remains in it, the bacteria will continue to grow, and spoiled or rotten silage will be the result.

In the process of fermentation heat is generated, and when it attains a certain degree, usually about 122 to 132 degrees Fahrenheit, the action of the ferment is arrested and sweet silage is the result.

Good silage can only be made when air is excluded from the silo.

If spoiled or rotten silage is found in a silo of any make, it is because air has reached it in some way, and never because of the material out of which the silo is constructed, unless the material is so porous as to admit air.

The silo should be round. In the effort to exclude air from the silo, the round form has been found to be the best, for the reason that the silage can be packed much more solidly than in a square silo.

The silo must be deep. This has been found to be essential. There must be sufficient pressure to pack the fodder and exclude air, and the thoroughness with which this is done will determine the quality of the silage in every case.

The silo must have smooth, perpendicular walls. This is necessary in order to allow the mass to settle without forming cavities along the walls.

The walls must be rigid and strong. It is obvious that the walls must be sufficiently strong to resist the pressure when the material settles.

The features enumerated are essential and requisite to any and every kind of silo that will successfully preserve fodder in the green and succulent state known as sweet silage.

A. P. Grout, Winchester, Ill.

Years of practical experience and experiments in making silage by men interested only in the preservation of fodder in a sound and succulent state for stock food have demonstrated certain facts that lead to conclusions which, for the best results in the making of silage, must be heeded.

That there is no silo made that will relieve one of all responsibility or care in the making of silage.

That attempts to make silage without a knowledge of what is required and how it is to be done is a gamble, pure and simple.

That corn put into a silo while green and immature does not make the best quality of silage or furnish the greatest yield of nutrients per acre.

That the best quality of silage is made from fairly well-matured corn.

That dry corn or comparatively dry corn will not pack solidly and make good silage without the addition of water.

That the amount of water necessary will vary with the condition of the material, and must be determined by the solidity of the packing.

That the silo which will make good silage in one instance for one man will, if the required conditions are met in filling, make good silage in every instance and for every man.

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* Paper read before the members of the Illinois Clay Manufacturers' Association convention, at Springfield, Illinois, February, 1915, by A. P. Grout, Winchester, Illinois.

That spoiled or rotten silage around the edges or in any part of the silo is caused by air coming in contact with the silage, and this cannot happen if the walls of the silo are air-tight—except through improper filling.

That the exclusion of the air from every part of the silo is what constitutes proper filling, and is aided by an even distribution of the material and the filling of every part of the silo with sufficient moisture to permit of solid packing, and when this has been rightly done **there will never be any spoiled silage around the edges or in any part of the silo.**

It would seem that the requirements of a silo and the directions for making silage are so simple and plain that "He who runs may read," and yet there have been many unfortunate ventures in silo building and great losses in silage making.

While most men have learned something of the great value of the silo on the farm, they have been sadly misinformed and misled regarding the silo, as well as the principles and methods of silage making. It is unfortunate that the information which so many have received and upon which they are relying in their attempts at silage making, should have come so largely from silo agents, more gifted as "hot-air dispensers" than for any knowledge they have of the subject.

A Well-Built Tile Silo.

It is a great misfortune that so much energy and effort has been expended in creating the belief that the only thing of value or in any way necessary, in connection with the silo and silage, is contained within the miraculous structure, with mysterious qualities, with its patent roof, doors, various attachments, which they (the silo agents) represent.

The amount of misinformation and misrepresentation that has been worked off on the farmers of Illinois, in connection with silo building, is almost incredible.

Many farmers have not yet learned that it is better to go to the man with experience for information and instruction, rather than the man who has something to sell, and particularly if that man happens to be the agent for a wooden silo.

In the early years of silo building in this country the silos were all made of wood, but in the course of time, as the natural defects of wooden silos became apparent, there was a demand for a more durable and permanent structure, and stone, cement, tile and brick came into use for the purpose.

This started a conflict with the wooden silo manufacturers, and the war has been on ever since.

Every one knows that wood, as a container of wet silage, must sooner or later decay. It is also just as incontrovertible that wood will burn; that it will shrink when dry and swell when wet. The wooden silo also has a record for blowing down.

The following report of an investigation in a neighboring state is explicit and to the point:

"During the summer of 1911 thirty-one stave silos erected in the vicinity of Lincoln were inspected. In the inspection no silo was passed by. They were taken singly, one by one, as found. Here is the result of the inspection:

Five had blown clear down once before they had been built twelve months; one blew clear down twice before it had been built twelve months; one blew clear down three times before it had been built twelve months; one blew clear down once before it had been built five years; one blew clear down once before it had been built nine years; two blew clear down, but the date of their erection was not ascertained; eight had been re-erected once before they were up twelve months; one had been re-erected twice before it was up twelve months; four were leaking badly; one had been straightened twice; two had very loose hoops; one had broken nearly every hoop more than once; only six were in good condition."

With such a record as this, it is impossible to classify wood stave silos as permanent structures, and this impossibility rests not, as the wood stave silo men claim upon failure to observe mechanical principles in the erection of them, but upon qualities inherent in the very nature itself of the material.

Nor can such a state of affairs be charged to the fact that these silos were not properly guyed, because no guying is sufficient to hold such material in proper place with a proper degree of rigidity to insure stability. This report reads like a chapter from my own experience.

I built a wood stave silo eight years ago. It blew down while in the process of erection. It was moved by the wind until I had to partially rebuild the foundation. I have had to replace a number of rotten parts and staves with new wood. Several of the iron hoops have been broken.

The silo has already cost me around $150 for repairs and the end is not more than three to five years off. It is needless to say that I am an advocate of permanent silos.

It is patent from the very nature of things that a silo made of wood cannot be durable or permanent.

Furthermore, it cannot be questioned that a permanent silo is especially desirable from an economic standpoint. In view of the enormous amount of money that is being expended for silos every year, it is but the part of good business judgment to seek something more lasting and durable than wood.

Within a year I met a man who lives less than thirty miles from Springfield who informed me that he had built a wood stave silo, and he further added that in investigating the matter he had made up his mind to build a tile silo, but that an agent for a wood silo came to him and showed him a bulletin from the Experimental Station of Storrs, Conn., in which it was plainly stated that silage did not keep well in cement, stone or brick silos and that wooden stave silos were most satisfactory.

The reason assigned for the poor keeping qualities of cement, stone or brick silos was that these materials conducted away the heat generated in the silo and the acid fermentation was checked and that spoiled silage around the edges was the result. The conclusions in this bulletin are entirely at a variance with my own experience.

For years I have kept silage in a silo of which the bottom eight or ten feet is made of common brick and unplastered, and in all of these years I have never found any spoiled silage next to the brick.

About two years ago, a wood silo agent came to me with one of the Storrs bulletins in his pocket and wanted to inspect the silage in a tile silo. It was about the first of May and my own silo was empty. I took him to a neighbor who had two tile silos, and one that he was keeping for summer use. The agent got into the silo and did his own investigating. He dug down in a number of places and especially around the edge, and he came out with a sample of the silage, which he examined carefully, smelled and tasted and finally pronounced it perfect. In this case, the "proof of the pudding was in the eating."

The material for this silage was placed in the silo in September, or eight months before. There surely had been ample time for the scientifically explained process of the rapid loss of heat generated in the silo to have gotten in its work and spoiled the silage, and yet it did not spoil.

We all have great respect for things scientific, but when practical tests disclose the utter falsity of the claims made in the Storrs bulletin, it jolts our faith in some things that come from supposedly scientific sources.

It leads us to wonder how this bulletin happened to appear at the opportune time when the wooden silo was no longer able to compete on its merits and must need discredit its competitors. We wonder how it was soon discovered and so widely distributed. Opinions may differ on these points.

"One swallow does not make a summer," and there is always a chance for error and mistakes in a limited number of experiments. Realizing this fact and not desiring to say anything at this convention that will not stand the test of actual experience, I wrote to the county agriculturist of McHenry county, Illinois, where all kinds of silos have been in use for many years, and asked what the results of keeping silage in different kinds of silos had been. He replied that cement, tile and brick silos have given excellent satisfaction in that county for a great many years. That the silage keeps just as well in them as it does in wooden silos and in a great many cases better, especially so if the wooden silo has been up for several years and the hoops are not perfectly tightened.

A prominent dairyman in the same county writes as follows:

"I have used a concrete silo for three years and find it satisfactory in every way. The feed keeps well, even to the last inch around the outer wall, and if the corn is put in at the right stage the silage is perfect."

Another dairyman and farmers' institute official adds his testimony and experience as follows:

"I have used monolithic silos for four years; also have wooden stave silos. My experience is that the cement silo is as efficient as any structure can be, as we do not lose a particle of feed. It is more important that the silage be put away in good condition and thoroughly packed than the structural work. I am strongly in favor of the cement silo, as it is indestructible and requires no attention when empty."

The county advisor of DeKalb county states the facts most pointedly as follows:

"In order that you may have a proper conception of the attitude of the farmers in DeKalb county toward cement, stone or brick silos compared with wood silos, I would call your attention to the fact that during the season of 1912 one township in DeKalb county, which previously had only three silos, and these were wood, put up twenty-eight silos, all of them being of other material than wood. The wood silo has served as a forerunner, but cement, stone or brick silos are the silos that farmers are building in this part of Illinois in nine cases out of ten.

"They will tell you that silage spoils in cement, stone or brick silos, but the fact is that on the DeKalb County Farm we have two cement silos, and the superintendent of the farm says that there was not one basketful of spoiled silage of the 350 tons of feed stored in the two silos, excepting the small amount at the top of the silo, which happens in sealing all silos.

"I consider a good hollow wall brick or tile silo perhaps the most beautiful, and there is surely none better. Also, the six-inch solid cement wall keeps the silage perfectly, and should do service to the farmer after two or three generations have passed away. Either of these two silos represent permanency and stability, both of which qualities should characterize the future building in this great state."

This testimony comes from men who are disinterested and have no silos to sell.

It comes from farmers who are builders and users of silos and who have for years watched the development of silos and silage making for the purpose of determining the best silo and the practice that will give the best results.

The conclusions reached by these years of study and observation are shown by what they are doing and the kind of silos they are building.

What these practical and experienced men are doing for themselves may safely be followed by others.

At the State Dairymen's convention, held at Peoria last week, I improved the opportunity to talk with many men who have used silos for years and without exception they favored the permanent silo. I learned of one brick silo that had been used for twenty-eight years and is still in good condition.

All over the dairy region of Illinois where silos have been in use the longest, the wooden silo is giving away to permanent structures of concrete, brick or tile, and the keeping qualities of these silos are never called in question.

In actual practice, there seems to be no foundation for the claim made by Prof. Esten and published in Bulletin No. 70 of the Connecticut Experiment Station. It is only recently that I have learned that the conclusions of Prof. Esten in this bulletin were challenged by Illinois and Iowa Experiment Stations and others soon after the bulletin was published. Several unsuccessful attempts were made to learn from Prof. Esten on what he based his strange theories condemning all but wood silos, but no one has ever been able to get a satisfactory reply.

Inquiry has established the fact that the Storrs Station has but one silo, which is of the wood stave variety and several years old.

The fact and statements coming from those who were at the station at the time of Prof. Esten's tests seem to show that his calculations were based upon the work done in glass fruit jars and observations made on their one stave silo.

So far as having any real authority for his statements is concerned, the following letter received after Bulletin No. 70 appeared, brands that Bulletin as an educational quack. At best, it seems nothing more than a bundle of private opinions without backing, masquerading under the name of a state educational institution.

"Storrs, Conn., Feb. 24, 1913.

"Gentlemen—Yours of the 17th inst., addressed to Professor L. A. Clinton, director of the Storrs Experimental Station, has been referred to us.

"We have no concrete silo at our station and have not done any experimental work in looking up their value.

"Yours very truly,

(Signed) "TRUEMAN."

We now have all there is of the inception and claim that has been so industriously circulated, that silage will only keep in wooden silos.

This fraudulent claim, backed by Bulletin No. 70 of the Storrs Experimental Station, has, no doubt, sold many wooden silos, where more permanent structures would have been used. It is impossible to protect everybody from fraud and imposition, but the farmers of Illinois should be led to think for themselves, and investigate the practices of those who have had years of experience in the use of silos. What these men of long experience are doing for themselves may safely be followed by others.

When the kind of silo has been selected, there still remains some facts in connection with their erection and use that must not be overlooked. No silo can be permanent without the use of good material in its construction.

It must be built upon a solid foundation.

It must be reinforced to withstand the great pressure to which it will be subjected.

These requirements are applicable to all silos.

After all this has been done and the structure made perfect, the use has an important part to perform, for otherwise the silo may be pronounced a failure.

There is no silo made, or that can be made, that will make good silage if improperly filled, and this fact is responsible for more disappointments and failures in silage making than the silo itself. The material used for silage making must be properly matured and it must be put into the silo and packed so as to exclude all air. If the material is too dry to pack thoroughly, water must be used until it will pack solidly.

The material must be evenly distributed and tramped and the outer edge kept the highest, so that in settling, the pressure will be outward and toward the walls of the silo and not from it.

With improper filling, the best silo is likely to be pronounced a failure.

The manufacturers of silo material should see to it that the purchaser is thoroughly informed of the part that he is to perform if the structure and process is to be a success.

After having used silos for more than twenty-five years, my own judgment is that the material out of which the silo is built, so far as the keeping qualities are concerned, is not very material, but from an economic standpoint, there is no question but that the permanent structure of brick, cement or tile will be the silo of the future.

## W. H. H. ROGERS HONORED.

Governor Whitman, of New York, in creating that state's new Industrial Commission, which supplants the State Labor Department and the Workmen's Compensation Commission, has named, with others, the well-known active worker of the N. B. M. A., W. H. H. Rogers, of Rochester, as a member of the commission. Mr. Rogers' many friends will appreciate the conferring of this honor on him and they feel that he will be an honor to the commission itself. Mr. Rogers' activity in the brick industry and as an active member of the N. B. M. A. is too well-known to the members of this organization and to the brick fraternity in general to demand an elaborate review here. We feel sure that his many friends will join us in congratulating him upon this new honor and in applauding Governor Whitman for appointing a man of his high ability and character to this commission.

W. H. H. Rogers, Rochester, N. Y.

## A CONTENTION OVER SPECIFICATIONS.

Contention which has arisen among the tile manufacturers of Trenton, N. J., over the specification calling for unglazed Flemish tile to be used in the construction of the new Junior High School building in that city, may result in Herman C. Mueller, head of the Mueller Mosaic Co., resigning as president of the school commission of Trenton. It is charged that the brand of tile specified is manufactured only by the Mueller Mosaic Co. Mr. Mueller has voiced staunch denial of the allegements, while Business Manager H. Poland, of the school commission, points out the injustice being done Mr. Mueller through the fact that Flemish tile is of rough texture and manufactured by many firms, some of whom call it Moravian, Spanish or Dutch. Mr. Poland states that this same line is produced by the Mercer Co., Doylestown, Pa.; Greuby Faiance Co., Boston, Mass.; Enfield Co., Philadelphia; Fiske & Company, Boston, and the Rochester Sewer Pipe Co., American Encaustic Tile Co., National Tile Co., B. Mifflin Hood Co., of Atlanta, Ga., and the Rookwood Co., of Cincinnati, and which may be expected in competition.

Written for The Clay-Worker.

## FIRST AMERICAN COMPLETE BUILDING SHOW.

The Building Trades Exposition, of London, England, is the inspiration for the First American Complete Building Show. There never has been held in America a show for the building trades equal in scope and magnitude to that planned for Cleveland during February, 1916. Clay shows, cement shows and real estate shows have been held, but the Complete Building Show will be the first national exposition to embrace every phase of both commercial and domestic building and allied interests.

This show will be held "for the man-about-to-build," and it is conducted for education, not for profit, by the men who have the materials to sell. It is not a professionally promoted exposition, but its direction is in charge of an advisory committee, composed of the forty stockholders of the company financing the enterprise. The stockholders, officers and directors of the show company are building material manufacturers or dealers.

Although the show was suggested by the Society Advocating Fire Elimination, which promotes alone safe building materials, it has been decided to make the scope of the exposition as broad as possible and accept displays of every building material that cares to enter the show. The London show has succeeded abundantly upon this basis.

The first aim of the exposition is education. The exhibits will answer the hundreds of questions that are in the mind of the prospective builder. The best in designing, construction, equipment, decorating and furnishing of buildings of every type will be shown. It will be especially an exposition of the safety, economy, comfort and beauty of the American home of moderate price. Recognizing that the greatest field of residence building is bounded by a range in price of from $2,000 to $5,000, particular emphasis will be put upon the features of building applying to homes within this field.

We are already assured that several complete houses, of different types, will be erected in the exposition. The effort of the exhibit committee of the show company, which passes upon all displays, is to make every exhibit a "live" one, showing something practical that demonstrates the product of the exhibitor. There will be no array of dead walls, stiff panels or inactive machinery. To conform to the rules of the show, each display must offer a valuable suggestion to the builder or the men of the trades.

The exhibits are to be divided into four general classifications, as follows:

First, Building Materials and Construction.
Second, Building Equipment and Devices.
Third, Real Estate and Garden.
Fourth, Interior Finish, Decoration and Furniture.

There will also be an architectural exhibit, showing drawings submitted in a contest to be conducted by the show company.

This gives the opportunity for showing everything from the first drawings of the building to the completed structure with its furnishings and its landscaping or exterior adornments. In short, there will be no detail of building, either of a garage, a residence, factory or skyscraper that will not have a place in the Complete Building Show.

As a part of the show company's advertising plan, and at the same time a demonstration of safe home building, a fire resisting house is to be built, upon a desirable lot in Cleveland, to be given away in connection with the show. The award will be made to the winner of a contest open to every person attending the show. This house will be built according to plans yet to be adopted by the directors of the show, but it positively is not to be an endorsement or an exposition of any particular material, nor does it bring into competition any two fire-safe materials. It will stand as an example of safe construction, including in its construction all of the approved materials without special recognition of any one.

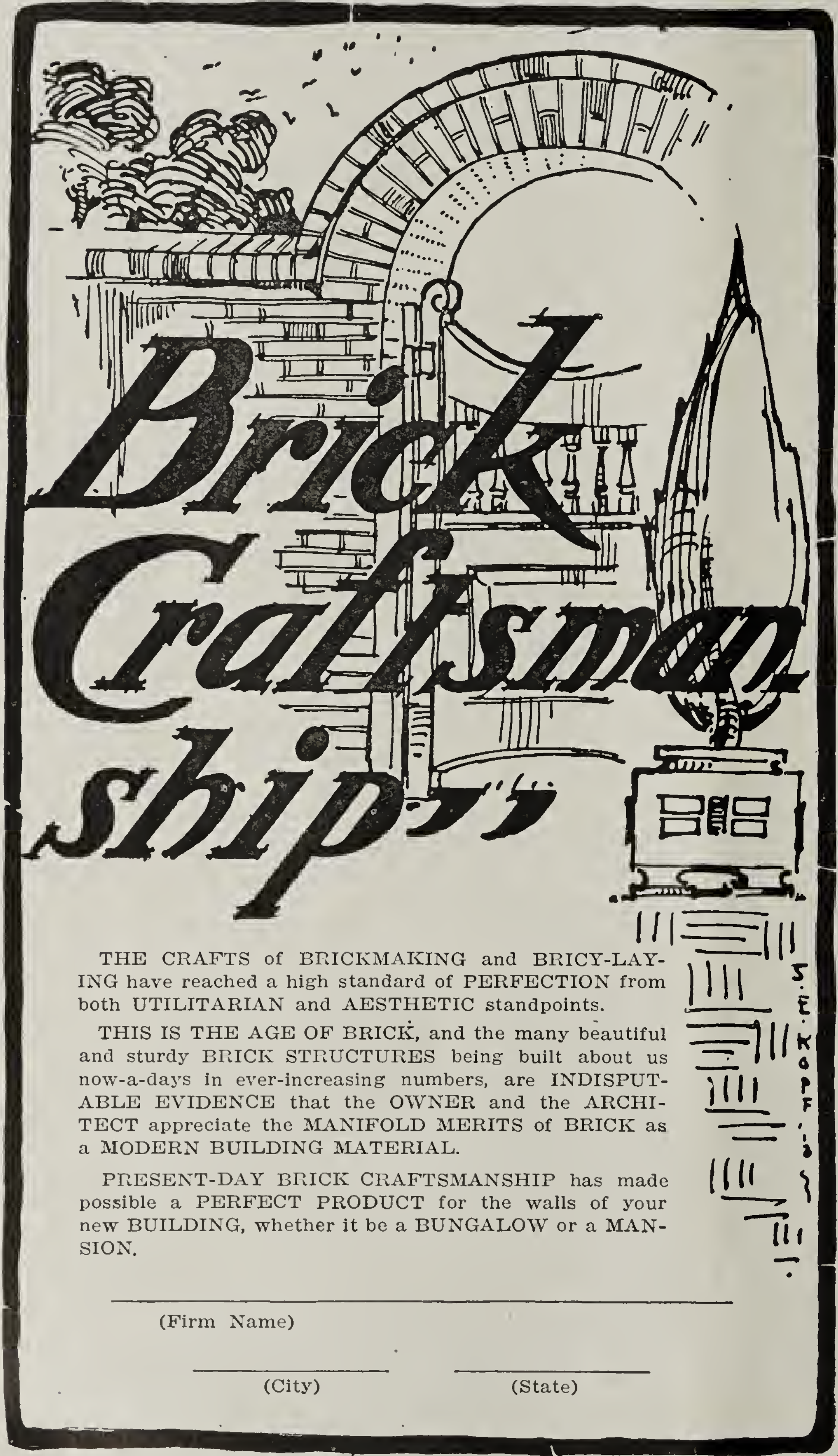
The show is financed by an incorporated company of $10,000 capital. It is expected that not more than $6,000 of the stock will be paid, as that amount will meet all preliminary expenses. The stockholders are about forty in number, no person or concern being permitted to buy more than two shares of the stock, at par value of $100 each. These stockholders represent practically every branch of the building trades. Stockholders become an advisory board and pass upon all matters of policy of the show.

The Coliseum of Cleveland has been engaged for the show, and more than 60,000 square feet of space upon one floor is available in that building. The dates of the show are: Wednesday, February 16, to Saturday, February 26, 1916, a ten days' show. The exposition should be profitable in experience for every person engaged in the manufacture or sale of building materials, and those engaged in the sub-dividing and sale of real estate or in any way allied with any of the building trades.

### TEN YEARS IN COMMON BRICK.

You may be surprised to learn, but it is a fact, just the same, that the production of common brick in the year 1913 was less than the production in the year 1903. In other words, common brick has made practically no progress in the volume used in ten years.

Meantime, the volume of front brick used has doubled, the



THE CRAFTS of BRICKMAKING and BRICY-LAYING have reached a high standard of PERFECTION from both UTILITARIAN and AESTHETIC standpoints.

THIS IS THE AGE OF BRICK, and the many beautiful and sturdy BRICK STRUCTURES being built about us now-a-days in ever-increasing numbers, are INDISPUTABLE EVIDENCE that the OWNER and the ARCHITECT appreciate the MANIFOLD MERITS of BRICK as a MODERN BUILDING MATERIAL.

PRESENT-DAY BRICK CRAFTSMANSHIP has made possible a PERFECT PRODUCT for the walls of your new BUILDING, whether it be a BUNGALOW or a MANSION.

(Firm Name)

(City) (State)

Use this in your local paper the first week in July.

DONT BUILD
TO BURN

**BUILD RIGHT**

Why Build a
Frame House?
It is Not Fireproof.

A Home Built With
Well Burned Clay
Brick is Imperishable.

Its Fireproof and
Will last for Ages.

Its Cheapest in
the End.

**BUILD RIGHT**

ASK US WHY

(Firm Name)

(City) (State)

Use this in your local paper
the second week in July.

value of enameled brick has more than doubled; the value of fire brick has increased from $14,000,000 to $20,500,000; the value of architectural terra cotta has risen from over $4,500,000 to nearly $8,000,000; fire proofing tile has increased in value from $3,750,000 to $8,500,000; the consumption of sewer pipe has increased from $8,500,000 to nearly $15,000,000; the value of paving brick has increased from $6,500,000 to more than $12,000,000; the value of drain tile has increased from $4,500,000 to $8,500,000; and all along the line every item in clay products, with the exception of common brick, has shown remarkable growth during the ten years.

In the face of this, we may well ask, whats' the matter with common brick?

The answer is plain. The main thing ailing common brick is lack of exploitation. Other materials, hollow clay tile, cement sand-lime brick, etc., have crowded it out of the territory into which it should have expanded during the last ten years.

With these figures and facts staring them in the face, we do not believe the common brick industry would stand still and let history repeat itself during the next ten years. The volume of common brick used should double itself, and then some, during the next ten years, and it can be made to do so by proper effort at exploitation.

Will you do your part?

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## DEMANDS FOR CHANGES CAUSE POTTERY TO CLOSE.

Present indications are that the plant of the Anchor Pottery Company, on New York avenue, Trenton, N. J., will be closed down for an indefinite period beginning with July 1, as the result of demands for changes and improvements to

IF You Wish
to Build
For Permanency

**BUILD RIGHT**

Build With Brick
The Everlasting Material.

Its Cheapest in the End.

Its the Best Investment.

LASTS FOR AGES..

Fireproof.
Element Proof.
Vermin Proof.

No Cost for Painting.
No Cost for Repairs.

Cuts Fuel Bill.
Lowers Insurance.

**BUILD RIGHT**

LET US PROVE
TO YOU BRICK IS
THE BEST MATERIAL.

(Firm Name)

(City) (State)

Use this in your local paper the third week in July.

**Brick Colors**

ARE YOU AWARE of the SUPERIOR DECORATIVE POSSIBILITIES of POLYCHROME BRICK?

The EXACT COLORS you require to HARMONIZE ARTISTICALLY in your NEW BUILDING are now being produced by MODERN SCIENTIFIC BRICK PROCESSES.

IN FACT, such an INFINITE RANGE OF SHADES and TEXTURES is available that truly wonderful effects in BRICK CRAFTSMANSHIP are possible, built from MODERN BRICK, HARD BURNED to UNFADING PERMANENCE.

(Firm Name)

(City) (State)

Use this in your local paper the fourth week in July.

the works which have been made by a joint committee, composed of Commissioner of Labor Lewis T. Bryant, Labor Inspector John Roach and William Muschett, representative of the potters and operatives. The recommendations are said to be for the good of the sanitary conditions surrounding the workers and came as the result of the inspection of twenty-four potteries in and about Trenton, made during the month of May. Officials of the Anchor company state that a large number of changes have been ordered and that to carry out the ideas imbedded in them would necessitate the expenditure of thousands of dollars, which they find the firm unable to do at the present time, because of dull business. It is deemed likely that the Mercer Pottery Company, of Muirhead avenue, Trenton, may take the same course, if extensive modifications are not made to the demands. In speaking of the matter, one company official said: "Thousands of dollars have already been spent in bettering the sanitary conditions at the plant in respect to the operatives. While there are some good suggestions made by the inspectors in their report just rendered, there are others which would add to the comfort of the employes, the like of which they do not secure even in their own homes. We are not in a position now to meet the requirements and we have notified our employes that we will close down on July 1." Quite a situation has been created in the industry there, as it is believed others will take this same stand on the question.

## EIGHTEENTH ANNUAL MEETING OF THE AMERICAN SOCIETY FOR TESTING MATERIALS.

AS IS THE RULE with that society, the coming annual convention of the American Society for Testing Materials will be held at Atlantic City, June 22 to 26, 1915, at the new Hotel Traymore, which will be headquarters, most of the sessions and functions occurring there. A formal program, providing for a large number of technical papers and committee reports, has been arranged, and a number of interesting social features provided for. Chief among the latter is the smoker which occurs Thursday evening.

The matters of special interest to manufacturers of brick, sewer pipe, drain tile, etc., are scheduled for Friday forenoon, at 10:00 o'clock, the formal program for that session being as follows:

Report of Committee C-3—On Standard Specifications for Brick. A. V. Bleininger, chairman.

Report of Committee C-4—On Standard Specifications and Tests for Clay and Cement Sewer Pipes. Rudolph Herign, chairman.

Report of Committee C-6—On Standard Tests and Specifications for Drain Tile. A. Marston, chairman.

The Legal Interpretation of the Word "Vitrified" as Applied to Ceramic Products, Edward Orton, Jr.

Report of Committee C-7—On Standard Specifications for Lime. J. S. Macgregor, chairman.

Tests for Reinforced Gypsum Beams, W. A. Slater.

All clayworkers who can do so, are cordially invited to be present during the convention and to participate in the proceedings of the society and the social functions, which are always varied and interesting. For complete program, address the secretary, Edgar Marburg, University of Pennsylvania, Philadelphia, Pa.

### The New Traymore Hotel Headquarters.

Those who do attend the convention will find a rare treat in store for them at the new Hotel Traymore, which is the largest fire-proof resort hotel in the world. It has but recently been completed, is eighteen stories in height and has seven hundred rooms with bath. It is conducted on both the American and European plans. The Traymore is a combination brick, steel and concrete structure of tremendous proportions, and cost all told $4,000,000. The porch spaces are so ample that if the hotel were full and every guest invited a friend, there would still be room for all to rest at ease in steamer chairs. One of its special features is a Subsea Cafe or grill, which is a visual realization of John Keats' dream of Neptune's Palace beneath the sea. Special rates have been made for delegates to the convention and those accompanying them.

Written for The Clay-Worker.

## BRICK NEWS FROM TWIN CITIES AND NORTHWEST.

THE BUILDING season is on in full swing, but so far there has been a natural reluctance about investing very freely in new building construction. There is a fair amount of building going on, but it is not of the conspicuous type, as a rule. Small buildings hold up throughout the Northwest, but large structures are scarce. Indications are that the brick trade is getting its full share of business, however, while other competition is losing out. There is no boom in the brick trade, but there is a good, steady volume of business being done, and the bulk of the yards throughout the Northwest have a fair demand to report. The weather was cold and rainy throughout May, which delayed starting kilns, and some yards were thoroughly cleaned up before they could get the new run started for the present demand.

While improvements to brick plants in the Northwest have not been as extensive as could be hoped, there have been several good-sized improvements completed within the past few weeks, to various plants. There is no doubt that the unsettling of conditions generally, caused by the war abroad, has held back the development of what would otherwise have been an exceptionally good year. Brick seems to have been coming into its own in a way that would mean much for it, if the extraordinary conditions had not intervened.

General conditions have been fairly satisfactory. The labor situation usually causes trouble in the spring, if at all. At present there is not a great deal of trouble, although electricians are conducting what they are pleased to regard as a strike in certain shops of the Twin Cities. The shops are operating as open shops, and all concerned seem to be satisfied, especially as it has not caused any sympathetic strikes to follow.

The concrete brethren are pleased to exploit a portion of the road between Minneapolis and Lake Minnetonka, as a specimen of concrete paving, and glaring billboards proclaim that the work is concrete. It consists of a 16-foot roadway, of concrete, and an uncertain shoulder on each side. The shoulder is a complete failure, and the stream of automobiles have to pass upon the narrow roadway or take desperate chances, if they run off the concrete. Several accidents have occurred on grades, where machines ventured off the paving. But the paving itself, although only a year or so old, shows long cracks zigzagging the surface, at intervals, very similar to that work in Wayne county, Michigan, which was for some time so much vaunted as an exceptional piece of road architecture.

The annual picnic of the Builders' Exchanges of St. Paul and Minneapolis will be held at Spring Park, Lake Minnetonka, June 26.

One of the home building concerns of Minneapolis is undertaking to exploit the erection of brick veneered residences, to be erected and sold on easy payments. These are to be modest payment propositions.

Two large apartment hotel buildings are projected for erection in Minneapolis, at the corner of Twelfth street and Mary Place, one to cost $350,000 and one to cost $500,000. The former will be built by Lundberg & Hokenson, and will be seven stories and high basement, with 200 apartments of one to three rooms each. It will be finished in brick, terra cotta and Bedford store. The other will be by the First National Holding Company, and will also be seven stories, of small suites, and will be of similar construction.

David Comb & Sons, of Minneapolis, have just been awarded the contract to erect a brick school house at Boyd, Minn., to cost about $20,000.

Two good-sized brick buildings are projected on Fourth street, north, between Hennepin and First avenues, north, in Minneapolis, by C. H. McKee, of Pittsburgh.

The Johnson Construction Company, of the Plymouth Building, Minneapolis, have received the contract for erecting the Margaret Fuller grade school in Minneapolis, to cost about $80,000.

The Hudson Automobile Company, of Minneapolis, will erect a commercial garage at Fourteenth street and Hennepin avenue, brick construction, to cost about $30,000.

The Franciscan Sisters, of Little Falls, Minn., will erect a fireproof hospital building, to cost $50,000. It will be of brick and tile construction. T. WIN.

## NEW YORK MARKET IMPROVING.

INCREASED DEMAND for all building material, including brick, is being felt, and previous to June 10 prices in and around New York moved up from 25 to 50 cents, and ruling quotations for Hudson River common were $6.50 to $7.00 per thousand. New brick are not yet on the market, and the supply of old stock is not plentiful. The result is that whatever increase in demand may come, is felt directly by the holder, and prices go up.

Jobbing prices in New York were quoted as follows at the time this was written: Front buffs, No. 1, $26.50 to $30.00; gray, shaded and specked, $30.00 to $31.00; white, No. 1, $30.00 to $31.00; Hudson River common, $6.50 to $7.00; No. 1 hard, $6.25 to $7.00; light, hard, $5.00 to $5.50; pale, $2.75 to $3.50; Hersey, fire, No. 1, $22.00, No. 2, $18.00 to $20.00; Pennsylvania, fire, No. 1, $28.00 to $29.00, No. 2, $23.00 to $24.00; Scotch, $33.00 to $35.00.

The financial conditions in New York following the sinking of the Lusitania were bad for a time, but they have improved since, and money lenders are not as afraid of an invasion from Germany as they were. They are still nervous, however, and it is not as easy as it was a few years ago to obtain money for building operations which, in the minds of many capitalists, possesses what appears to be a questionable value. Some are of the opinion that this attitude is slowly disappearing and that money promises to be easier, even though the European war drags on interminably.

New York's outlying boroughs promise considerable developments this season. Factories and residences will constitute by far a larger proportion of these operations. Residences are small units, it is true, but many small units equal a large one, and have this advantage, that they are individually easier to finance than the large one, of which the capitalist is afraid.

Population increases very rapidly in these outlying boroughs, and this very naturally forces increased building operations to supply housing facilities. General business conditions are not yet as favorable as capitalists want to see when they put up their money, but even these are improving and are much better than a few months ago.

One influence has indirectly helped these outlying boroughs. A number of great department stores in New York City have gone out of business and no others have yet taken their places. This has sent a liberal proportion of trade, formerly attracted by the low priced sales offered by these stores back to the home localities to trade. Enlarged buying facilities have frequently been made necessary by this, and this has lead to increased requirements for suitable buildings to house the stores.

Factories have located in these boroughs, or are going to do so, and the natural increase of population which follows movements of this character is observable. All these influences together are helping the brick trade some, while the growing hesitancy about using cement, which has come about partially, at least, through the "Build with Brick" propaganda, is exerting more influence than persons commonly believe. All these features combined are very helpful, and brick is benefiting proportionately. More strenuous exertion on the part of brick men themselves would result in expanding sales and larger use. It is doing well, but it might do much better.

A.L.B.

## JOHN W. SIBLEY GETS BACK INTO PAVING BRICK GAME.

IT IS SAID that history repeats itself; a recent demonstration of the fact has been offered by the worthy treasurer of the N. B. M. A., John W. Sibley, who now after several years devoted to the building and face brick industry, has again identified himself with the paving brick interests of the South. "Master" John first broke into the brick game some twenty-five years ago, when he established the Coaldale Paving Brick Company, which he operated successfully for a number of years. Disposing of his interests in that company, he devoted his attention to building brick for a series of years, and more recently has been engaged in the face brick business. He now returns to his first love, and has accepted the office of secretary-treasurer of the Southern Paving Brick Manufacturers' Association, with headquarters at Birmingham, Ala. The exploitation of paving brick is a very worthy cause, and "Master" John is well equipped both as to ability and experience for the work. His wide and favorable acquaintance throughout the South, his knowledge of the brick business in all its details and his pleasing personality fit him peculiarly for the position, in which we predict he will achieve new honors both for himself and the great industry represented. The other officers of the association are Frank R. Clark, Augusta, Ga., president; Frederick Gunster, Birmingham, Ala., vice-president.

J. W. Sibley, Birmingham, Ala.

## FEDERAL GOVERNMENT CONTROL BEST.

The public health committee of the New York Academy of Medicine asks our indorsement of their proposition to have the quarantine station at the Port of New York transferred from state control to that of the National Public Health Service. This seems to be a good and logical idea, especially since the Federal Government controls all the service incident to the administration of the Port of New York, with the exception of the quarantine, and this it seems to us should logically be a part of the immigration service and under Federal control.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

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### Building Trade Slack in England.

Editor The Clay-Worker:

Your favor of April 24 to hand, for which I thank you; also, I received The Clay-Worker, which gave me the information I required.

The building trade in this district is rather slack, owing to the high prices of material and the difficulty in procuring workmen, so many having gone to the war. The fire brick trade is rather brisk, large quantities of this class of material being required in connection with the manufacture of government material, such as for furnaces, ironwork, etc.; also large quantities for the gas manufacturing industry.

Yours faithfully,
C. F. BOWKLEY.

Stourbridge, England, May 17, 1915.

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### Announcement of Interest to Users of Fire Clay Products.

Editor The Clay-Worker:

The fire clay department of the Mississippi Glass Company has been incorporated as the Walsh Fire Clay Products Company, and hereafter will do business under that name. This change in name was made necessary chiefly for trade reasons.

The personnel of the directors, officers and representatives will remain the same as heretofore.

There will be no change in the products. The various Walsh brands of fire brick, special shapes and glass house blocks will be manufactured with all of their old-time excellence preserved.

We take this opportunity to thank our customers for past favors, and hope our pleasant existing relations may continue.

Respectfully,
WALSH FIRE CLAY PRODUCTS CO.
By Julius S. Walsh, President.

St. Louis, Mo., May 19, 1915.

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### Echoes of the Edison Fire.

Friend Randall:

We have a saying in Scotland, "Every cow licks its own calf." The principle holds good in America.

It's only natural that Mr. Edison should praise concrete as a building material. He is interested in a cement plant.

I enclose a clipping from the New York Sun. Read what Mr. Fred Metcalf says.

The following excerpt is from "Refractories and Furnaces," by F. T. Havard, E. M., associate professor of metallurgy at the University of Wisconsin:

"Concrete as a refractory material is most unsatisfactory. It cracks under the action of hot neutral furnace gases at 120 degrees C., and sulphurous and sulphuric acids in flue gases soon corode it with especial rapidity if the gases are moist or if the outside moisture can penetrate to the flue.

"As a material for tests and cupelling furnaces it is, on the whole, unreliable; some hearths stand fairly well and others break up immediately. Floors of metallurgical and chemical buildings should not be made of concrete, since metalic salts seep into it and, crystallizing in narrow confines, disrupt the floor. It is for the same reason unsuited for reservoirs holding acid liquors."

The word "concrete" covers a multitude of sins. The mixing of materials for concrete is largely a matter of conscience. The life of concrete is cement; cement is the expensive part of the mixture; the temptation to skimp is there.

Even when everyone connected with the mixing and placing of concrete is doing their best, bad results may follow. Some sands expand with heat. In case of a fire, concrete, in which such sand is used, means disintegration.

Some concrete contracts. In this section of Georgia there are a few structures built with concrete blocks. Every one that I have examined shows cracks, caused by contraction. The place for concrete is under ground, where it keeps damp. Hard brick under ground is just as good, if not superior to concrete. No experience is needed to tell whether or not a brick is hard. The many disasters caused by failure of concrete is evidence that, even under the strict superintendence of inspectors, concrete cannot be depended on as a safe building material, above ground.

Now a word or two about brick walls standing heat. Fire burned out the woodwork of three stores in this town. The walls stood. The woodwork and roof were put back. Later fire burned out one of the stores. The woodwork was put back into it, and still later, a large wooden structure that adjoined the outside wall of the store that was burned twice burned completely up, without injury to the brick wall.

I know of several similar instances.

Yours truly,
J. W. McMILLAN.

Milledgeville, Ga., June 2.

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### Concrete's Failure.

#### Mr. Edison Called as a Witness as to Its Non-Fireproof Nature.

To the Editor of The Sun:

Sir—Mr. Edison has furnished his own very convincing evidence in rebuttal of his claim that concrete is a fireproof material. That evidence appears in a pamphlet illustrating the effects of the fire which swept the Edison phonograph works at West Orange. The pamphlet was issued to architects, and doubtless also to others, in the interest of the cement industry, in which Mr. Edison is represented by the Edison Portland Cement Company.

In one of the photographic reproductions of this pamphlet may be seen, very clearly visible in the foreground, a steel column which had been melted sufficiently to buckle downward in the form of a closed letter S. The concrete covering was broken away, exposing the misshapen steel, and the constructions at that point are shown to have fallen a foot or more with the melting down of the column.

The damage apparent constituted a complete local failure of the structure. Had the loading of that column been more than a very insignificant one the destruction would have been extensive; and had the building itself been of any considerable magnitude, its entire collapse certainly must have resulted.

Architects, engineers and even most of their draughtsmen who have passed their novitiate are too well acquainted with the facts concerning the compounds of cement to be misled by this propaganda for the misuse of the material. They are more or less thoroughly familiar with the numerous fire tests made by the building departments of cities, by the fire underwriters and by others, all conducted under such definite control of the conditions as to determine the truth of fire resistance in a manner as precise as the Edison examination after a fire of unknown temperature is haphazard and inconclusive. The result of these tests has been to prove that cement compositions are not fireproof in any legitimate understanding of the requirements. On the other hand, similar carefully conducted tests have shown the products of baked clay to be thoroughly fireproof and entirely reliable when used properly, either as structural elements or as insulation for non-fireproof structural members. In the informed professional judgment, these conclusions, having been abundantly substantiated by technical experiment, are not regarded as debatable.

A truly fireproof material must perform two distinct functions: it must resist injury to itself by the heat of surrounding inflammable substances and protect from injury any structural parts it may be employed to insulate, and in addition it must be able when at the highest temperature to remain intact upon being drenched suddenly with water. This latter requirement concrete will not fulfill. In many instances, as illustrated in the Edison fire, it crumbles in fragments, and so fails of either purpose of fire resistance.

Mr. Edison makes a point of the destruction of his brick buildings. That result was due, not to failure of brick work, but to failure of the floors; such of the brick walls as fell were pulled down, not burned down, by the leverage of the combustible floors after they had burned through. Had the floors of Mr. Edison's brick building been constructed with steel beams properly insulated with terra cotta, those buildings would have required after the fire nothing but refinishing and refurnishing, as was the case in the Home Life Insurance building, when swept by the Rogers-Peet fire of many years ago.

Concrete in many ways and for many uses is an excellent material. Its employment is extending greatly with each succeeding year, and its immense promise for the future in the proper fields of its application in all justice should satisfy the demands of the most ambitious of cement manufacturers. In the circumstances it is but natural that an effort of those tradesmen to encroach on the legitimate domain of makers of other materials should be resented by the manufacturers of truly fireproof products; and the persistent campaign to further the use for fireproofing purposes of an aggregate which in no effective manner can perform the function of fire resistance is nothing less than a menace to the public safety. FRED METCALF.

Plainfield, N. J., May 22.

### Seen in New Jersey.

Editor The Clay-Worker:

Business in brick is improving all through that portion of New Jersey contiguous to New York. Recent trips to some of the interior municipalities indicate that improvement is not altogether dependent upon New York. Many localities far from New York are gaining. Building operations will be larger this year than last, and in some cases these will be of a very substantial character. All of New Jersey is feeling the impetus of increased manufacturing facilities, bringing in a larger population, and the activities are exerting an influence upon the general building situation. It is all helpful and tends directly to benefit the maker of all varieties of brick and terra cotta.

J. N. Pierson & Son, architects, Perth Amboy, report greatly improved business. They make a specialty of school houses and have enough work ahead to last them a year. New Jersey is preparing to build many new school buildings this year, and this firm of live architects are securing their share of the work.

N. H. Sloan, broker, Paterson, is getting more orders now than he has for months. He covers a wide territory and supplies all building material made of clay, representing some of the largest manufacturers in the country. The fact that his orders are increasing is ample evidence of the conditions which are described by some brick interests.

Newark is developing a situation which will ultimately call for great quantities of brick. It is spending $2,000,000 to make the city an Atlantic seaport, and has so far succeeded that it is attracting a great many factories, which must have water transportation, to its new factory sites out on the meadows, where formerly the land was all waste. In a lesser degree, Newark's example is being followed by other similarly situated cities, and the combination will result in a further influx of manufacturing enterprises and population, for they must have operatives. BURTON.

### An Important Detail Overlooked.

Dear Mr. Randall:

I hesitate to give one of my bosses a "calling down," as you are one of the directors of this association which employs me, but to show you that I am trying to earn my salary, in addition to the $200.00 I have donated to the cause, I must call your attention to the item in May Clay-Worker, page 654, under the caption "Pacific Coast News."

This item is in the general news letter of your San Francisco correspondent, and in it appears this paragraph:

"The Model Brick House on the grounds, the building constructed of clay product materials contributed by the various local concerns, is just about complete now, the interior finishing having required more time than was expected. This house constitutes a most attractive exhibit of the possibilities for the use of brick in structures of small size."

This is fine, as far as it goes, but it is unfortunate that it slipped through without reference to the parent-head, the Panama-Pacific Clay Products Association, but let loose as a "half orphan," when one little additional line added by you would have called the attention of your readers to the exceptional advertising proposition which is **theirs** providing they take advantage of it by coming to its financial support.

All credit is due our California co-workers who have so liberally contributed in the way of material, and to Mr. J. R. Gwynn in his untiring gratuitous service from start to finish, and had only a small percentage of the firms in the burned clay products industry responded in like manner, brick publicity would be **working**; as it is now, our exhibit stands as a question mark, and when and how the answer will be given, depends upon the action of those whom the exhibit is supposed to benefit.

Yours very truly,
E. C. KIMBELL,
Publicity Agent.

Chicago, June 7, 1915.

### THE CHICAGO SITUATION.

THE BUILDING STRIKE is still on in Chicago, and although a formal vote of the carpenters was in favor of rejecting the terms offered by the contractors, a movement for peace is on foot, and arbitration is in sight. The minute the strike is settled there will be a volume of building in progress such as has not been equaled in a long time.

The number of permits being taken out each week now exceeds largely the number taken out for corresponding weeks last year, when the strike of brickmakers was going on.

The Union Bag and Paper Company is planning the construction of a $250,000 plant in Ashland avenue, between Thirty-sixth and Thirty-seventh streets, which will have an exterior of brick and terra cotta trim.

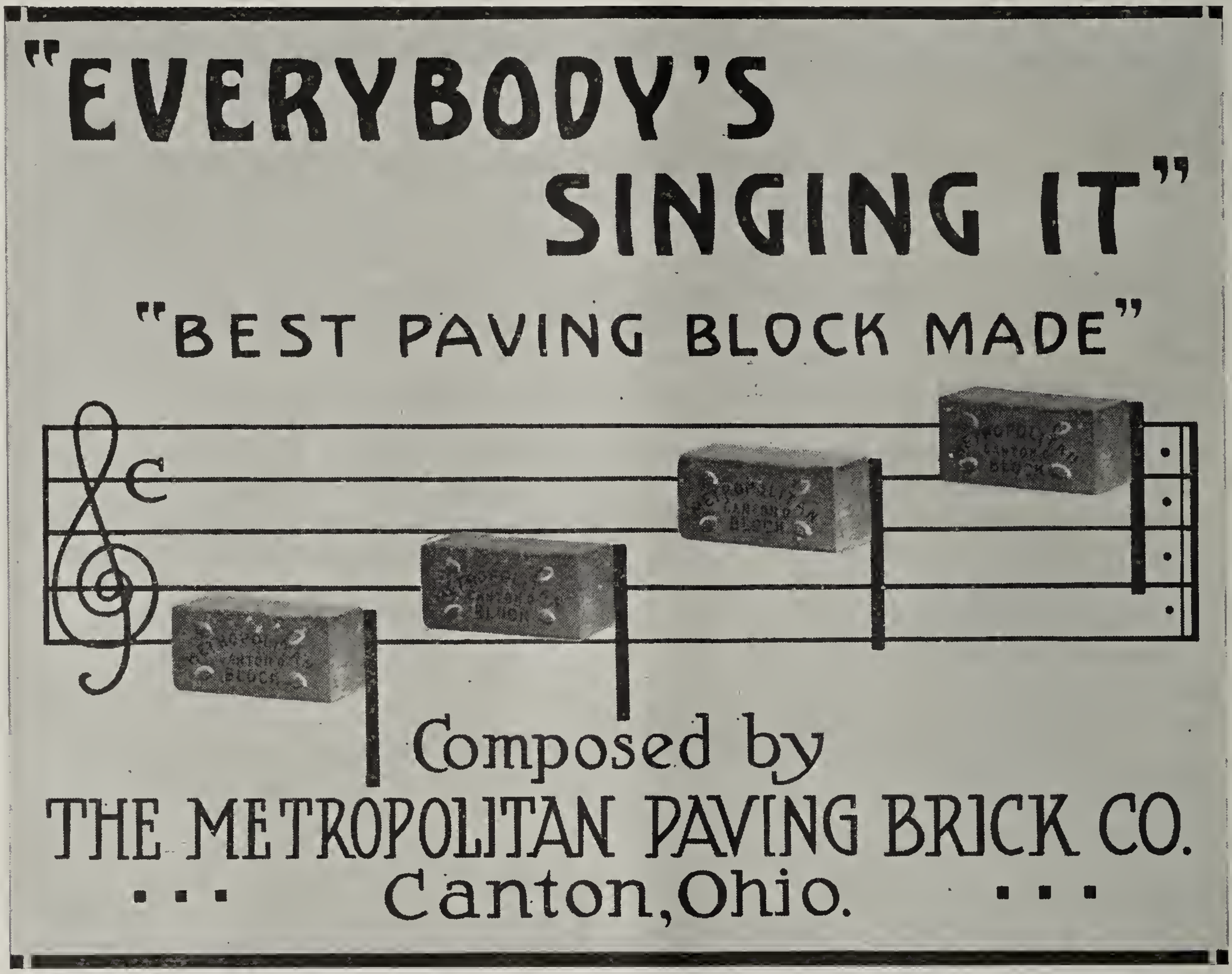
A new $1,500,000 hotel is to be erected by a syndicate in Sheridan Road, between Irving Park boulevard and Grace street. It will be finished in brick and terra cotta.

While many new flat buildings are being projected, many of them costing well over the $100,000 mark, it has remained for Oak Park to plan a group of buildings which will total close to $1,000,000 in cost.

Another month is expected to see Chicago well out of its troubles, and nobody is praying for that outcome more than the brick, tile and terra cotta men. SCRIP.

## PAN-AMERICAN ROAD CONGRESS, SAN FRANCISCO, SEPTEMBER 13, 1915.

AT THE meeting of the executive committee of the Pan-American Road Congress, held in New York City, June 7, it was decided to run a train to be known as the Pan-American Road Congress Special, to accommodate delegates to the great meeting to be held at Oakland, Cal., during the week of Sept. 13 next. The lines over which the special will be run have not yet been fully determined, but it is proposed to so arrange it that delegates may have the benefit of one of the best of the scenic routes to the Exposition. More complete details of the arrangements will be announced at an early date. The executive committee has received letters from various municipalities and organizations, inviting the delegates to stop at points along the way and make local tours of inspection. It is probable that some of these invitations will be accepted and, as the party will be made up of many of the leading road builders of the country, it is felt that such inspection trips will prove very interesting and instructive, both to the visitors and to the municipalities.



The Novel Advertisement of the Metropolitan Brick Paving Co.

Announcement is made by the executive committee that the Tri-State Good Roads Association, the membership of which covers the states of California, Oregon and Washington, has definitely decided to change its date of meeting to that of September 13, in order to co-operate in every way with the Pan-American Road Congress. The Tri-State Association had planned to hold the Pacific Coast Good Roads Congress in San Francisco during the week of August 2, and this change of date means most active assistance on the part of those identified with the highway improvement on the Pacific coast.

For the purpose of carrying on its work with the highest efficiency possible, the executive committee has decided to appoint local representatives or chairmen in all the principal cities throughout the United States and Canada. Each local representative will look after the interests of delegates from his section, give the Pan-American Road Congress as wide publicity as possible, and help to arouse interest in the congress. It is believed that this will insure the widest possible publicity for the congress.

## ANNUAL MEETING OF N. P. B. M. A. TO BE HELD IN DAYTON, OHIO.

The board of directors of the National Paving Brick Manufacturers' Association, at their quarterly meeting held in Cleveland May 27th, affirmed arrangements tentatively made for holding its annual meeting October 11-12, at Dayton, Ohio. During this week, namely, October 12-13-14, will be held the annual meeting of the American Society for Municipal Improvements. This arrangement will not only enable the members of the National Paving Brick Manufacturers' Association to attend the meeting of the American Society, but it will also give the engineers of Ohio, Indiana and Kentucky and other states who have not heretofore been members of the American Society of Municipal Improvements an opportunity to attend that meeting and become enlisted in its roll of membership. There should be no absentee.

## A NOTEWORTHY ADVERTISEMENT.

One of the cleverest advertisements appearing in the current trade journals of the country is that of the Metropolitan Paving Brick Company, of Canton, Ohio. We reproduce it on this page to show our readers the impressiveness of this unusual advertisement It's music to our soul to see well burned clay fulfilling almost every requirement. We haven't played this over on our piano, but we are willing to wager that it would suit the words, "Best Paving Block Made."

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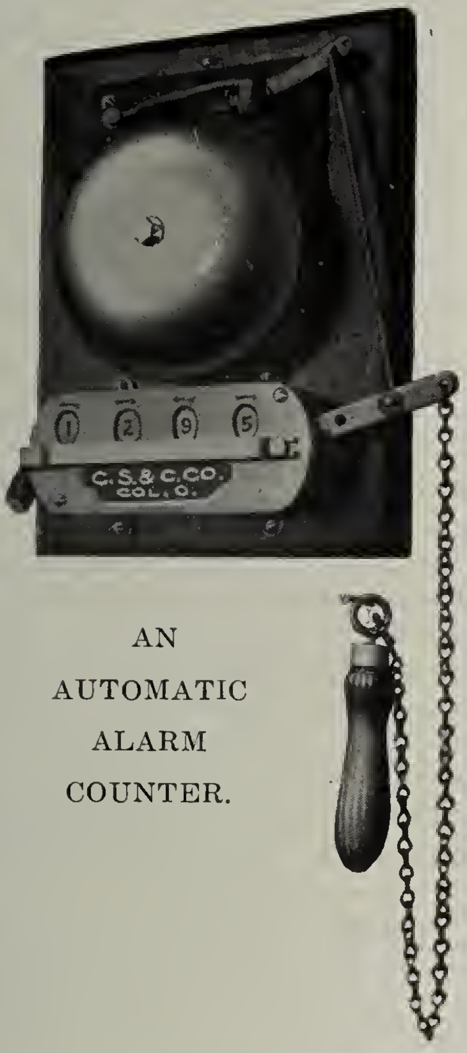
Most of the unemployed are now finding jobs—and many of the employed are planning to take a vacation.

## SUMMER CONFERENCE AND OUTING OF THE AMERICAN FACE BRICK ASSOCIATION AT DETROIT, MICH., JULY 15 AND 16.

At a recent meeting of the executive board of the American Face Brick Association, it was decided to hold a midsummer meeting of the association at Detroit, Mich., July 15 and 16, and it is anticipated that there will be a meeting of the American Face Brick Dealers' Association at the same time and place, which will permit of a joint meeting of the two organizations. For further particulars, address R. D. T. Hollowell, secretary, Park Building, Pittsburg, Pa.

## "HOW MANY BRICK? LET'S COUNT 'EM AND KNOW."

The above is a catch phrase appearing on the cover of a leaflet issued recently by the Ceramic Supply and Construction Company of Columbus, Ohio, and gives a good hint as to the contents of same, which deals with their automatic barrow, car and alarm counters, together with prices. The automatic barrow counter, counts accurately the number of brick loaded in the car. It does not count empty or partially loaded barrows. The alarm counter, an illustration of which is shown herewith, eliminates the old tally-board, for the cars are registered by the pulling of the rope, which also rings a gong that notifies everyone that the car has been counted. Their electric car counter is a clever device used in connection with the transfer track, the car being electrically registered in the office, showing at a glance just what is being done in the factory. A copy of this leaflet will be mailed to anyone upon request. Write the Ceramic Supply & Construction Co., Columbus, Ohio.



AN
AUTOMATIC
ALARM
COUNTER.

## AMERICAN AMBULANCE HOSPITAL IN PARIS.

The appeal for assistance to war-torn Europe is coming to us in many forms these days, and so insistently that at times it taxes one's resources to give, and our natural sympathy with the afflicted people makes it difficult to refuse. On the other hand, it is hard to keep track of all the different agencies soliciting funds, and often there enters the public mind the suspicion that not enough of the fund contributed reaches those for which it is solicited, too much of it going in payment of the efforts of those who do the soliciting and collecting. There is one agency, however, known as the American Ambulance Hospital in Paris, soliciting contributions, which claims that all of the money contributed goes to assist those needing it in the war zone, as the work is all done gratis. The contributions for this agency are received by J. P. Morgan & Co., 23 Wall street, New York City, and the headquarters of the American Ambulance Hospital fund is 14 Wall street.

## INSURANCE MONEY FOR BUILDING.

About a year ago, in The Clay-Worker for May, 1914, to be exact, attention was called to a report that the big insurance companies were turning thoughtfully toward smaller loans on farms and home property for investing their surplus money in preference to using it in buildings and in the purchase of bonds of buildings of the sky-scraper and office type in the big cities. What was then a rumor or report is now a fairly well-established fact. Not only have insurance people been turning their money toward farms and home mortgage investment in rural communities and smaller towns, but they express satisfaction with the change and the indications are that there will from now on be more insurance money for building operations of this order than was ever available before.

Not so long ago the writer talked with one of those in charge of handling of surplus insurance money upon this very subject and asked him if they were interested in community development in rural sections and were actually turning more of their money in that direction or was it all just newspaper talk.

He said that the insurance people had shown a decided tendency toward rural and small mortgage investments in preference to using their money in big buildings and bond propositions, as had been the rule in the past. He said they were not actuated in this, however, by any philanthropic spirit or desire to assist in rural community development. For them it was a business proposition pure and simple and they had, after careful investigation, concluded that these small loans on individual homes and on farms constitute the safest and best investment for their money.

They have been trying this out long enough to demonstrate pretty well that the home building loan and farm loan does constitute one of the best and safest investments for surplus insurance money, so it is evident we are to have more money and easier money to encourage home building operations and farm improvement generally. This should make good times in the building world and should contribute successfully to better home building and more farm improvement—one of the things many of us have been contending for as essential for the best welfare of the country.

## CHANGES IN THE BRITISH POTTERY TRADE.

War conditions and the readjustment of transportation lines and trade all around have brought certain interesting changes to the pottery industry of England. It is interesting and pleasing to note that conditions are much better than could have been anticipated with so many large countries at war. A consular report from Burslem under December date says that conditions have improved materially, more works have gone on full time and there is some chance that the industry may assume normal conditions at least so far as giving employment is concerned. It is pointed out, however, that in almost every case the demand is for useful goods and wares of the cheaper variety. The elaborate expensive goods or the gorgeously painted and gilded pieces are not in much demand. There is an active demand for fancy wares decorated with portraits of military and naval chiefs.

It is said in this report of changes in the pottery trade that the Burslem district bids fair to become an important center of toy manufacture. In the line of dolls it is said that one large house in London annually places orders for dolls to the value of $121,700 and other big firms have expressed a desire to secure these toys.

Several pottery firms have definitely taken up the manufacture of dolls heads and one concern after submitting samples promptly secured an order for 10,000 of the same design. Thus, it is said the making of the "capital" part of the doll has been assured and the production of the glass eye has also been arranged. A maker of human glass eyes was found and is now producing these in miniature, so producing the first dolls' eyes that have been made in England at any rate for years.

The report states that the business of doll making arose from a desire to find work for the girls who might be unemployed owing to the war. As a result work shops have been opened in various pottery towns and many girls who were formerly tailoresses have been given work in fixing up the bodies and painting the heads and dressing up the dolls. It is figured that while these dolls will cost more than the German product they will prove superior and they are made under conditions. This work is under the auspices of a committee of the Queen's Work for Women Fund and the girls are employed at the rate of not less than 6c an hour and some of them receive considerable more.

The making of toy tea sets has also been taken up to some extent and it is thought this offers opportunity for the developing of quite a little business. This is another line that has heretofore been secured mainly from Germany, the manufacture of which is now being undertaken in England.

### HOW MUCH FOR ADVERTISING?

One of the actively discussed questions of the day in all lines of commerce, as well as in the brick business, is, how much should be spent in advertising. Experts, who have canvassed the field, have tabulated by classifications the sums spent in different lines of business, on the basis of the per cent of net sales used for advertising urposes, with the following results:

| | |
|---|---|
| Department stores | 2 to 4 per cent. |
| Clothing | 3.16 per cent. |
| Jewelry | 2.85 per cent. |
| Furniture | 2.72 per cent. |
| Drugs | 1.76 per cent. |
| Dry Goods | 1.67 per cent. |
| Shoes | 1.65 per cent. |
| Variety Goods | 1.32 per cent. |
| Vehicles, implements | 1.22 per cent. |
| Hardware | 1.12 per cent. |
| Groceries | 0.83 per cent. |

This advertising includes letters, circulars, pamphlets, catalogs, displays in windows, expositions, newspaper space and all forms of exploitation properly chargeable to advertising.

The Southern Pine Manufacturers are spending 25 cents per thousand feet sold to support the association or central organization in addition to the sums spent by individual firms in advertising and that spent by retail dealers in advertising the product.

The building brick industry might well spend 1 to 2½ cents per thousand supporting the Building Brick Bureau, and from 5 to 25 cents per thousand in local advertising, assisted by the Bureau and its literature.

---

**Gas Fired Muffle Kilns**—The use of producer gas for muffle kilns is better than the direct fired kilns with coal or oil. With producer gas, the heat in the muffle can be better regulated, so that the ware inside the muffle can be heated up more uniformly than with other fuel. The possibility is also at hand that the heat, when it is once used, can be used again for the preheating of the gases and the air of combustion. The installation should be made so that one kiln after another could be fired, so that the gas producer would be always in working order, and that the gas could be switched over to the different kilns under fire.—Keramische Rundschau No. 19, 1914.

## OBITUARY.

### Death of A. W. Aylesworth.

We were much shocked to hear of the death of A. W. Aylesworth, who pased away suddenly at his home June 8, after a very brief illness. Mr. Aylesworth, a member of the Bonnot Company of Canton, Ohio, was one of the live wires of the machinery salesmen of the country. He was a splendid, amiable, lovable fellow, who made friends wherever he went and was always received with the most cordial welcome. He was an untiring worker, met competition in a fair and square manner and booked many a large order for his company. His large following of friends will mourn his loss. We deeply regret that such a representative man in the machinery trade passed from us at such an early age. He leaves a wife and one child.

### MODEL BRICK HOME AT SAN FRANCISCO EXPOSITION FINISHED AND FURNISHED COMPLETE.

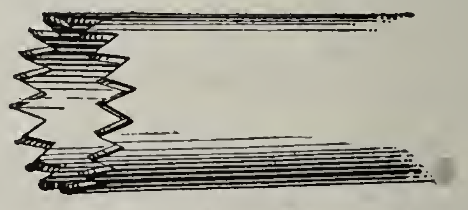
Under date of the 17th a wire was received at the home office of the Panama-Pacific Clay Products Exposition Company, Chicago, to the effect that the model brick home had been completed and would be furnished complete by the Home Arts Incorporation, and that it would be ready for the permanent custodian July 1st. This is good news, and the Chicago brickmakers who have boosted this enterprise so vigorously for months past are to be congratulated on the successful completion of this notable undertaking, the chief purpose of which is to boost brick and other clay products. In this instance, at least, it will not be a thankless undertaking; on the contrary, the entire clay craft will render thanks to Matz, Varney, Bonner, Kimbell and their associates who have labored so unselfishly and unceasingly in this good cause.

### THE KEYSTONE PORTABLE KILN GRATE.

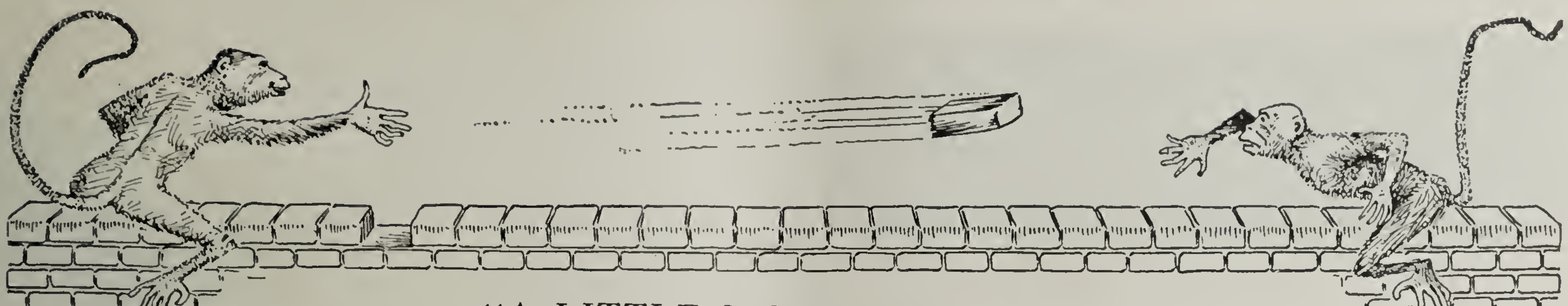
On page 830 of this issue the Marion Machine Foundry and Supply Company, advertises a portable kiln grate, which they declare fills a long-felt want in the clay industry. This grate is furnished with or without wheels as desired and is very convenient to handle. It is substantially built and suits its purpose well. For complete information relative to its structure and adaptability, address the Marion Machine Foundry and Supply Co., P. O. Box 156, Marion, Ind.

### HOW TO DRILL THROUGH BRICK AND SOFT STONE.

The accompanying illustration represents a very good drill for brick walls and soft stone. The drill is made of an ordinary gas pipe and the end is serrated, which can be done with an ordinary half-round or three-cornered file. In boring a hole, the end of the drill is tapped lightly with a hammer and turned slightly after every blow.



**DRILL FOR BRICK WALLS AND SOFT STONE.**



# "A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

### WISE KID.

A confirmed tippler remarked in the presence of his little son that at one period he didn't touch a drop for two years. "Pa," said the little fellow, "was that your first two years?"

---

Mule in the barnyard,
Lazy and sleek;
Boy with a pin on the end of a stick
Creeps up behind him, quiet as a mouse—
Crepe on the door of the little boy's house.—Ex.

### A HINT TO ANGLERS.

"What! giving up already, my boy?" said a gentleman to a youthful angler. "You must bring a little more patience with you another time."

"I brought enough patience with me, mister, but I didn't bring enough worms!"

### ON A NIBBLELESS DAY.

First Fisherman (about 4 p. m.)—Say!

Second Fisherman—Huh?

First Fisherman—Wouldn't it make us nervous to feel that the fish markets of the country were depending on us?—Judge.

### HERIDITARY.

At the annual prize-day of a certain school the head boy rose to give his recitation.

"Friends, Romans, countrymen," he vociferated, "lend me your ears!"

"There," commented the mother of a defeated pupil, sneeringly, "that's Mrs. Jones' boy. He wouldn't be his mother's son if he didn't want to borrow something."

### DOOMED DOG.

Customer—I wish to buy a dog collar, if you please; something handsome and showy.

Shopkeeper—Will this one do?

Customer—No; I'd like something more expensive than that. You see, it's my wife's dog that I want it for, and I should like to get some one to steal it.—Millville Avalanche.

### "LUCK."

It isn't good luck, or some wonderful gift
Of talent or genius or learning,
That bring us at last to the coveted goal
Nor is it by dreaming or yearning;
It's only hard work and a novel resolve
That accomplish glorious deeds—
It's tending our own little garden of life
And preserving it free from weeds.

### THE ONE EXCEPTION.

The owner of a menagerie which included a "happy family," consisting of a lion, a tiger, a wolf and a sheep, was asked confidentially by a leading citizen of Tiffin, Ohio, where the menagerie was showing, how long these animals had lived together.

"Well," said the owner, "I hope it won't go any further than you, but they have lived together about nine months, except the sheep, which had to be renewed occasionally."

### TRUE HERO.

It is easy enough to keep grinning,
With Fortune a kind old gal.
But the man worth while
Is the man who can smile
On a 2-cent capital.
—Kansas City Journal.

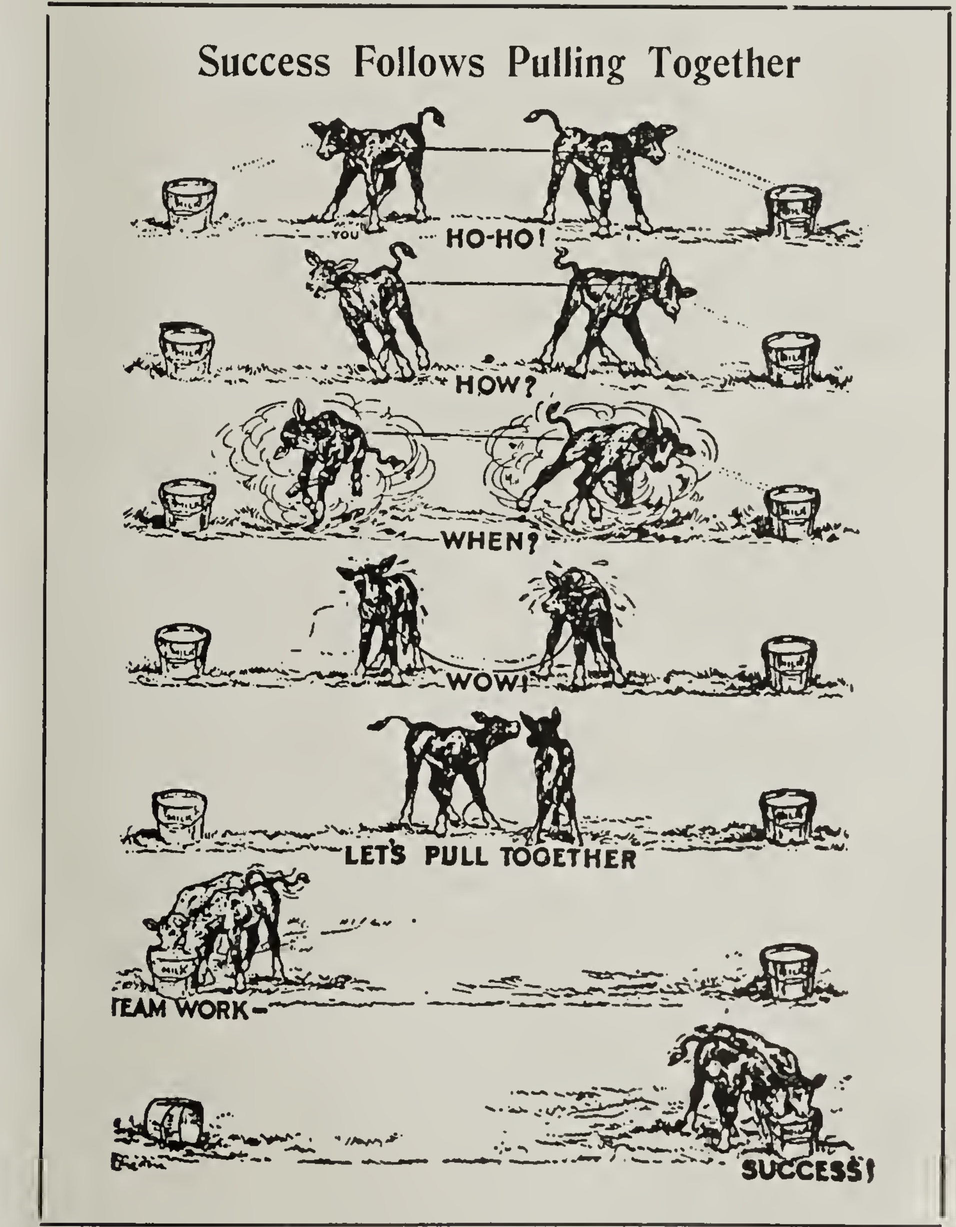
### SUSPICION.

"Is that your son studying the violin?"

"Yes," answered Mr. Growcher.

"What's the tune he is playing?"

"I don't know whether he's playing a tune or a practical joke."—Washington Star.


Success Follows Pulling Together
YOU
HO-HO!
HOW?
WHEN?
WOW!
LET'S PULL TOGETHER
TEAM WORK—
SUCCESS!

This cartoon used by "Armour" hits the nail squarely on the head. The clayworkers of the land can get all they want by pulling together.

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION.*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

| | |
|---|---|
| One copy, one year (in advance) | $ 2.00 |
| One copy, one year (if not paid in advance) | 2.50 |
| Six copies, " " | 10.00 |
| Ten copies, " " | 15.00 |

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXIII. JUNE, 1915. No. 6.

## CURRENT COMMENT.

It is the morning of a new day in the brick business.

* * *

The three greatest words in the English language to the brick industry are "Build with Brick."

* * *

Brick building is the order of the day, and the way to keep the brick orders piling up is to get active in the boosting game.

* * *

The sewer pipe folks do not seem to be saying much, but there are indications all around us that they are having a pretty busy time.

* * *

The logic of the brick roadway is gradually gaining ground and the sooner it is duly impressed upon road builders, the sooner we will have the best roads in the world.

* * *

Unless you take time to get acquainted with the machinery men, you are not likely to learn as much as you should about improved methods and appliances for use in your work.

* * *

There is no question but what there will be lots of silos built this summer. The question is, what material will be used mostly? Brick silos are best. How can the farmers be impressed with that fact?

* * *

The production of Fuller's earth last year amounted to a total of $403,646, which was considerable progress as compared to the previous year. The main use of Fuller's earth is for clarifying oils, greases, etc.

* * *

Those lumber folks who have had the nerve to say that there is no appealing beauty in brick should read those prize essays of the school children of Decatur, Ill. There will likely be some more of such essays, too, next school term that will make informing reading for those who find it difficult to understand all the superior points of brick.

* * *

The farm drain tile business ought to have been doing fine lately, and some report that it has.

* * *

Talk brick barns as well as brick homes, for there is a big, undeveloped field in barn building for a good use of brick.

* * *

Practically everybody wants to give and receive a square deal, but we differ in our ideas of what constitutes such an animal.

* * *

Billy Sunday may have thought he was a "big noise" when he was a baseball boy, but what he's doing now is enough to turn a baseball magnate green with envy.

* * *

The "Build with Brick" posters have put brick in the public eye and mind enough already to make it easy for systematic exploitation of brick to yield better returns right now than ever before. It is the physological time for action.

* * *

By and by there is likely to be a pretty keen realization of the fact that laying brick in the walls is costing too much money, and the men who do the laying are not progressing along the line of improvements in methods to facilitate the work.

* * *

There is really not so much difference between the lumbermen and the brick men as some folks imagine. Each professes a desire to exploit their products for such purposes as they are best adapted—and boosting on any other basis is mostly wasted energy.

* * *

Some of the writers in the popular magazines have discovered that the pottery people of this country can produce pretty good dishes and fine chinaware. They really didn't need the war in Europe to discover this, as they could have found it out by a periodical reading of The Clay-Worker.

## WHAT WILL HAPPEN WHEN THE WAR IS OVER.

One of the important suggestions coming out of the devastations in Europe that should be of keen interest to the machinery people is that after the war brickmakers in Europe will turn anxiously to American labor saving machinery, so that they may supply the needs of that country with fewer men and less manual labor. Heretofore the cheapness of labor in Europe has in a way retarded the sale of American machines, and the natural scarcity that will develop out of the present conditions should make a splendid opening for the sale of American clayworking machinery in practically all of warring Europe.

## BRICK AND OTHER BUILDING MATERIALS.

The Clay-Worker has no particular fight to make on cement, lime, lumber or any other material used in construction, except when these materials are wrongfully exploited as equal to brick for various purposes and especially in the work of fire-proofing. The mission of The Clay-Worker in this field is to exploit brick and other burned clay products as representing the best building material on earth. When it comes to fire-proofing qualities, there is nothing else compares with it favorably, and, taking it all around, when it comes to a show-down, all fair demonstrations will support the contention that brick is the best building material on earth. That is the position we stand pat on, and in the arguments about other materials our only object is to maintain that position and keep brick before the people for what it is. The more agitation we have, the more counter-argument put up by advocates of other materials, the more wide-spread becomes the knowledge that in the final show-down brick is in a class by itself, and is not only the ideal material for fire prevention, but, taken altogether, it is the best building material on earth.

## BUILDING AND LOAN WORK.

From time to time, The Clay-Worker has called attention to the good work in promoting home building that is being accomplished through building and loan associations. It is pleasing to note from time to time, too, that some good brick man is actively connected with the development of building and loan association work.

We are reminded by a recent issue of the South Hill News that C. P. Mayer, president of the N. B. M. A., is interested in a new building and loan association at Bridgeville, Pa. Every time we come across something of this kind, something that tells us of the connection of a brick man with a local building and loan association, it makes us feel good, because it is constructive work that is doing much to promote home building and to make not only for better business, but for better citizens.

The writer had occasion recently to attend a meeting of a state league of building and loan associations, at which talks were made by officials of the national league of building and loan associations. These talks and the accomlishments through building and loan association efforts reviewed by them, could not help but impress strongly all who heard them, that the building and loan association idea has put many millions of dollars into the building fund of the country, millions that otherwise would never have been so invested, because they were put there through the development of the savings habit, directed specifically toward home building.

## THE BUREAU AND ITS WORK.

What the Building Brick Bureau intends to do is set forth in a general way in the objects of the organization; that is, to promote the use of building brick by gathering and disseminating information that will assist both the brick manufacturers and the public in its proper use wherever brick is best adapted.

The first efforts of those in charge of the Bureau will, very naturally, of course, be centered upon completing the work of organization and getting enough members and people interested in the work to insure proper financial support and a fund sufficient to carry out in detail the plans and ideas of the committee having had charge of the work of creating the work of the bureau. This, however, should not take long if the right interest is manifested and soon, then, practically all the time and energy may be centered upon the actual work or objects of the Bureau.

There are: First, to gather data pertaining to brick building as compared to other buildings, getting along with this, actual pictures of brick houses that have been built, and this data will be put in definite form for the use of members. It is such data as is essential in following up inquiries of those who have become interested in the subject of brick building.

Then will come the laying of plans for and the giving of advice upon publicity. In this, the Bureau will act as a sort of advertising service bureau for its members, furnishing samples of advertising for local papers and advice and suggestions generally about how to do local advertising to get the best results.

By and by, the Bureau itself may run some country-wide advertising, but the purpose for the present contemplates the obtaining of country-wide advertising largely through the encouraging of more extensive local advertising on the part of brick manufacturers throughout the country. In this, there is a logical carrying out of the "Build With Brick" poster campaign to larger and broader fields, and the idea of the central Bureau is that it will act as a center of inspiration and clearing house for advertising enthusiasm and advice. With the assistance of this Bureau, every brick manufacturer will do more and better advertising in his own community, and through this means, there will be obtained nation-wide advertising, and at the same time, each man will be spending his own money in his own territory and reap the direct benefits therefrom, contributing only what is necessary to support the central Bureau, which will gather data and render all assistance practical in the work.

## THE RISE OF FACE BRICK.

The rapid rise in prominence of face brick the last few years has furnished an interesting study in the clayworking industry as well as more variety for architects and builders to add spice and variety to the architecture of the country.

What is known as front brick or face brick has practically doubled, both in quantity manufactured and in value during the past ten years. Taking the figures for the years of which we have detailed reports, we find that in 1903 the total quantity of front brick manufactured was 433,016,000, valued at $5,402,861, on a basis of an average price of $12.48 per thousand.

Ten years later, in 1913, the total production of face or front brick was 827,665,000, valued at $9,614,138, on a basis of an average price of $11.62.

Since 1913, there has been active development as well as more extensive exploitation of face brick. Last year witnessed the introduction of many new faces and trade names for face brick, and the present year shows a continuation of the activity in face brick development. So it is perhaps easily a safe proposition to assert that face brick has doubled in quantity manufactured and consumed during the past decade. Also another point worthy of special attention is that as an artistic proposition face brick has been wonderfully improved. The purchaser of face brick today gets more for his money than ever before. There are many new beautiful faces presented, and the average price is lower than it was ten years ago. At one time, back in 1905, the average price of face brick was $13.12 at the yard, and the product of that period is not to be compared in beauty and elegance with the face brick offering of today. While some fancy faces are held at a higher price than this, when you strike a general average, we find that consumers of today are getting more for their money in the way of artistic beauty in face brick than ever before, and that the consumer appreciates this fact is best attested by the other facts stated above, that the face brick has doubled in quantity used in the past decade, while the quantity of common brick used is practically the same as it was ten years ago.

It would seem from the figures presented by the Geological Survey that the rise in face brick and the continued attention to fancy ornamental face have resulted in the gradual absorption of what is known as fancy ornamental brick into the fold of face or front brick. Under the old classification of fancy or ornamental brick there was shown, back in 1903, a total value of $328,387, while in 1913 this had dwindled to $109,703. This fancy or ornamental brick shows a reduction practically in step with the growth of face brick, for it is the natural assumption that more of the ornamental class has been absorbed into the classification of face brick.

Enameled brick, on the other hand, has shown a growth even exceeding that of face brick. The enameled brick is a product which is easily set forth in a separate classification. The total production of enameled brick in 1903 only amounted to $567,687, and since that time it has grown steadily, showing an increase for every year except 1908 following the panic, and the total of 1913 was $1,225,708, or practically twice the value of ten years ago.

### THE GANDY BELTING CO.'S HANDY LEAFLET.

There is no more progressive belting firm in this country than the Gandy Belting Company, of Baltimore, Md., whose products are well known in the clayworking field. In keeping with their general reputation for up-to-dateness is their little leaflet which sets forth the reasons "Why belt users of long experience choose The Gandy Belt" and "Why Gandy users recommend it."

This leaflet also gives rules for finding the belt speed, the horsepower that any Gandy belt will economically transmit, the ply of a Gandy belt of a given width required, how to lace, etc. The price list, cipher code and much other information is given. Write them for one of these leaflets. Address The Gandy Belting Co., Baltimore, Md. See their advertisement on page 825 of this issue.

### THOUGHTS FOR THE DISCOURAGED FARMER.

The summer winds is sniffin' 'round the bloomin' locus' trees,
And the clover in the pastur' is a big day for the bees,
And they been a-swiggin' honey, above board and on the sly,
Till they stutter in their buzzin', and stagger as they fly.
The flicker on the fence-rail 'pears to just spit on his wings
And roll up his feathers, by the sassy way he sings;
And the hoss-fly is a-whettin'-up his forelegs for biz,
And the off-mare is a-switchin' all of her tale they is.

You can hear the blackbirds jawin' as they foller up the plow—
Oh, theyr bound to git theyr brekfast and theyr not a-carin' how;
So they quarrel in the furries, and they quarrel on the wing—
But theyr peacabler in pot-pies than any other thing;
And it's when I git my shotgun drawed up in steddy rest,
She's full of tribbelation as a yeller-jacket's nest;
And a few shots before dinner, when the sun's a-shinin' right,
Seems to kindo-sorto' sharpen up a feller's appetite!

They's been a heap o' rain, but the sun's out today,
And the clouds of the wet spell is all cleared away,
And the woods is all the greener, and the grass is greener still;
It may rain again tomorry, but I don't think it will.
Some says the crops is ruined, and the corn's drowned out,
And propha-sy the wheat will be a failure, without doubt.
But the kind Providence that has never failed us yet,
Will be on hand onc't more at the 'leventh hour, I bet!

Does the medder-lark complain, as he swims high and dry,
Through the waves of the wind and the blue of the sky?
Does the quail sit up and whistle in a disappointed way,
Er hang his head in silunce and sorrow all the day?
Is the chipmuck's health a-failin'? Does he walk, or does he run?
Don't the buzzards ooze round up thar, just like they've allus done?
Is there anything the matter with the rooster's lungs or voice?
Ort a mortal be complainin' when dumb animals rejoice?

Then let us, one and all, be contentud with our lot;
The June is here this morning and the sun is shining hot.
O let us fill our harts up with glory of the day,
And banish ev'ry doubt and care and sorrow fur away!
Whatever be our station, with Providence fer guide,
Sich fine circumstances ort to make us satisfied;
Fer the world is full of roses, and the roses full of dew,
And the dew is full of heavenly love that drips for me and you.

—James Whitcomb Riley.

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**'GETTING THE MOST FOR A DOLLAR,"**

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy Engineering Company.**

[See page 826.]

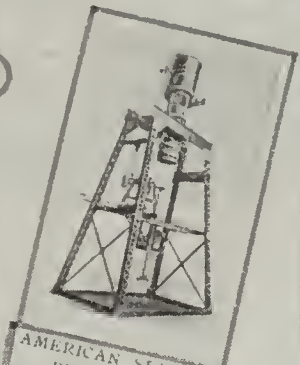
### THE BOOK OF SMILES.

"Love is a magician who makes wise men foolish and foolish men wise," so sayeth the Book of Smiles for May-June on its attractive cover. Believe us—there is some truth in that statement and there is just as much truth in the facts set forth relative to the merits of the dry kiln made by the Standard Dry Kiln Co., of Indianapolis. If you are not receiving this clever booklet, with its jokes, poems and pat expressions, assert your rights and ask to receive it regularly. The Standard Dry Kiln Co., Indianapolis, Ind., is the firm on the business end of the string.

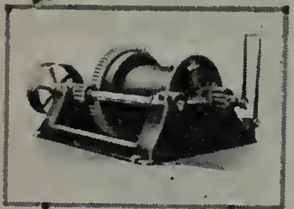
Much the Largest Manufacturers of Much the Best Clayworking Machinery.

THE HOME OF THE
"BUILT RIGHT" "RUN RIGHT" LINE
BUILT RIGHT RUN RIGHT
WILLOUGHBY FACTORY
BUCYRUS FACTORY
AMERICAN CLAY MCH. CO. PLANT WILLOUGHBY
AMERICAN CLAY MCH. CO PLANT BUCYRUS

AMERICAN No 292 REPRESS



AMERICAN SEWER PIPE PRESS



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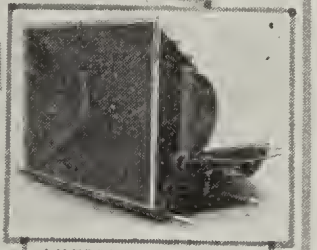
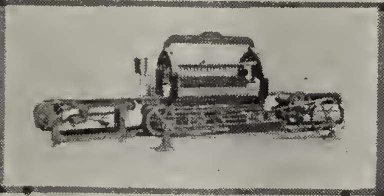


AMERICAN CLAY CAR

AMERICAN No 291 PUG MILL



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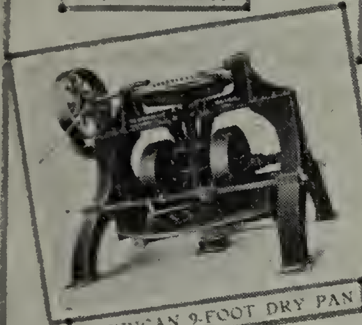
AMERICAN DISINTEGRATOR



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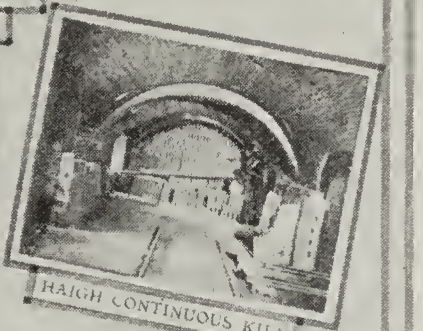


HAIGH CONTINUOUS KILN

# THE LATEST BRICK CUTTER

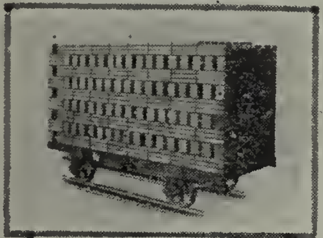
Our new American No. 342 Cutting Table is the latest and most approved type of automatic cutter on the market. Its basis of construction is the well known, substantial "Built Right, Run Right" Type. It has a range in capacity from 50,000 to 75,000 brick per day. It is adapted for either face brick or paving block. It has a new and improved type of wire fastener which prevents loose wires and makes it possible to use wires of unequal length. It is strong, substantial, durable and it is making good. This cutter is worthy of your careful investigation.

We build every machine and appliance needed in the clay trade. Equal care and attention to small and large orders.

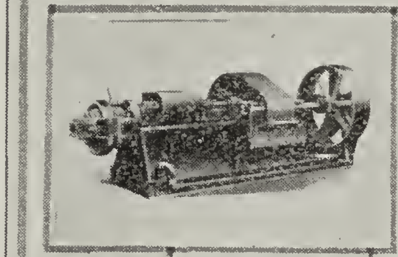
**The American Clay Machinery Co.**
**Bucyrus, Ohio**

AMERICAN No. 233 AUGER MACHINE

AMERICAN WASTE HEAT DRYER



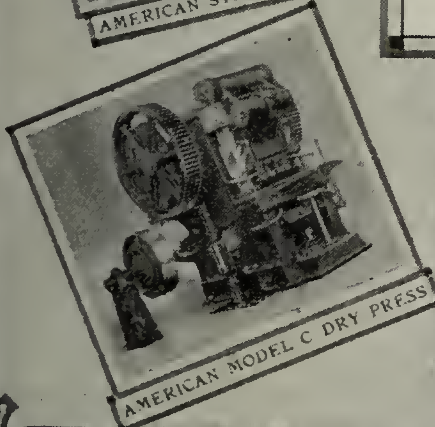
AMERICAN DRYER CAR



AMERICAN No. 290 AUGER MACHINE

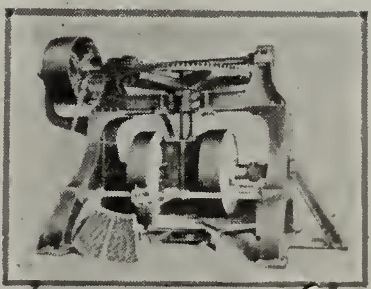
AMERICAN STEAM SHOVEL

AMERICAN STEEL FRAME FOR PUG MILL

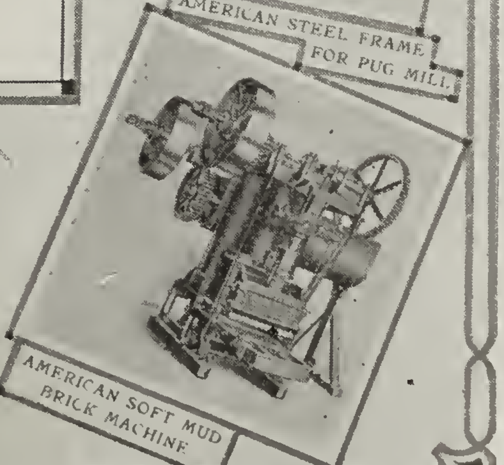


AMERICAN MODEL C DRY PRESS

AMERICAN WASTE HEAT FAN

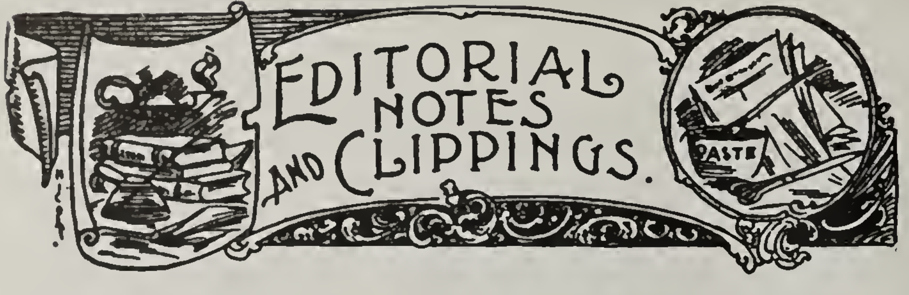


AMERICAN No 57 DRY PAN



AMERICAN SOFT MUD BRICK MACHINE

We Build Every Machine and Appliance Needed in the Clay Trade.



# EDITORIAL NOTES AND CLIPPINGS.

Homer Owens is figuring on starting a small brick-making plant at Clio, Ala.

Plans are being prepared by the Ashtabula Brick Company, Ashtabula, Ohio, for the extension and improvement of its plant.

A plant for the manufacture of sewer pipe is to be established at Hawesville, Ky., for the manufacture of sewer pipe. L. S. Powers is at the head of the movement.

The Lewisburg Brick Company is the name of a new concern that recently organized at Lewisburg, Ky. The officers of the company are: V. L. Price, president, and J. V. McReynolds, secretary and treasurer.

The Peekskill Fire Brick Works of Peekskill, N. Y., has been incorporated with $50,000 capital stock by K. A. and J. J. Butterly and L. F. Crumb. The output of the company will be fire brick, stove linings, fire sand, etc.

The directors of the Whiteselle Brick and Lumber Company, Corsicana, Texas, recently elected the following officers: J. E. Whiteselle, president; Max D. Almond, vice-president and general manager; J. L. Whiteselle, vice-president, and W. C. Oldham, secretary and treasurer.

The plant of the Kahn Brick Company at Selma, Ala., which has been closed down for about three months, has been started again, with a daily output of 50,000 brick. Building operations in Selma and vicinity are quite active at present, and the indications are that the plant will be kept busy for some time to come.

The Diamond Fire Brick Company has been organized at Worcester, Mass., with a capital stock of $50,000. Axel Olauson, inventor of a new fire brick; H. C. Oberist and Carl H. L. Bock are the incorporators. Arrangements have been made for the erection of the plant for the manufacture of brick.

According to the daily press of Cleveland, Ohio, the American Fire Clay and Products Company was recently incorporated with $1,000,000 capital stock, to do an extensive business in the way of manufacturing brick, tile and glass. The company has already obtained options on large tracts of clay land, as well as sand banks and coal mines. Several plants now in operation are also being considered by the company, and additional plants are to be built in the near future.

The Louisville Fire Brick Works, Highland Park, Ky., has been awarded the annual contract for furnishing fire brick material, amounting to about seventy-five to one hundred car loads, to all the navy yards in the United States. Although its bid was higher than that of other competitors, the company reports that it was successful in securing this contract over the seventeen or more concerns entered. As indicative of the interest shown in its product abroad, the company states that an inquiry has recently been received from Madras, India.

The immense new plants of the International Brick Company at El Paso, Texas, was formally "dedicated" Sunday, May 22, when a luncheon was served to 150 representatives of the various labor unions, city and county officials, and architects in the big kiln which has just been completed. During the speeches which followed the luncheon S. J. Heafield, general manager and erecting engineer, announced that the kilns would be filled ready to burn by June 10, and after that date the company expects to be able to fill any demand made on them for their brick. Bartlett will have charge of the sales end of the plant.

The Perth Amboy Terra Cotta Company of Perth Amboy, N. J., has completed plans for erecting a large terra cotta, brick, sewer pipe and paving block plant at Plummer Junction, Idaho, which is located about forty miles southeast of Spokane, Wash., on the main line of the C., M. & St. P. Railway. It is estimated $500,000 will be spent on the plant during the present season. According to James Duglas, foreman of the plant, the company has been experimenting with clays from the northwest for some time, and has found that the deposit at Plummer Junction is unusually valuable for the manufacture of clay products such as the company desires to manufacture.

The Raleigh Brick & Tile Company has been incorporated at Beckley, W. Va., by G. C. Herick, R. E. Carter, D. F. Earley and others.

The New Lexington (Ohio) Clay Manufacturing Company was recently incorporated with $75,000 capital stock. Daniel McKeever is at the head of the company.

The Gulf Brick and Tile Company of Mobile, Ala., has been incorporated with $50,000 capital stock. Those interested are J. K. Fox of Fowl River, Ala.; L. L. Duggar and others of Mobile.

While at work in the clay bank of the Spring Garden Brick Company, York, Pa., Henry Kaufman was buried under several tons of clay and so badly injured that death occurred almost instantly.

E. B. Achee, brick manufacturer of Napoleonville, La., died at his home May 26, following a stroke of apoplexy. He was sixty-nine years old and had been engaged in the brick business nearly all his life.

The brick and tile plant of Belle Plaine, Iowa, which changed hands several months ago, and which is now known as the Buckeye Clay Products Company, has resumed operations, after having been closed down for the past six months.

The Standard Brick Company, of Evansville, Ind., not only takes care of its local trade, but is kept busy taking care of orders from Kentucky. Among recent orders was a shipment of 60,000 brick to Tolu, Ky., and a car load to Montgomery, that state.

Following a demand from its employes of fifteen cents per day, the American Enamel Brick Company, of New Brunswick, N. J., closed down indefinitely June 4. The company took the precaution of placing guards about the works to prevent damage from strikers.

Thirty thousand yards of wire-cut-lug blocks, made by the Southern Clay Manufacturing Company, Chattanooga, Tenn., at its plants at Robbins, Tenn., were contracted for by the Southern Paving Construction Company, Chattanooga, to be used for paving some of the heavy traffic streets of Anderson, S. C.

The Athens Pottery Company, Athens, Texas, has completed its new plant, with the exception of a few kilns, and is now shipping several cars of pottery and hollow building tile daily. The Athens Fire Brick Company and the Athens Pressed Brick Company both report an unusually good season, with plants running to full capacity.

Philip Schmitt, one of the pioneer brick manufacturers of Columbus, Ohio, died at his home, May 27. Mr. Schmitt was seventy-five years old and had been a resident of Columbus all his life. He was proprietor of the Schmitt Brick Company, which he operated up to a short time ago, when he disposed of same on account of his advanced age. He is survived by his widow, three daughters and three sons.

Fire which started in the machine shop from an unknown cause, after the plant had been closed down for the day, destroyed the entire plant and office building of the Champlain Brick Company, Mechanicsville, N. Y., causing a loss of $75,000. There was no fire protection at the plant and the fire department from the town had to lay 1,500 feet of hose in order to reach the plant. The company has many orders on hand and the plant will be rebuilt at once.

The present output of the Denison Sewer Pipe Company, at Denison, Ohio, is to be doubled in a very short time as the result of resolutions adopted at a recent meeting of the stockholders of the company, and a number of improvements and additions will at once be made in the factory. All of the directors were re-elected, and they in turn re-elected the old officers, as follows: President, Theodore Lanning; vice-president, Maurice Moody;s ecretary, A. R. Lanning; treasurer, E. D. Moody.

It is with deep regret that we announce the death of Robert Nesch, president of the Pittsburgh Vitrified Paving Brick Company, of Kansas City, Mo., which occurred May 19. Mr. Nesch had been a member of the National Brick Manufacturers' Association for many years, having served as state vice-president for Missouri ever since the rule of appointing vice-presidents for the various states was adopted by the association. He was also president of the Western Paving Brick Manufacturers' Association. Mr. Nesch left an estate valued at $300,000. Henry R. Nesch, a son, and E. E. Trow-

(Continued on page 810.)

# NOTICE TO THE PUBLIC.

The Dunn Wire-Cut-Lug Brick Company put the square-edge, uniform-lug paving brick on the market in the year 1910.

The first year, 2,233,000 of these brick were sold. In 1911 the sales increased to 7,572,250. In 1912 the total sales amounted to 36,912,320 brick for the year.

During the first four years inclusive, 71,741,474 of these brick were used for paving streets and highways.

During the year 1914 the sales amounted to **more than in all the preceding years combined.** In the first quarter of the year the sales totaled 11,368,481; in the second quarter they amounted to 26,472,263, and in the third quarter of the year the sales were brought to 79,575,060 for the nine months. The total sales for the year 1914 were 104,800,000. This increase was due to the merits of the form of brick or it could not have been brought about; nor could these results have been achieved had not the advantages of brick with square edges, rough sides and uniform lugs, assuring flush surface joints, firm adhesion of filler and thorough penetration of bonding material to all parts of the joints, been required in the construction of first class pavements.

As a result of these demonstrations, twenty-six licensed manufacturers of paving brick, operating forty-two different plants, are now making square-edge, rough-side and uniform-lug brick under the Dunn patents.

Any attempt to infringe our rights under our patents or to evade our patents, by violating the law of fair trade, or otherwise, will be prosecuted to the full extent of the law.

Patented in the United States, Canada, Mexico and other foreign countries.

**The Dunn Wire-Cut Lug Brick Co.**

**Conneaut, Ohio**

## EDITORIAL NOTES AND CLIPPINGS—Continued.

bridge were named as executors. A widow, three sons and six daughters survive.

Wm. H. Platt, Thomasville, Ga., is in the market for new or second-hand equipment for a brickmaking plant, including kilns, etc.

The tile factory of R. Gustavino Company, at Woburn, Mass., was damaged to the extent of $50,000 by fire recently. The plant will be rebuilt at once, as the firm has many orders on its books.

Any brick manufacturer looking for a competent man to superintend a brick plant and look after the burning end, will do well to get in communication with the man advertising over the initials "E. C. G." in the classified department in this issue.

The Chattanooga Sewer Pipe Company, Chattanooga, Tenn., has negotiations under way for the purchase of four big sewer pipe and brick plants located at Augusta, Rome, Columbus and Macon, Ga., all of which will be operated in conjunction with the plants of the company in Tennessee and Georgia.

The Corry Brick & Tile Company, Corry, Pa., recently booked an order for 1,000,000 pavers for the streets of Warren, Pa. This is the largest order booked by the Corry plant the present season, and in addition to the other orders already on the books, will keep the plant running to full capacity for a year to come.

The plant of F. R. Carter, at Peoria, Ill., resumed operations June 7, after having been closed down for some time, owing to a strike on the part of the employes. Mr. Carter reached an agreement with the strikers by which the trouble was to be submitted to an arbitration board, and the men returned to work pending the decision of the board.

Thomas L. Kennedy, for many years president of the Fallston Fire Clay Company and also connected with a number of clayworking plants, died suddenly at his home at New Brighton, Pa., June 14. Mr. Kennedy was always prominent in the civic and industrial affairs of his community and his death is a severe loss. A wife, two sons and one daughter survive.

The Abingdon (Ill.) Brick and Tile Company property has been purchased by the Abingdon Clay Company, a new corporation, owned and controlled by the stockholders of the Clay Product Company, of Brazil, Ind. The Brazil company has developed a demand for interlocking hollow tile, so large that additional manufacturing facilities to enable them to fill their orders have been necessary and this plant will be one of the means employed.

The capacity of the plant of the Spiers-Fish Brick Co., Rochester, N. H., has been increased by the installation of brick machine of 80,000 daily output. This was made necessary by the large number of orders the company has been booking this season. They are making daily shipments of brick for the rebuilding of Salem, which, in addition to their ordinary business, is keeping the plant working overtime. This company has adopted the soft coal and air draft system for burning their brick and the results have been more than anticipated.

## FREESE MACHINERY IN DEMAND.

E. M. Freese & Company of Galion, Ohio, write that while they have not experienced what they would call a rush of business, they have been kept quite busy re-equipping established plants. Their shops are running full time, and among their recent shipments are the following: A brick machine and automatic cutter for the Globe Brick Company, Kenilworth, W. Va.; a brick machine, pug mill and automatic cutter for the Peebles Paving Brick Company's Firebrick (Ky.) plant; brick machine for the Cumberland (Md.) Brick Company; brick machine, pug mill and automatic cutter for the Richlands (Va.) Brick Corporation; brick machine for Gloninger & Co., Vanport, Pa.; brick machine for Soissons Brick Company, Kingston, Pa.; hollowware machine for Perrysburg (Ohio) Tile and Brick Company; automatic cutter for the Burton-Townsend Company, Zanesville, Ohio, and they are now building a machine for C. L. Merrick, Syracuse, N. Y.; a brick machine and automatic cutter for the Spar Brick Company, Maysville, Ky., and two special pug mills and a cutter for the Robinson Clay Product Company, Akron, Ohio.

## BUSY DAYS IN CLEVELAND.

A RECENT MAIL brings the following letter, which the Farr Brick Company, of Cleveland, Ohio, is mailing to its trade, and which tells the story of the modern method of hustling for trade in Ohio's metropolis. We reproduce same for the benefit of our readers who are always on the alert for new ideas.

Dear Sirs:

We're too busy to talk war—but we can't help remarking—

There surely will be a big building boom in Europe when the belligerents get through destroying each other's cathedrals—and mussing up the architecture of the principal cities.

But the thing that most concerns us now—is the building boom right here in Cleveland.

And to give you an idea of just how busy we are—a local contractor recently accused us of working twenty-five hours a day.

At that, he wasn't very far from right. For you'll see our wagons and trucks at all hours of the day and night, in all parts of the city and suburbs—disposing of our daily output of 350,000 bricks.

Incidentally, disposing of them is the least of our troubles. The problem is making them fast enough to supply the demand.

For there are hundreds of contractors who hold Farr contracts. That means that they must be taken care of. There may—and probably will be a brick shortage—but it won't affect those who leave their requirements to us.

They'll not only get all the bricks they need and want—but they'll get the best possible grade of bricks to be had—bricks that are 100 per cent. pure clay—sharply cut—and thoroughly baked.

And then, with 150 teams and six big trucks—we give every customer "hair-trigger delivery." We get the material on the job—on time, ready for the workmen—when they're ready for it.

That's what YOU want. And the surest way to get it is to sign up NOW with the one company that can give you the most brick value for your money plus service that is BUY FARR THE BEST.

We're waiting for an opportunity to help you. Write or phone us TODAY.

Very truly yours,
THE FARR BRICK COMPANY.
June 10, 1915. Robt. C. Mitchell.

## BELLEVILLE BRICK PLANTS CONSOLIDATE.

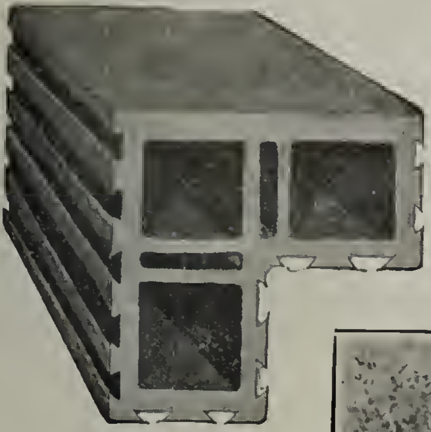
A movement of unusual interest to the clayworkers of St. Louis and southern Illinois is the consolidation of three large brick companies at Belleville, Ill., each of which controls two different plants. Articles of incorporation have been filed by the new concern, which will be known as the Belleville Brick and Tile Company, and which is capitalized at $500,000. The company will take over the plants of the Ittner Brick Company, the Belleville Brick Company and the National Pressed Brick Company. The men who have been instrumental in bringing about the consolidation are Edward Abend, secretary and treasurer of the Belleville Brick Company; Warren W. Ittner, vice-president and manager of the Ittner Brick Company, and William Kloess, secretary of the National Brick Company, who, together with the following, compose the directorate of the company: Charles P. Tomlinson and John W. Kloess of Belleville, George W. Lischer of Mascoutah and Benjamin F. Ittner of St. Louis. Each plant will be specialized to the kind of brick it can best turn out and also to the territory to be served.

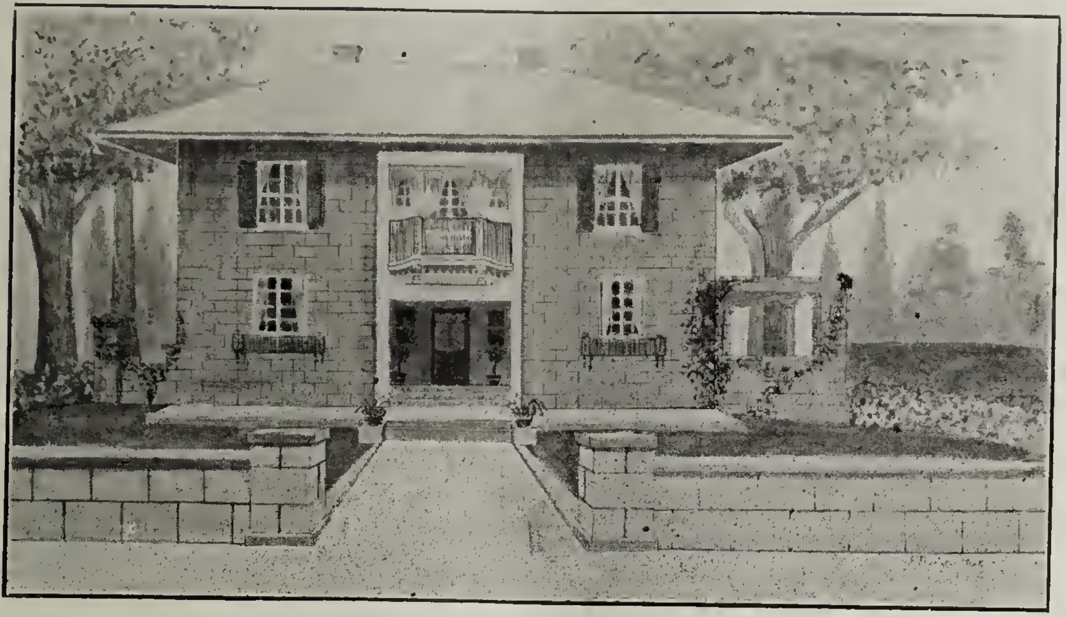
---

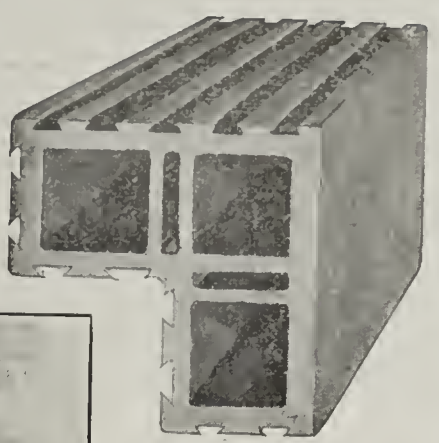
One reason why Wizard Edison stands up and argues for cement, even in the face of calamity, is that he is chairman of the board of directors of the Edison Portland Cement Co., at New Village, N. J.

# "Samson Interlocking Tile"

Patented U. S. March 10th, 1914. No. 1,089,507.







The building material the architects and builders have been looking for.

The public is realizing the advantages of hollow wall construction, and will demand the best.

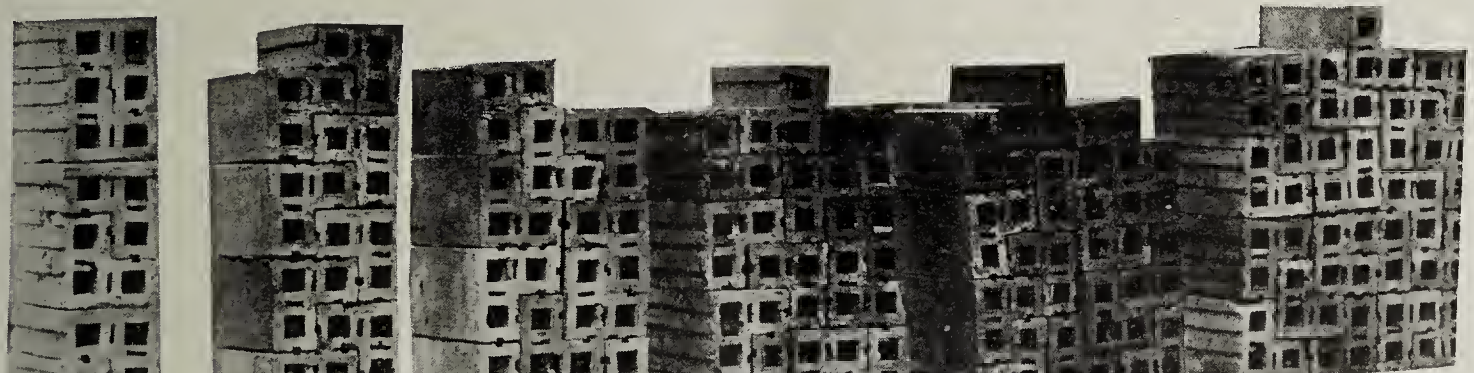
Be progressive and join the great army of Samson Tile Manufacturers.

The modern building material, the only tile block building any desired thickness of walls and producing smooth or scored faces.

## *The 20th Century Building Material*

Note the article which appeared in the May issue ot The Clay-Worker and taken from a foreign clay journal:

> **The Advantages of Making Hollow Tile in Brick Plants**—The use of hollow tile in buildings is getting more and more pronounced, and therefore brick plants should turn their attention to hollow tile manufacturing. It has been shown that buildings and residences can be built 20 per cent. cheaper with hollow tile than with brick, and that the value increases 100 per cent. By changing brick plants to hollow tile plants the clay business can be materially increased again. In handling hollow blocks in the manufacturing plants it is easy to handle same as compared with brick, and, in fact, those brick plants which have changed over to hollow tile manufacturing have found a profitable investment—Deut. Topf. & Z. Z., Nos. 84-85, 1914.



The above cut shows the many different thicknesses of walls which may be built from "SAMSON INTERLOCKING TILE." Observe the number of load bearing webs, which shall build a wall strong enough for most any construction, and there is still another great feature in being able to build either smooth or scored faced walls, without the necessity of ordering a special block for this purpose. These and many other features go to make "SAMSON INTERLOCKING TILE" the best building block ever invented. Never before has the genius of man given unto the architect and builder such a variation of possibilities in a building material.

A great number of the live wires of the clayworking industry are contracting for territory for the manufacture and sale of "Samson Tile." Write today or you may be too late. License granted only to responsible firms.

**W. W. SMITH, Shallow Lake, Ont., Can.**

Written for The Clay-Worker.

## WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.

GENERAL CONDITIONS in the Pittsburgh building trades have not changed much during the past month or six weeks, yet what change has been noticed is for the better. Building operations did not come up to expectations for the month of May, still the situation is fairly satisfactory to the brick interests since they seem to be getting their fair share of the business.

The city building report shows quite a decrease in volume and cost compared with the report for April, and also for May, 1914. Last month permits were granted for 135 new buildings to cost $778,618. Permits for additions totalling six, to cost $4,600, while alterations numbered 227, to cost $154,231, making a total of 368 permits and $937,449. These figures, compared with 52 permits and $974,286 in April, and 410 permits and $1,592,209 in May of last year. Of new buildings permitted last month 74 were brick, 50 were veneered, eight were frame, two terra cotta and one concrete.

With the opening of May, came the usual cry and strike among the bricklayers, but formal negotiations between the building contractors and the Bricklayers' Union to decide whether or not the latter should have an increase of wages, began immediately.

The bricklayers receive 70 cents an hour. They asked 75. They returned to work upon assurance by their leaders that their demand would be submitted to arbitration.

The employers offered to grant the men the 75-cent rate, effective next year.

Nothing was given out for publication, except that satisfactory arrangements were made for arbitration.

A Pennsylvania state charter of incorporation has been granted to the Valley Brick Company, at Tarentum, Pa., with a capital of $5,000. The incorporators are: S. L. Stark, C. F. Anderson, Pittsburg, and H. Kleinhaus, of Bellevue.

The Sharon Clay Products Company, at Sharon, Pa., has been awarded the contract for 40,000 face brick and 140,000 pavers to be used in the construction of the new Thorn Hill School, near Youngstown. The shipments will be made by trolley.

Colonel Lloyd Burrell Huff, well known to all Pennsylvania brick and clay men, died recently at his home, "Rose Fountain Park," Greensburg, Pa. He was 43 years old. Death was due to Bright's disease, from which Colonel Huff had been suffering for more than a year. Colonel Huff was widely known and was interested in large brick and coal holdings in Westmoreland, Cambria and Indiana counties, and in West Virginia.

He was president of the United Brick Company; president of the Keystone Coal & Coke Company; president of the Pittsburg, McKeesport &Greensburg Railway Company; president of the Westmoreland Hospital Association; president of the Allegheny Company and a coal company of Washington, D. C. He leaves his widow, two daughters, his mother, two brothers and one sister.

The directors of the Harbison-Walker Refractories Company of Pittsburg, have declared a dividend of one-half of 1 per cent. on common stock, payable June 1 to stockholders of record May 20, 1915.

The Steubenville Pottery Company is preparing to have a working exhibit at Rosenbaum's big store in Pittsburg, in the near future. The idea of the exhibit is to show how pottery is made and to boost the respective lines.

The Minor Fire Brick Company, of Empire, is opening up a new vein of coal and is making preparations to make a number of experiments in clay mixtures, using the clay below this coal and the standard fire clay. Should this experiment prove successful, it will open up a new market for a new grade of brick from that community. The Minor Company is also making a number of improvements to its plant.

The result of the referendum vote of the National Brotherhood of Operative Potters was announced at East Liverpool, May 27, as follows: President, Edward Menge, East Liverpool; secretary-treasurer, John T. Wood, East Liverpool; vice-presidents, Frank H. Hutchison, Trenton, N. J.; S. T. Burgess, East Liverpool; John Randolph, Trenton, N. J.; Sheldon Moore, Trenton, N. J.; George Martin, Trenton, N. J.; Thomas Woods, Sebring, Ohio; John Stingler, East Liverpool. The annual convention of the organization will be held in Atlantic City during the first week of July.

A. SMOKER.

## A SAND-LIME BRICK REVIEW.

The annual review of the sand-lime brick industry by the United States Geological Survey shows the past year as being characterized by both a low production and a low range of prices.

The industry started off like it was going to have a good year, but in the end the total output was only $1,058,512, a decrease in value of $179,813, as compared with 1913.

Part of the decline in business is attributed to the war in Europe, as it occurred the latter part of the year. Some states showed an increase, but about fourteen of the twenty-three states reporting industries showed decrease in output. The states showing increases were Florida, Indiana, South Dakota and Wisconsin. The heaviest percentage of decrease was in California, District of Columbia, Massachusetts, Michigan, New York, Pennsylvania, Texas and Washington.

The average price per thousand for common sand-lime brick during the year was $5.99, as compared to $6.27 in 1913. For the front brick the average price was $9.08 in 1914, as compared to $10.61 in 1913.

Michigan continues to be the leading state, producing practically one-fourth of the total sand-lime brick product with Wisconsin in second and New York third.

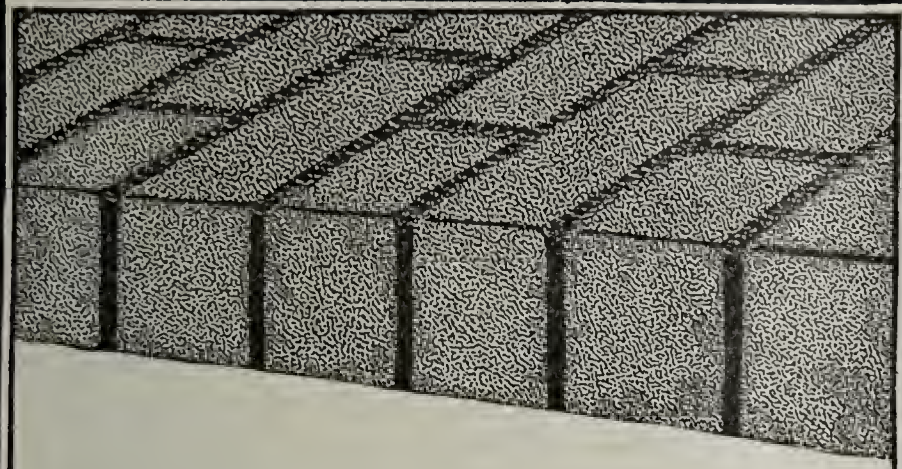
In this review the Survey says that the sand-lime brick industry started in this country in 1901, when the first plant was established in Michigan City, Ind., and that since that time it has passed through the various stages of a new industry. It suffered in the beginning severely from the "boomer," whose glittering promises to make brick for a few dollars a thousand that would sell in competition with high-grade clay face brick caused plants to be established for the manufacture of sand-lime brick without regard to market, transportation facilities or even a supply of suitable material. Of course, all this brought a reaction and depression to the business. Since that time it seems to have settled down on a rational basis and to have developed as it has deserved in such localities as supply good material for this product and are deficient in good materials in the clay line.

## SHORT ITEMS.

During the month of April, our farmers sent $36,000,000 worth of wheat and over $7,000,000 worth of corn abroad, to which we can add nearly $10,000,000 worth of flour, to say nothing of meats and other farm products, all of which should mean that there is quite a fund available in the agricultural districts to use in building good homes with brick.

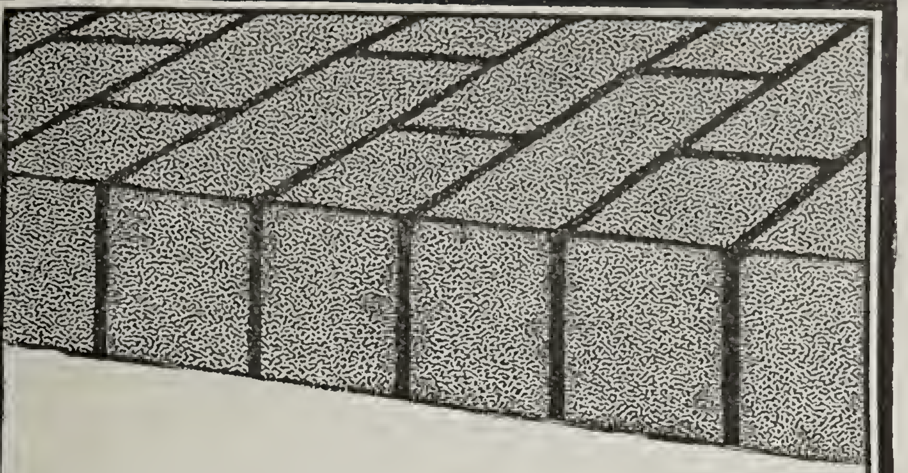
Notwithstanding the disappointment that attended the first attempt at developing a wonderful export trade to the Latin-American countries, we are now gradually building up this trade, and the future prospects are just as bright as were pictured in the early days of efforts along this line. The countries down there are now beginning to recover from the war shock to their finances and to do business with us in a way that looks like big things ahead.

## DRAIN YOUR FARM.



*In Cold Weather*

*the bloccks contract, the joints widen, the pitch sinks and keeps the seal intact.*



*In Hot Weather*

*the blocks expand, the joints grow narrow, the pitch squeezes upward, the seal is intact.*

# Barrett's PAVING PITCH

## Every Joint an Expansion Joint

THE use of cement grout as a filler for brick pavement attempts to defy one of the oldest laws of nature. In hot weather, brick will expand; in cold weather, contract. When brick and cement are combined in one pavement, making a great monolith, tremendous internal stresses reveal themselves, sometimes by explosion, when the pavement buckles up with a shower of fragments. Sometimes the expansion throws the curb out of line or develops long, unsightly cracks.

To remedy this condition engineers attempted more or less unsuccessfully to provide for expansion by the use of an expansion joint filled with a plastic material.

If the block is of inferior quality the use of cement in the joints may serve to protect the edges from abrasion by traffic, but good brick requires no such protection, specially if the bricks are laid properly, close together. On the other hand expansion joints, coming at a distance of 8 or 10 feet apart, must necessarily be so wide, in order to take up the great expansion, that protection of the edges is impossible and so in old cement-filled pavements you will find wide grooves running across the pavement at the expansion joint where the exposed edges of the last line of bricks have been hammered into dust.

The use of Pitch Filler instead of cement obviates all these difficulties. Every joint is an expansion joint. In cold weather the pitch sinks in the joint as the block contracts, but as every joint is an expansion joint the amount is infinitesimal. In warm weather the pitch merely rises a little in the joint. In either case the pitch adheres firmly to the block, preserving an absolutely waterproof, perfect seal.

The best pitch for the purpose is Barrett's Paving Pitch.

*Booklets on request*

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle
The Paterson Mfg. Co., Limited: Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

Written for The Clay-Worker.

## PACIFIC COAST NEWS.

THOUGH SUMMER WEATHER on the Pacific Coast now seems to have come in earnest, there has not been the building response which was expected. Aside from a few public buildings here and there, and some hotels, apartment houses and a few business blocks, the building is confined chiefly to small structures of various classes. There is very little factory building and very little expansion of business of any kind. The general condition may be termed a "waiting" condition. The feeling among brick and terra cotta manufacturers is not gloomy. They all are convinced that the industry is suffering merely from temporary depression in consequence of the unsettled state of world affairs and the demoralized condition of shipping interests. The Coast Savings Banks have unusually heavy deposits on hand, and there is plenty of money in reserve, but very little open for investmentment. Not for years has the financial situation on the coast been so conservative. Some say this is largely due to the fear that the United States may eventually become involved in the European war.

The common brick market is variously estimated as being from 30 to 40 per cent. below normal. Prices are firm at $7.50 per thousand and most manufacturing plants are operating on a restricted scale. No great surplus stocks are being piled up, and practically no plants are making extensions. The terra cotta market shows no material change over a month ago, yet there is a steady movement of terra cotta, especially into the country, where quite a number of new schools are being erected. Pressed brick is moving perhaps a little better than terra cotta.

Sewer pipe, and vitrified products generally, are having a demand not up to the average, though there is time yet for this business to pick up considerably. The unusual rains this spring demonstrated the need of extended sewer improvements in many quarters and no doubt much necessary sewer work will be done before the summer is over. It is a foregone conclusion that vitrified pipe will be used in most of what new work will be undertaken.

The paving brick situation in San Francisco has turned out rather disappointing. The comparatively great cost of brick paving is responsible for this, for the streets already paved with vitrified brick are holding up splendidly and have amply demonstrated their superior merits over the best of asphalt paving. The public favors brick paving and would welcome its extended use were the price more within range. It is claimed that the rattler test set by the authorities is too stringent to allow paving brick manufacturers near San Francisco to compete with firms at a distance. Were a less durable brick demanded, a brick that could be delivered on the street at about $25.00 per thousand, say, no doubt, the city could afford to use brick paving. As it is now, a brick which must stand a rattler test of 18 per cent. is specified, and the cost of paving with this sort is at least $10.00 more per thousand than would be the case if home manufactured brick could be used. Brick people here are inclined to think that the less durable brick would answer all reasonable traffic tests and still afford a better pavement than asphalt. At least, on the boulevards and streets in the outlying districts, as well as the hilly streets, this brick would mean a saving to the city. In the downtown districts, where there is still a great proportion of the teaming done by heavy horse vehicles, the matter might prove more doubtful. Hauling by auto truck, however, is on the constant increase and before many years it is likely that all the city hauling will be done by auto trucks, thus a reasonably durable brick perhaps will be used with success later on, as the wear and tear on pavements is vastly less from auto trucks.

N. Clark & Sons are fitting up a new show room in their office headquarters at 116 Natoma street. This room, which has been designed to show the company's pressed brick and terra cotta products to the best advantage, is being finished in polychrome terra cotta and has somewhat the appearance of the interior of a small Moorish mosque. It will be the most effective clay products show room in the city when completed. Clark & Sons report business as none too active, but that there is considerable figuring on jobs of moderate importance. This company has recently shipped 150,000 cream and granite-gray pressed brick for the new high school at Petaluma, Cal., and have now finished supplying 100,000 mulberry colored pressed brick, medium and light, for the German Old People's Home near Fruitvale. They are shipping 100,000 light A-gray pressed brick to Stockton for the St. Gertrude Church and Parish House, and are supplying terra cotta and 15,000 pressed brick for the Peter Wendler Apartment House in San Francisco. They are also delivering terra cotta for the Morshead Apartments at California and Mason streets, San Francisco, and 60,000 medium and light rustic brick for the new Third Church of Christ Science, near Central avenue on Haight street. This church is one of the prettiest brick structures of the church type erected in the city. The company has also been shipping terra cotta to Portland, Ore., for the new Shattuck School, and has just completed the terra cotta contract for the new postoffice at Hanford, Cal.

Charles Hidecker, president of the Ione Fire Brick Co., has just returned to San Francisco from a two and a half months' visit to Panama. Mr. Hidecker says the market for fire brick is naturally not as active as it might be on account of the few factories being built and the lack of other building where fire brick is largely required. The lumber business being dull, and the mills not running full capacity as a rule, the need for repairs in the boiler rooms has been greatly reduced. The Ione plant, which does not operate during the rainy season, started up the middle of last month with its usual force of employes and is running steadily. One of the largest shipments made recently was that of a number of carloads of fire brick for the new refinery of the Associated Oil Co., near Martinez, Cal.

The McNear Brick Co. is figuring on some big work, contracts for which will probably be let during the summer. There are several warehouses, sugar and oil refineries, a brewery or two and some new schools which will be put up this year in California. This company delivered 1,500,000 brick in April and 1,300,000 in May, and have contracts for heavy deliveries in June and July. They are supplying the brick for the new Pacific Gas & Electric building on Sutter street in San Francisco, and are still delivering brick for the new City Hall and a dozen jobs of less importance. Mr. Dennis, of this company, states that once the war is over and world conditions settle down to normal, San Francisco will begin to derive wonderful benefits from the Panama Canal. "The Panama Canal," says Mr. Dennis, "will revolutionize conditions in San Francisco. The city will speedily develop into a much more important jobbing center than it now is, on account of the cheaper transportation rates from the East and Europe, and many new warehouses and business buildings will have to be erected to accommodate this new business. Accordingly, there is bound to be a period of stimulated activity in all interests connected with the building trade."

The Model Brick House, erected on the Exposition grounds by the Panama-Pacific Clay Products Association, in conjunction with several leading San Francisco concerns, is now all completed and appears to splendid advantage amid flowers and foliage on a well-kept lawn. Visitors constantly inquire as to the plans and costs of the building. It has attracted much attention and aroused wide-spread interest in the possibilities of brick construction for private dwellings. This month, when the directors of the Clay Products Association arrive, the building will be formally dedicated with appropriate ceremonies.

It was announced last week that the California Pottery Co. has purchased the clay products plant at Niles, Cal.

Gladding, McBean & Co. are shipping considerable quantities of terra cotta and buff brick for school buildings throughout the state, and report some movement in vitrified sewer pipe. This firm is operating its manufacturing plants steadily, but not at full capacity.

The Godfrey-Ruller Co. is to put up a paving brick manufacturing plant on Glascock avenue, Oakland. The site is on the canal, where shipment by water will be convenient.

The Richmond Beach Brick Co., at Mt. Vernon, Wash., has been incorporated with a capital stock of $70,000. The principal incorporators named are E. Branchflower, Henry Gay and I. N. Gallagher.

SUNSET.

San Francisco, June 5, 1915.

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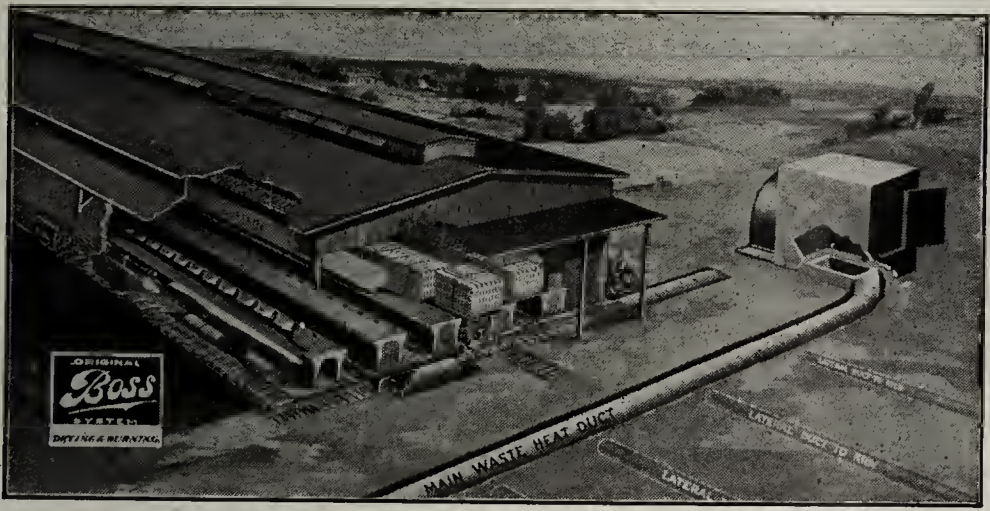

The Boss Ten-Hour Unit-Control Waste Heat Dryer.

Mr. Brickmaker:

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

NO CLAY TOO TENDER.

Ask us to show you how we do it.

JOHN C. BOSS COMPANY
Elkhart, Indiana

WEBB WIRES WEAR WELL

WRAPPED
TWISTED
SOLDERED

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

The WEBB WIRE WORKS, New Brunswick, N. J.

Written for The Clay-Worker.

## CLAYWORKING IN EUROPE.

THE CLAYWORKING industry in those countries of Europe directly engaged in war is perhaps in the worst disorganized state that it has been in more than half a century, at least. Brickmaking in the countries at war seems to be practically, if not entirely, at a standstill. There may be a few brickyards working here and there, a little building operations going on, but there is very little of it for two reasons. One is that most of the men who own and operate brickyards are either directly or indirectly engaged in war, and because of the war there is very little in the way of building operations going on, consequently not much demand for brick.

In the pottery and kindred lines of clayworking there is some effort to continue operations, but the work is seriously hampered practically everywhere, both by lack of skilled help and by lack of export trade and facilities for shipping abroad, even if orders were to be had. There are some special pottery requirements to meet the demands of the military authorities and there is quite a lively business in some quarters in chinaware, decorated as war souvenirs of one kind and another, but pottery, like brickmaking and clayworking, as a whole, is pretty badly demoralized, judging from reports that are available.

It is not a nice picture to look upon, the pen picture or general description of conditions in the clayworking industry in Europe today, and a much more cheerful view can be had by presentation of a picture of the prospective activity when the war comes to an end.

With the great carnage of death that has been going on in Europe, there has also gone an unparalleled destruction of property, a wrecking of homes and buildings which, as is well known by those who have kept up with the daily reports, includes many highly valued structures of historical fame. It means, therefore, that when the trouble is over and the countries at war begin to adjust themselves, there should be the greatest era of building operations ever known in Europe. It is then that there will come a demand which will tax the capacity of all the brick and tile plants and all clayworking industries which furnish the materials for construction. Just how the pottery trade and kindred lines may develop in the export trade is a problem of many parts, but there is not much room to question about strenuous activity among the brick and tilemaking plants as soon as peace is restored and the different countries settle down to the work of repairing the damages of war.

In practically all of Europe, brick is the great building material. There is some use of cement and stone, too, where quarries are convenient, but brick is the great universal building material of Europe, and with it goes terra cotta and tile for decorative purposes. So the thing for those to do who are concerned with the clayworking interests of the warring nations is to center their thoughts on what will be required of the industry when the great war comes to an end, and in so far as practical, lay their plans and make preparations to meet the needs. It is evident from this distance, that there will be lively times in the clayworking industry of Europe when the reconstruction begins.

THE A. C. Fouts Co.
MIDDLETOWN
OHIO
U. S. A.

Portable Iron Tanks
Shipped K. D.—Easily Erected.

**BRICK PALLETS**

Let us tell you about them.

# *Classified Advertisements*

**FOR SALE, WANTED, ETC.**

**Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.**

## FOR SALE

FOR SALE.

Some tile factory equipment. Address,
THOMPSON BROS.,
6 3 d Rolfe, Iowa.

FOR SALE.

I offer for sale my brick and tile plant. For full particulars, address,
SAMUEL RICHARD,
6 1 cm New London, Ohio.

FOR SALE.

One American Clay Machinery Co.'s special giant auger brick machine, used for making fire proofing. In workable condition. Address
BOX 1—J. A. R.,
1 tf d Care Clay-Worker.

FOR SALE—CHEAP.

Tile plant; excellent clay; 3 kilns, 2 sheds, double-decked; all necessary tools. Good reasons for selling.
DELTA BRICK & TILE CO.,
6 3 cm Delta, Iowa.

FOR SALE.

Tile mill complete, running full time. Clay land can be leased or bought. Fine tile country. Only mill within fifteen miles. Money maker for small plant. Sale for all tile made. Address
C. L. KENNEDY,
6 1 c Belle Center, Ohio.

FOR SALE—TILE MILL.

Entire drain tile outfit, consisting of mill, crusher, feeder, boiler, engine, belts and pulleys, dies, pallets, drier rack, etc; in fact, everything needed for making first-class drain tile. Will sell for $1,250 or its equivalent, or will sell mill and 8 27-100 acres of land for $5,500. Only plant in community, and constant demand for tile. If interested, come and see it. Ill health and other business reasons for selling. For full particulars, write
WILSON,
6 3 cm Care Clay-Worker, Indp'ls, Ind.

FOR SALE.

Cheap for cash, f. o. b. cars Slidell, La., Chambers No. 8 pug mill and brick machine, automatic cutter, clay disintegrator and spur-geared friction hoist. All good condition. Address,
SOUTHERN CREOSOTING CO., Ltd.,
6 3 dm Slidell, La.

BRICK MANUFACTURING PLANT.

For sale or lease on liberal terms, vitrified brick manufacturing plant located in the South; modern equipment; capacity, 50,000 daily; lowest rates on all southern points. Address,
WM. PANNILL, Agent,
Heard Building,
6 3 cm Jacksonville, Fla.

FOR SALE AT A GREAT BARGAIN.

A complete brick plant, the only one in a town of 1,000. Galesville is one of the best towns in Wisconsin, and is surrounded by the largest and best farming country in the state. Four acres of land go with it; plant is in good running order, and will be sold cheap. Good reason for selling. Address,
TOLLEF JENSEN,
4 3 cm Galesville, Wis.

## Classified Advertisements—Continued.

FOR SALE.

A favorably located brick plant and coal mine in eastern Ohio; excellent shale and fine coal; capacity 25,000 brick per day; on leading railroad system and near market. Address

N. B.,
5 3 c Care Clay-Worker.

---

**FOR SALE.**

**TRACTION STEAM SHOVEL.**

Vulcan Little Giant, with 1¼ yard dipper. In good condition.

WICKES BROTHERS,
Jersey City, N. J.

---

BARGAIN SALE.

Style O Thew automatic steam shovel, fine working order; Martin pipe rack dryer, 32,000 brick cap., with steel pallets and cable conveyor, all complete, used one season; one 9-ft. Stevenson dry pan, rebuilt; one Stevenson wet pan, nearly new; one Freese brick, tile and block machine, with automatic cutter, perfect order; one Williams hammer crusher, used one season; one Blake 9x15-inch jaw crusher; one Martin and one Arnold-Creger soft mud machines, used one season; 125 d-d-dryer cars, practically new; one Raymond hand repress. C. H. HORTON CO.,
6 1 d Painesville, Ohio.

---

FOR SALE.

One 12x12 slide valve engine with 84-inch flywheel, also 72x18 band wheel. This engine has been completely overhauled and rebabbitted throughout; new governor and throttle valve, and is in first-class condition.

One double mold Bonnot repress, practically new, run less than three months.

One Chambers cutter for end-cut brick. In good condition, run less than one year.

One Rumley traction engine, single cylinder, boiler insured under the Fidelity and Casualty Co., and allowed 110-pound working pressure and pronounced in good condition by their inspector.

One steel boiler stack, 65 feet high, by 42 inches diameter, 10-gage sheet steel. Stack was used about one year, and taken down account putting in new boilers and it was not large enough for them. Address

HYDRAULIC PRESS BRICK CO.,
Chamber of Commerce Bldg.,
5 2 d Chicago, Ill.

---

FOR SALE CHEAP.

Brick, tile and hollow block machine, reason for selling, am going out of the business. Answer quick. Address

WM. McCUBBIN,
5 2 dm Braymer, Mo.

---

FOR SALE.

A GREAT BARGAIN.

An Oliver Typewriter, most recent style, just as good as new, having been used as a demonstrator only. Carries factory guarantee. Will be sold for half price for cash. Address

BOX 6—OLIVER,
Care Clay-Worker.

---

FOR SALE.

Pine Pallet Boards and Dump Carts, cheap. CHAS. BERRICK'S SON CO.
6 3 cm Buffalo, N.Y.

---

FOR SALE.

Soft mud brick plant, 30,000 capacity. Only plant in city of 25,000. Address,

BROMILAW BRICK CO.,
4 3 cm Alexandria, Va.

## WANTED, ETC.

WANTED.

Position as superintendent of brick plant. Experienced in fire clay, building and paving brick. Employed, but desire a change. Best of references. Address, BOX 6, BRICKMAKER,
6 1 c Care Clay-Worker.

---

WANTED.

Position by experienced German kiln builder, with twenty-five years' practical experience, thoroughly efficient in ceramics. E. WURZ,
755 Broadway,
3 3 dm Albany, N. Y.

(Continued on next page.)

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**RARE BARGAIN IN A TILE FACTORY.**

The largest tile factory located in the State of Indiana will be sold for two-thirds of original cost. Fully equipped to make tile from 3 to 30 inches, with a demand greater than output. Twenty acres of land and an unlimited amount of raw material. Entire plant and machinery in A No. 1 condition. For full particulars address, BOX 5—TILE FACTORY,
5 3 cm Care Clay-Worker.

---

### VALLEY BRICK COMPANY PLANT

**For Sale at Public Auction,**

**June 26, 1915, at Charles-Town, W. Va.**

A modern brickmaking plant, consisting of about 15½ acres of land, brickmaking machinery (Freese), dry house, five permanent kilns, etc.

The plant is located in Ranson, a suburb of Charles-Town, Jefferson Co., West Va., and is connected with B. & O. and N. & W. Railroads by belt line and switch.

For terms, photographs and further description of plant, address

**H. V. SHEETZ, Trustee,**
**Charles-Town, Jefferson Co., W. Va.**

## Classified Advertisements—Continued.

WANTED.

To hear from owner of good brick and tile plant for sale. State price. Address, D. F. BUSH,
4 3 cm Minneapolis, Minn.

WANTED.

Lines of rough face brick that can be sold in the St. Louis market at $12.00 per thousand, delivered to operation. Address, BOX 6, MISSOURI.
6 1 d Care Clay-Workr.

WANTED.

Position by a high-class man with wide experience as superintendent and head burner on paving and building brick plant. A1 references. Address,
BOX 6, E. C. G.
6 1 c Care Clay-Worker.

WANTED.

Successful superintendent with 23 years' practical experience from pit to office manufacturing sewer pipe conduits, fire brick, face brick and fireproofing, desires change. A1 references. Address, SENA.
6 1 d Care Clay-Worker.

POSITION WANTED.

By a German kiln builder with twenty years of practical experience in the clay industry. Several years as superintendent in Germany—brickmaking school. Know how to handle machinery and am expert burner. Able to design entire plant. Address BOX C. C.,
6 3 d Care Clay-Worker.

WANTED.

A man who thoroughly understands the promotion and installation of sub-irrigation projects, to such a man a first-class proposition is open. Salary and commission. Address
THE INTERNATIONAL BRICK CO.,
5 2 d El Paso, Texas.

# PATENTS

**WILLIAM N. MOORE**
**Patent Attorney**
**Loan and Trust Building**
**WASHINGTON, D. C.**

The first important step is to learn whether you can obtain a patent. Please send sketch of your invention with $5.00, and I will examine the patent records and inform you whether you are entitled to a patent, the cost and manner of procedure.

PERSONAL ATTENTION
ESTABLISHED 25 YEARS

Consulting
Prospecting
Testing
Designing
Constructing
Operating

Producer Gas-Fired
Continuous Kilns
and Dryers
Cost and Efficiency
Systems. Old
Plants Rehabilitated

## JAMES P. WILLIAMS

CLAYWORKING ENGINEER

**2803 N. Kings Highway**
**ST. LOUIS, U. S. A.**

Special Arrangement for "MONTHLY" Readers.

## No Reason to Worry

About that Accident or Illness
Which Might Happen---If You Hold One of These POLICIES.

| FORM "S-76" | FORM "S-75" | FORM "S-74" |
|---|---|---|
| Special | Special | Special |
| **Accident & Sickness** | **Accident & Sickness** | **Accident & Sickness** |
| $4.00 Yearly | $6.00 Yearly | $10.00 Yearly |
| No Dues. No Assessments. | No Dues. No Assessments. | No Dues. No Assessments. |
| Loss of life.....$1,500.00 | Loss of life.....$2,500.00 | Loss of life.....$5,000.00 |
| Loss of both eyes, hands or feet.. 1,500.00 | Loss of both eyes, hands or feet.. 1,250.00 | Loss of both eyes, hands or feet.. 2,500.00 |
| Loss of one hand or one foot.... 375.00 | Loss of one hand or one foot.... 750.00 | Loss of one hand or one foot.... 1,250.00 |
| Loss of one eye.. 150.00 | Loss of one eye.. 250.00 | Loss of one eye.. 500.00 |
| $10.00 Weekly Accident Benefit. | $15.00 Weekly Accident Benefit. | $25.00 Weekly Accident Benefit. |
| $10.00 Weekly Sick Benefit. | $15.00 Weekly Sick Benefit. | $25.00 Weekly Sick Benefit. |
| $25.00 Emergency Relief. | $50.00 Emergency Relief. | $100.00 Emergency Relief. |

Send for application blank at once to

INSURANCE DEPARTMENT MANTEL, TILE & GRATE MONTHLY
UTICA. N. Y.

## Pamphlets Suitable for Distribution by Paving Brick Manufacturers

VITRIFIED BRICK THE BEST MATERIAL FOR SURFACING PUBLIC HIGHWAYS, by Herbert S. Casson.

BRICK PAVEMENTS AS AN INVESTMENT, by W. T. Blackburn.

IDEAL ROADWAYS, by T. A. Randall.

TRUTH IN NEW JERSEY CEMENT ROAD WORK.

STANDARD RATTLER TESTS FOR PAVING BRICK.

FACTS ABOUT ASPHALT PAVEMENTS.

Specimen copy of any one of these pamphlets sent on request. Price in lots of 100, $2.00. Will quote you prices on larger quantities.

**T. A. RANDALL & CO., Inc.**
**Indianapolis, Ind.**

## Classified Advertisements.

# MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**
MINERS AND GRINDERS.

## FOR SALE.

Fine Fire Brick Property and Plant at Half Price.

Opportunity knocks at every man's door once. If you want to own a fine Fire Brick Plant making high grade fire brick and flashed face brick, here is YOUR opportunity.

For reasons good and sufficient when all the facts are known, this fine property is offered at less than half its real present value, and it will greatly increase in value as the property is further developed.

The property embraces 900 acres of fire clay, with necessary equipment for mining same. It has many desirable features, including a 30-inch vein of coal of good quality, and good railroad facilities, one line running through the center of the tract.

The clay plant consists of a three-story factory and an equipment of machinery for making fire brick and face brick which will be described in detail to anyone who is interested. There is also on the premises a two-room office building and a boarding house with accommodations for twenty men.

An analysis of the fire clay shows that it is equal to the famous St. Louis Cheltenham fire clay.

The title is clear and it is in every way a most desirable proposition. For analysis of clay and other particulars, address

OPPORTUNITY,
Care The Clay-Worker.

### BARGAIN LIST OF SECOND-HAND MACHINERY, REPAIRED AND READY FOR SHIPMENT.

1 150-H.P. Non-Condensing Steam Engine.
2 6-H.-P. Upright A B Fan Engines.
15 12 to 15-H.P. Various Makes, Slide Valve Steam Engines.
10 15 to 35-H.P. Various Makes, Gas Engines.
1 54-inch by 16-foot Atlas Boilers.
2 36x15 A B Ventilating Fans.
1 24x12 Pressure Blower.
1 No. 7 Sturtevant Blower.
2 C. & A. Potts Soft Mud Brick Machines.
1 Ross-Keller Four-Mould Dry Press Brick Machine.
1 Penfield Six-Mould Dry Press Brick Machine.
1 Raymond Automatic Cutter.
1 Hummer, Jr., Fates Brick & Tile Machine, with Full Set of building Block Dies.
1 100,000 Arbuckle Horizontal Pug Mill.
1 100,000 Michigan Horizontal Pug Mill.
2 Second-hand Rust Clay Feeders.
1 20,000 Kells Brick Machine and Cutter.
1 25,000 Disintegrator.
1 Bechtel's Automatic Side Cutter.
1 C. & A. Potts Disintegrator, good, condition

### NEW MACHINERY AT SPECIAL PRICES.

1 100,000 Stiff Mud Brick Machine.
1 30,000 Stiff Mud Brick Machine.
1 20,000 Stiff Mud Brick Machine.
1 25,000 Disintegrator.
1 50,000 Disintegrator.
1 100,000 Disintegrator.
400 New Brick and Tile Barrows.
10 New Spring Trucks Complete.
2 Bechtel's Automatic End Cut Brick Cutters.
1 Iron Frame Winding Drum.
1 Wood Frame Winding Drum.
1 10-foot Clay Elevator.
Above machinery offered subject to prior sale at reduced prices.

**MARION MACHINE, FOUNDRY & SUPPLY CO.**
**Box 156 Marion, Indiana**

Mention THE CLAY-WORKER
When writing to Advertisers,
Mention THE CLAY-WORKER

*A man's mail will reach him where no mortal can.*

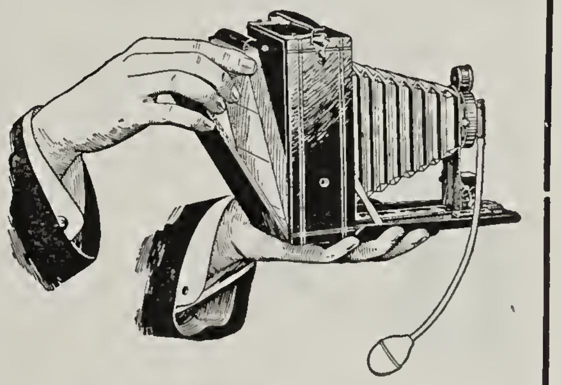
## Mailing Lists

99% Guaranteed

covering all classes of business, professions, trades or individuals. Send for our complete catalogue showing national count on 7,000 classifications. Also get special prices on fac-simile letters and addressing.

**Ross-Gould** 493 N. 9th St. **St. Louis**

Open back—drop in pack—close back—that's all you do to load a



# Film Premo

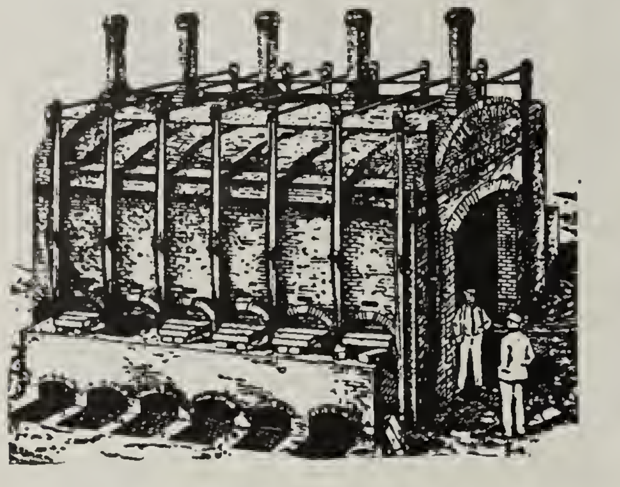
The smallest, the lightest, the easiest to load and operate of all cameras — and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it today.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

**Rochester Optical Division**
Eastman Kodak Co., Rochester, N. Y.

E. SCHMATOLLA
Consulting, Designing & Constructing
**Engineer and Patent Attorney**
To the Manufacturers of
Brick, Lime, Magnesia, Silica & Ceramic Wares.
150 Nassau St., New York, U. S. A.



**The Yates Patent Down-Draft Kiln Also Continuous Down-Draft.**

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

ALFRED YATES,
SHAWMUT, PA.

**If...**
**You Want to Sell or Buy...**
Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.
**If...**
**You Want a Man**
for any position or a position in any connection with the Clayworking Trades use the
**For Sale and Want Columns**
of...
The...
**Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 35 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

**Machine-Molded Gears**

One to 6-inch pitch and larger. Our machine-molded gears last longer than others, give higher efficiency under actual scientific tests, and in many cases cost no more than inferior gears. Send for Catalog No. 38.

**H. W. Caldwell & Son Co.**
17th St. and Western Ave.
CHICAGO

NEW YORK CITY
Fulton Bldg., Hudson Terminal
No. 50 Church Street.

TABLETS OF RECORD in Metal, Marble and Stone for Exterior and Interior of Public Buildings, Office Buildings, Banks, Churches, etc. Designed and Executed to Client's Instructions and Limit of Expense designated. Correspondence Invited.

*Illustrated data and photographs sent on request.*

**J & R LAMB**
Studios, 23, 25, 27 Sixth Ave.,
New York.

**Chicago Retort & Fire Brick Co.**

**"AJAX"**
**Fire Brick for Building Kilns**

GENERAL OFFICE;
208 South La Salle St.
CHICAGO, ILL.

'Phone
Wabash 6131

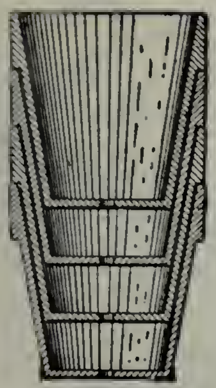
**THE BURNING QUESTION?**

IS ANSWERED IN THE USE OF OUR PRODUCTS.

WE SELL
- Fire Brick of Different Grades.
- Fire Clay Tiles of Different Shapes and Sizes.
- Boiler Tile, Locomotive Tile, Cupola Blocks.
- Kiln Floor Tile, Lime Kiln Supplies.
- By-Product—Coke Oven Brick.
- Fire Clay Liners for Cement Kilns.
- Crude Clay in Bulk, Ground Clay and Ground Brick in barrels or sacks.
- Gas Benches erected complete, including iron work.
- Gas Retorts and Settings.
- Fireproofing for Buildings.

IF WE CAN'T FURNISH IT, IT ISN'T WORTH MAKING

**The Parker-Russell Mining & Manufacturing Co.**
St. Louis, Missouri.
St. Louis Office: 603 Laclede Gas Bldg. New York Office: 45 Broadway.
All Contracts Made as of St. Louis. Correspondence solicited.



# Make Money

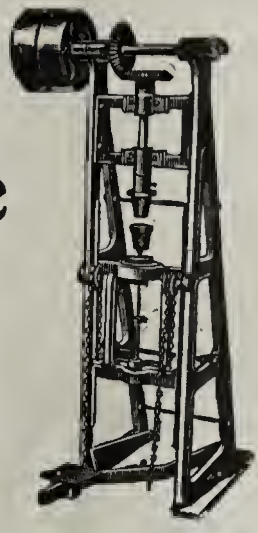
WITH THE ONLY SUCCESSFUL

## Flower Pot Machine

(PATENTED.)

No expert workmen required.
Capacity in 10 hours:
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "
Write for Circular and prices.

**The Rockwood Mfg. Co.,**
1801 English Ave. INDIANAPOLIS, IND.



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## New Books Which Are Being Offered To the Trade:

HOLLOW TILE HOUSE, by Fred'k Squires, Price, $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

CEMENT, CONCRETE & BRICK, by A. B. Searle, Price, $3.00.

A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

SOLD BY

**T. A. RANDALL & CO.** (Inc.) **Indianapolis, Ind.**

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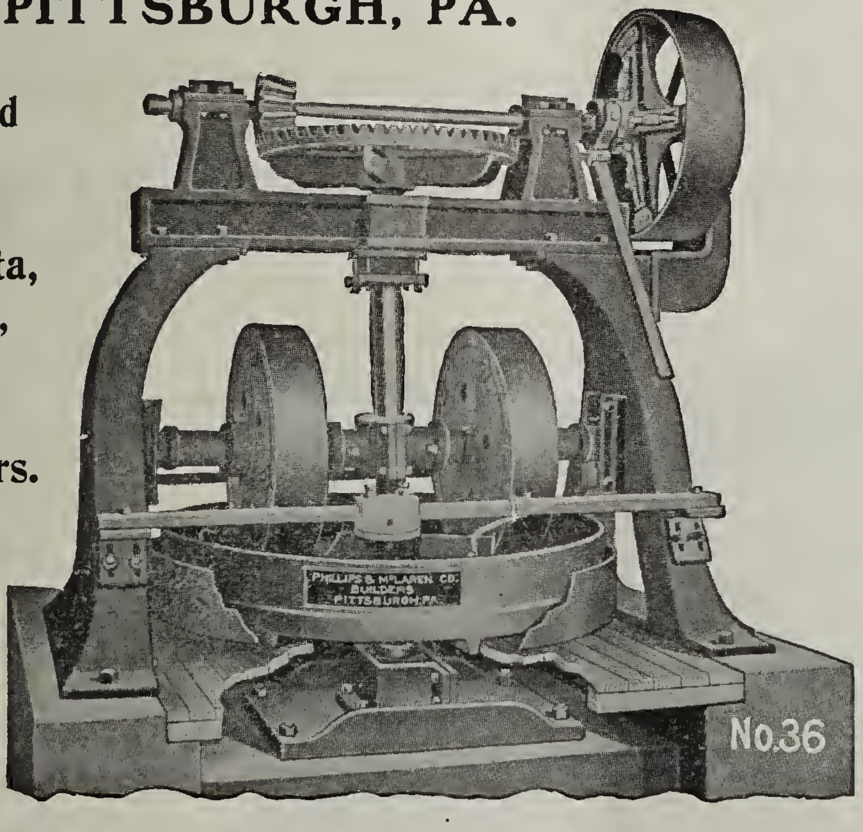
# PHILLIPS & McLAREN CO.

PITTSBURGH, PA.

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
**Stephen Girard Bldg.**
Philadelphia, Pa.



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**$2.00** THE CLAY-WORKER ONE YEAR (IN ADVANCE) **$2.00**

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# Anchor Brand Colors

For Mortar Cement and Brick.

**BROWN, BLACK, RED AND BUFF.**

Strongest and Most Durable.

Manufactured by

## C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

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## Chattanooga Paint Co.,

Chattanooga, Tenn.
Manufacturers of

## Red Oxides for Brickmakers' Use.

**ECLIPSE MORTAR COLORS,**

**Red, Brown, Buff, Black.**

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YOU HAVE KNOWN FOR YEARS THAT

## RICKETSON'S MORTAR COLORS

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

**Why Not Insist on Having Them?**

They are the acknowledged best for all uses--Mortar, Brick, Cement, Concrete and Stone.

**Red, Brown, Buff, Purple and Black.**

**RICKETSON MINERAL PAINT WORKS**
MILWAUKEE, WIS.

---

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Clay Glazes and Enamels," $5.00; tells how to glaze and enamel brick and gives valuable recipes. "The Effect of Heat Upon Clays," by Prof. A. V. Bleininger, price $2.00; a book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent. "Analyses of Clays," $2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," $2.00; a manual for all engaged in the manufacture of articles from clays. "Clays"; their occurrences, properties and uses, with special reference to those of the United States, $5.00. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,
T. A. RANDALL & CO.,
Indianapolis, Ind.

The
ROESSLER-HASSLACHER
CHEMICAL COMPANY
100 William Street
NEW YORK

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

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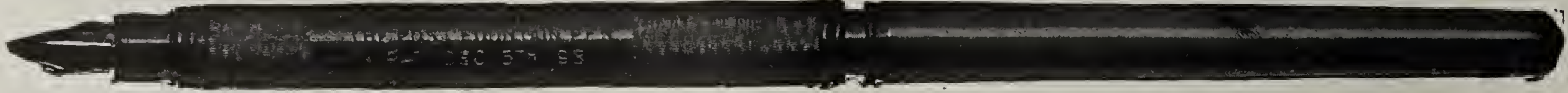


The Latest Fountain Pen. Guaranteed by Makers. No Filler. No Lost Time. No Soiled Fingers. Perfect. Simple.

REMARKABLE OFFER.

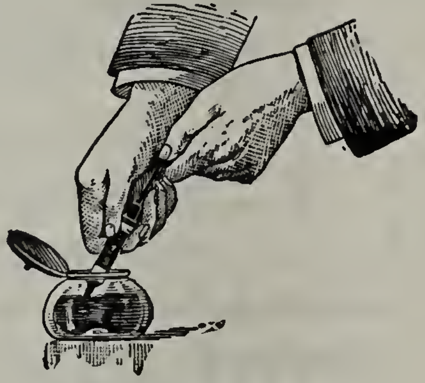
The Old Way

We will send this famous gold-pointed pen, post paid, and THE CLAY-WORKER, for one year, to any address in the United States and Canada for $3.00

"POST" SELF FILLING CLEANING FOUNTAIN PEN.

Gen. Lew Wallace, the author of "Ben Hur," wrote: "I have tried every kind in the market, and unhesitatingly give the preference to the "Post."

ADDRESS THE CLAY-WORKER, INDIANAPOLIS, IND.


The New Way

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THE OREGON KILN

A semi-continuous kiln for large and small yards. Cheap to construct, easy to operate. You have perfect control of the draft and fire at all times. For information write to

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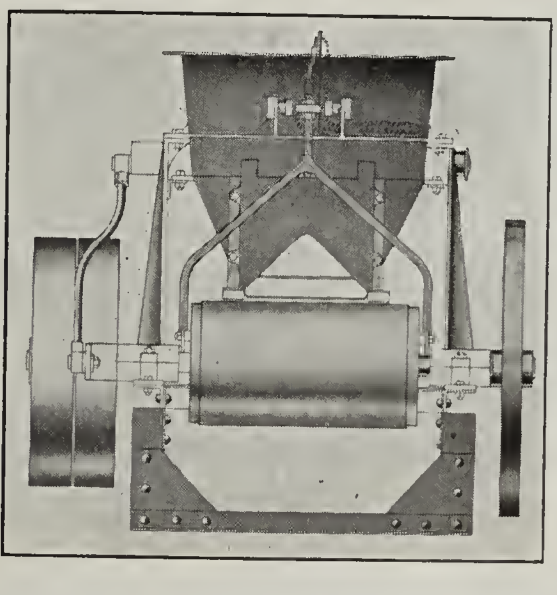

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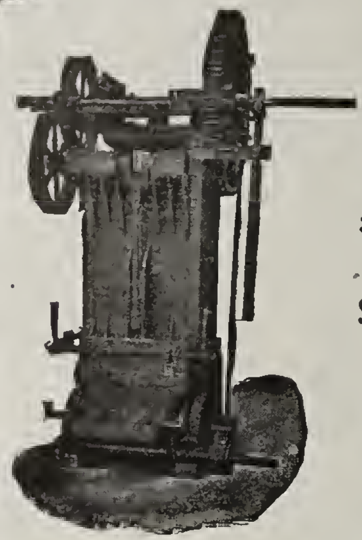

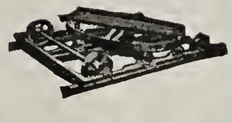
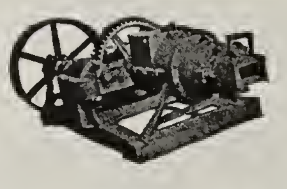

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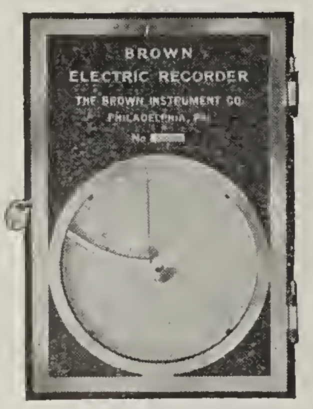

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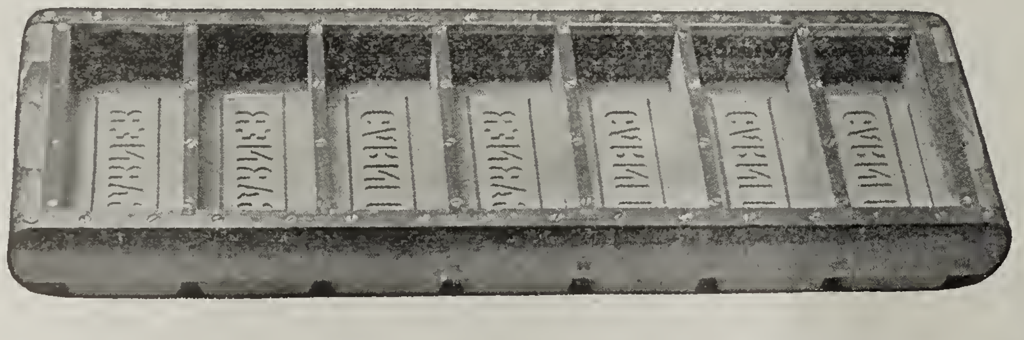

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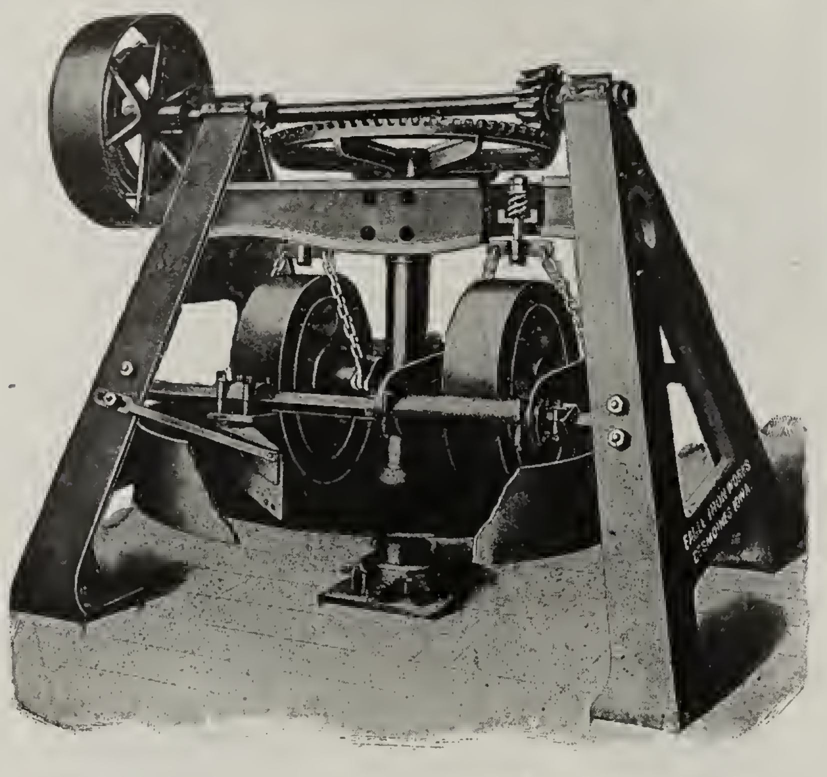

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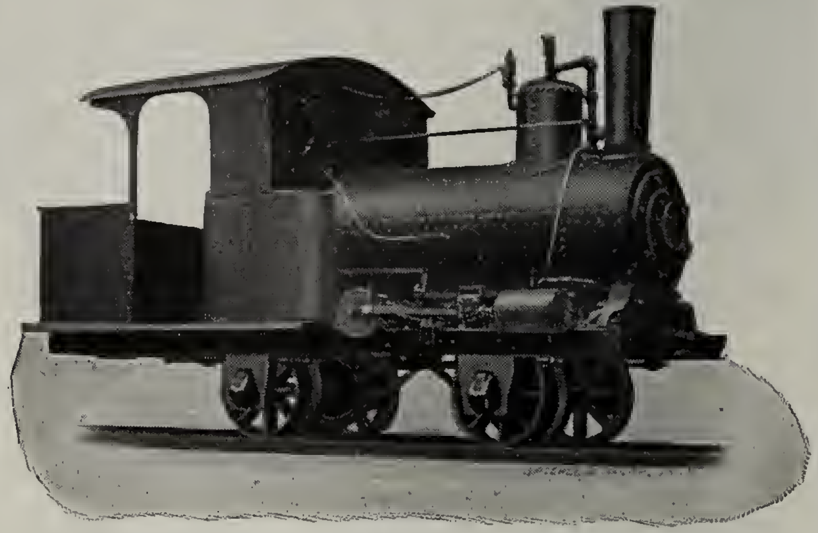

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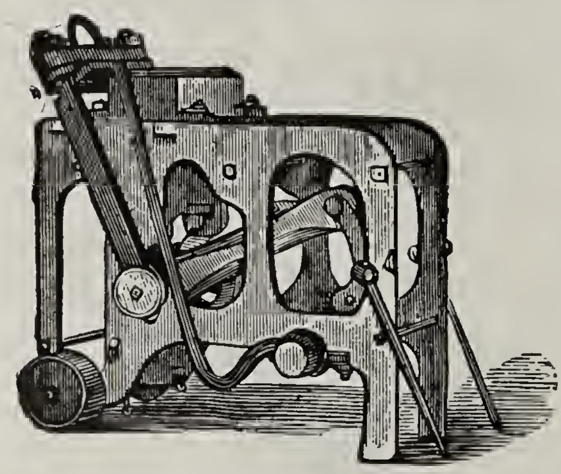

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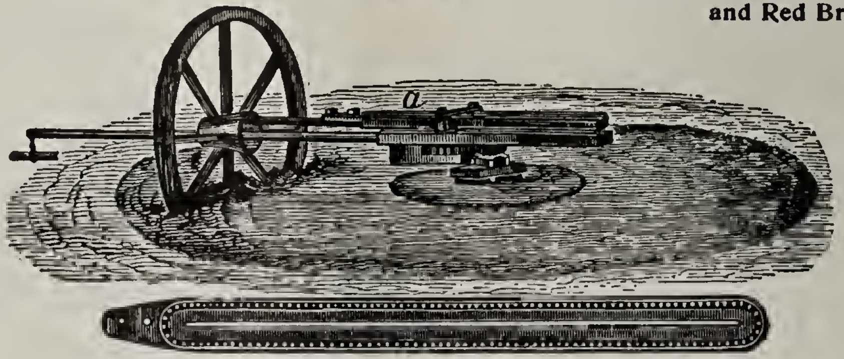

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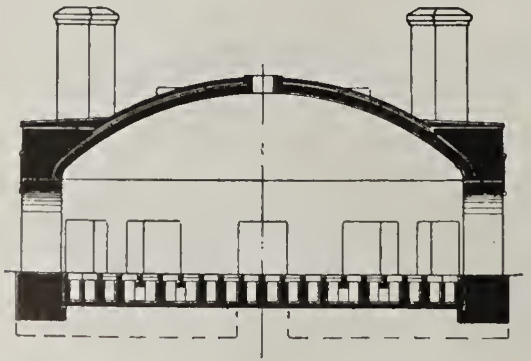

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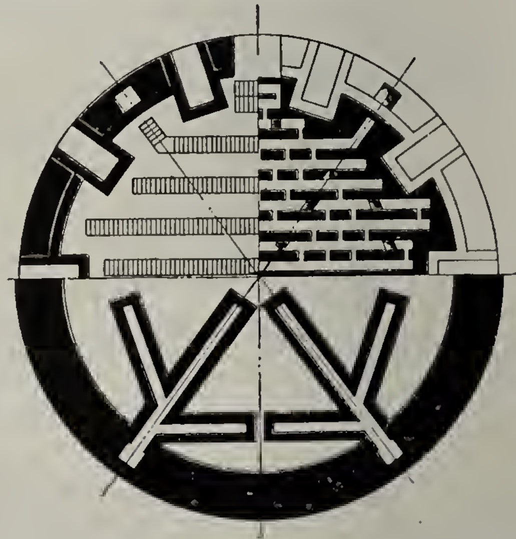

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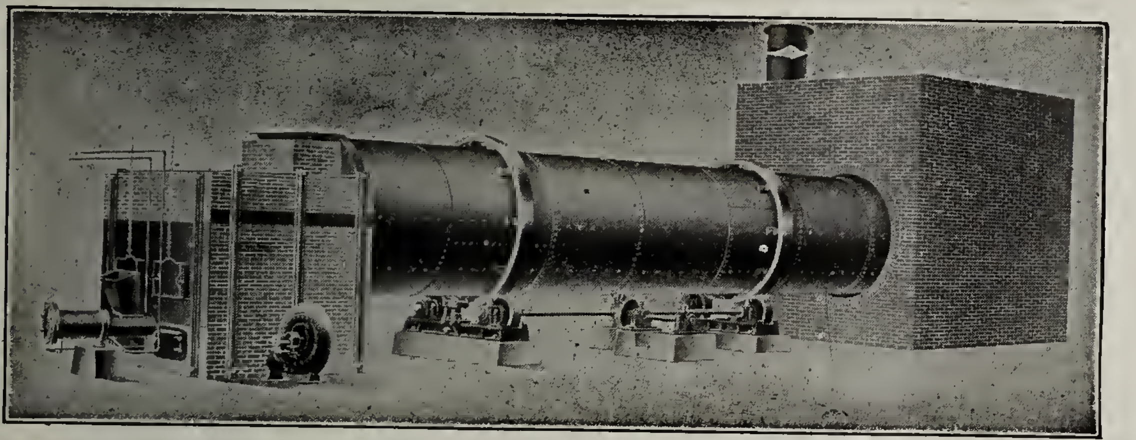

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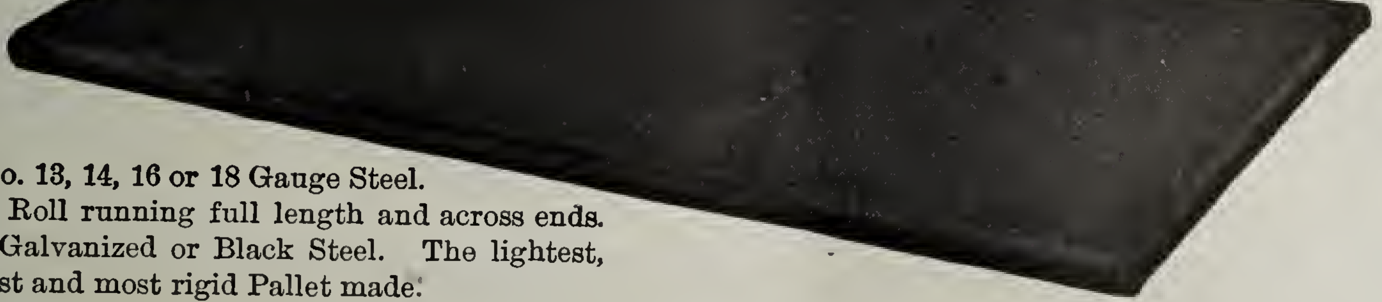

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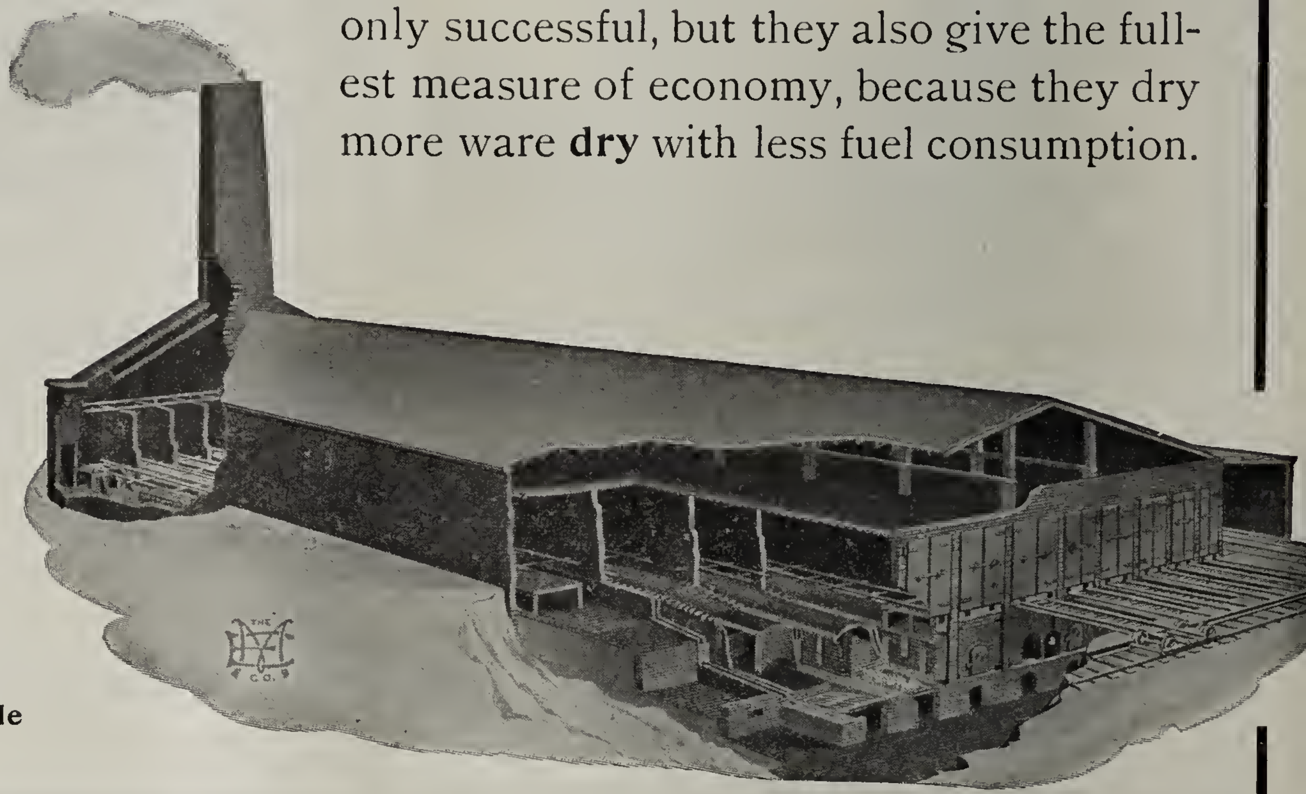

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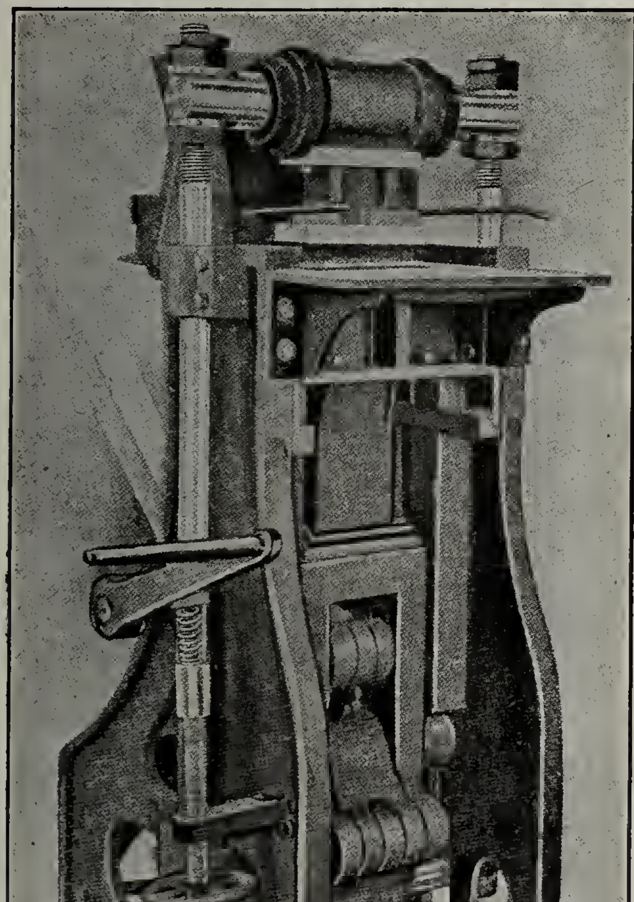

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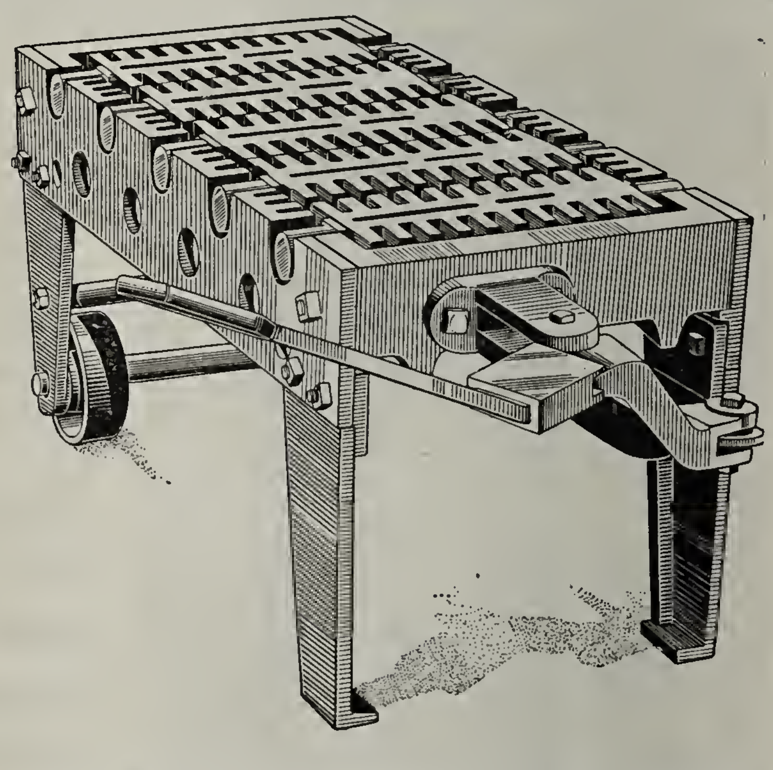

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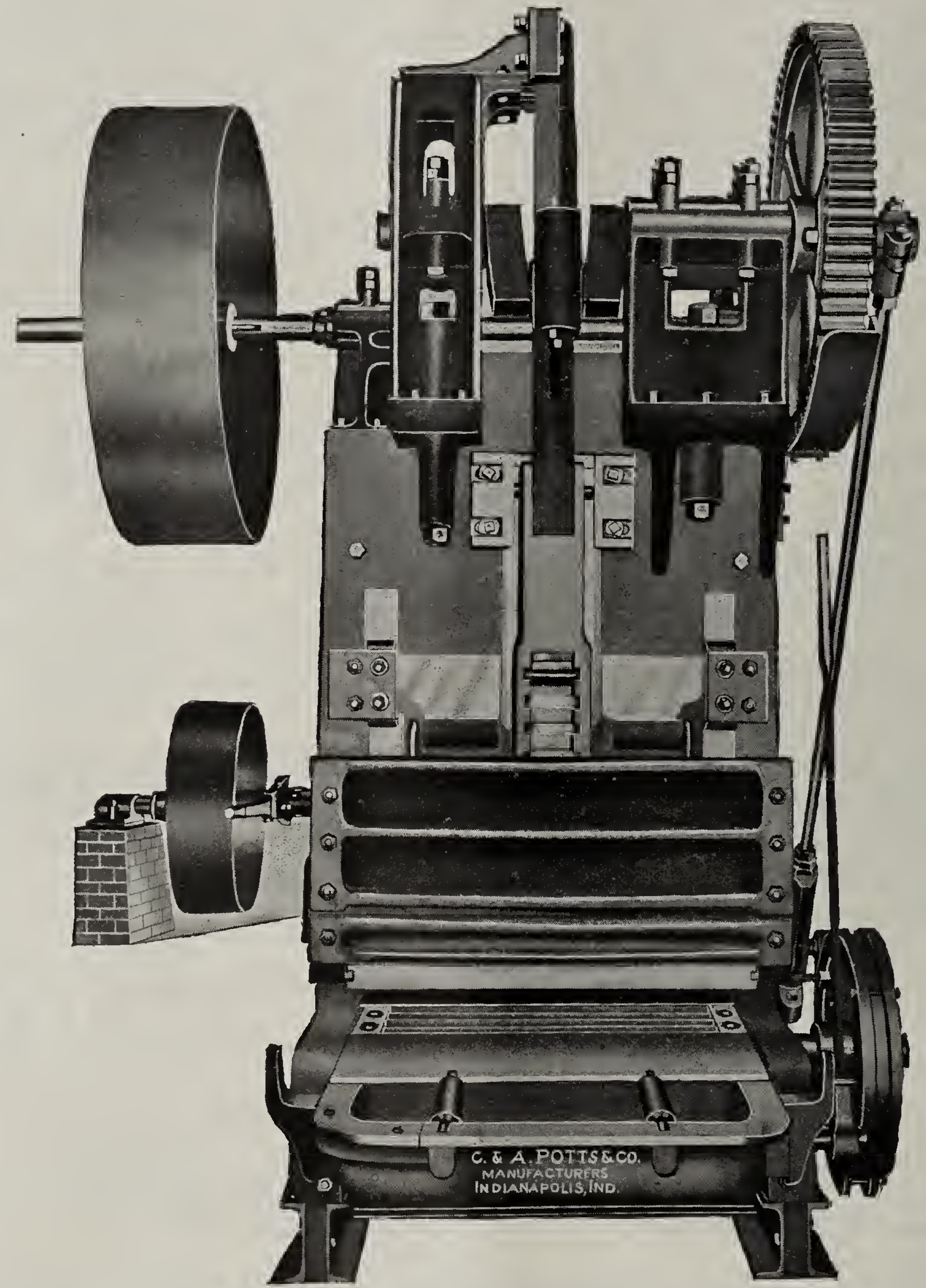

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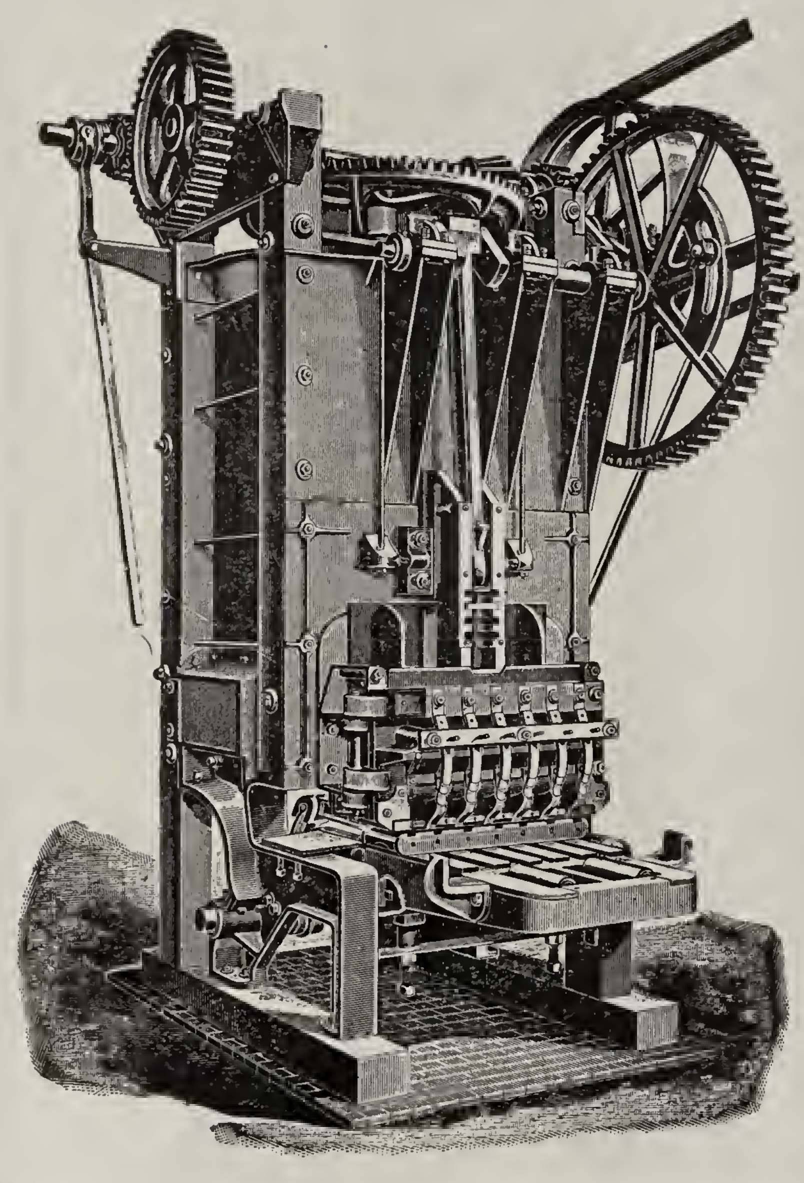

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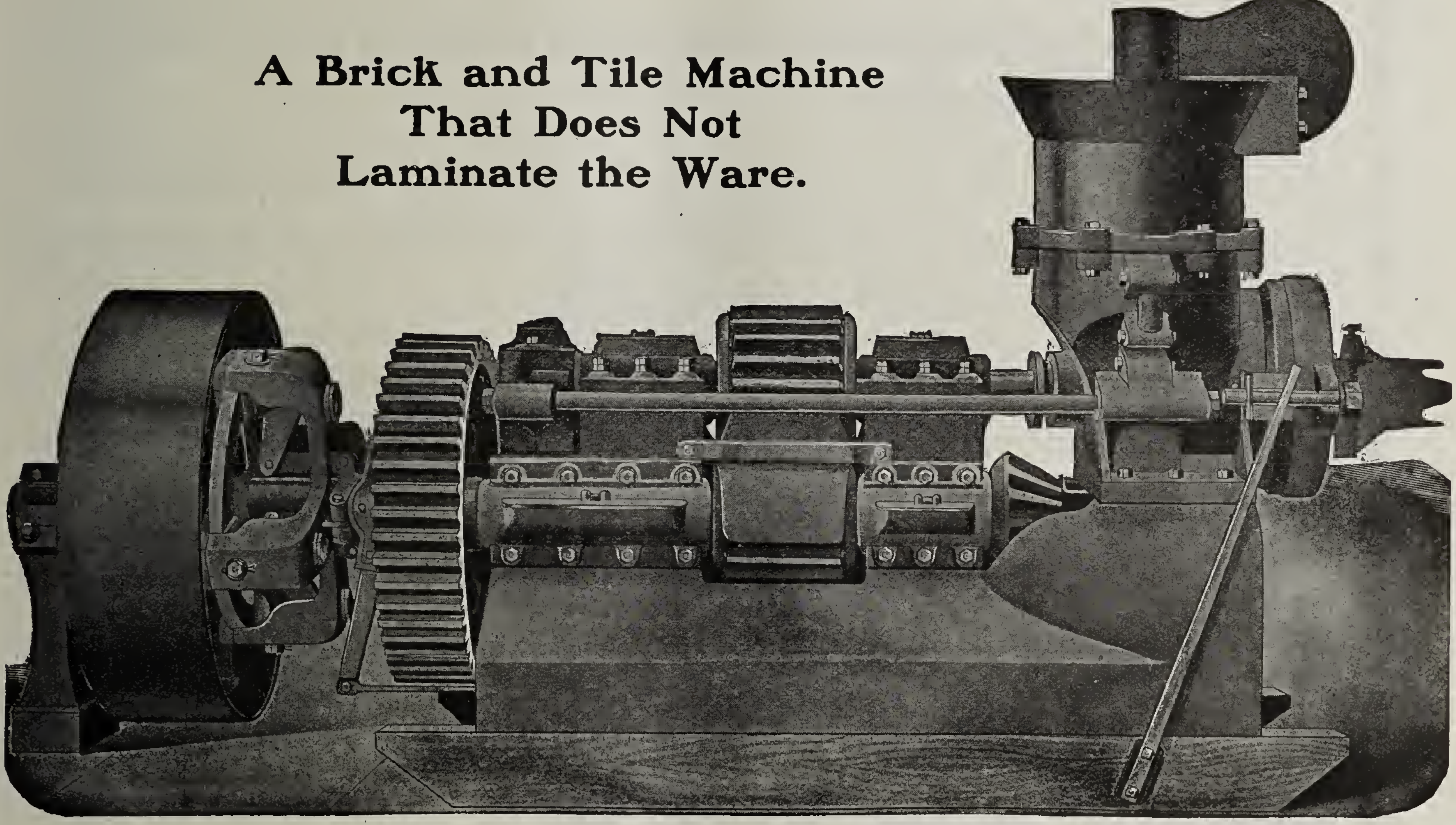

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**FRANKFORT, IND.**

# TAKE A TIP FROM BILLY.

Billy doesn't try to drive people into heaven over the Methodist road, the Baptist pike, or the Catholic highway. He tells 'em to get there by any route they chose, so they get there.

Billy believes in saving souls, not in making Presbyterians, Universalists or Episcopalians.

That is the S-A-F-E method of making Fire-Safe converts.

It is not a question of selling stone, or cement, or brick or tile. It is simply a matter of building SAFE.

There is a place for every good fire-resisting material. We don't try to cram any one kind of stuff down a man's throat; but we try to show him that he can't afford to "build to burn."

Nothing has ever been accomplished by the old one-horse method. Hook up all the good, safe materials together and it makes a pulling power that can not fail.

That's the S-A-F-E way. Get the combination to the SAFE—there's money in it for you.

SAFE

PROTECT YOUR HOME

## THE SAFE

## Society Advocating Fire Elimination

R. P. Stoddard, Secretary

356 Leader-News Building CLEVELAND, OHIO

# The Verdict–Guilty!

We have been accused, after having placed the Powell Patented Shale and Clay Planer on the market for over one year, of giving the Clayworking Industry, one of the greatest helps that it has ever had, the ARBUCKLE up-to-date line of Paving Block, Stiff Mud Brick and Hollow Ware Machinery, as well as supplies of all kinds for the clayworker, not being excepted.

The Patented Shale and Clay Planer reduces the pit gang like a German 42 centimeter gun would reduce a Belgium fort. That is, it leaves only one man who is necessary to operate the machine.

It also reduces the number of Dry Pans ½ to ⅔.

It saves all explosives.

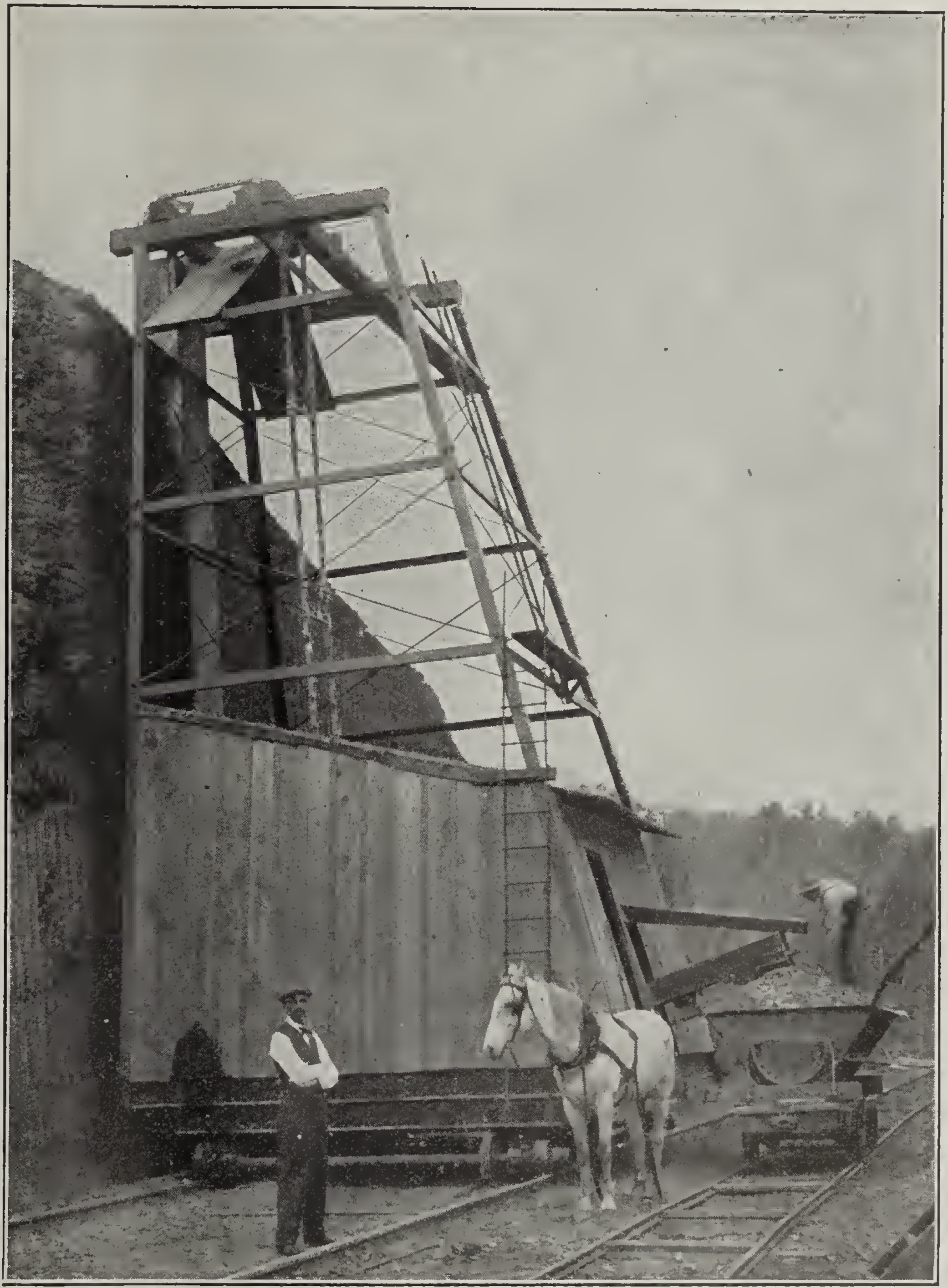
**Above all,** it gives a thorough mixture of the Bank face, cut up into fine pieces.

No Labor Troubles with the Shale and Clay Planer, which is ready to work at any season of the year.

Built in sizes to handle your proposition from a two-foot surface clay bank to a hard shale bank 100 feet high.

When writing state approximate height of bank and also composition of same.

**KNOW THE ARBUCKLE FIRST**



## ARBUCKLE & COMPANY

Exclusive Manufacturers

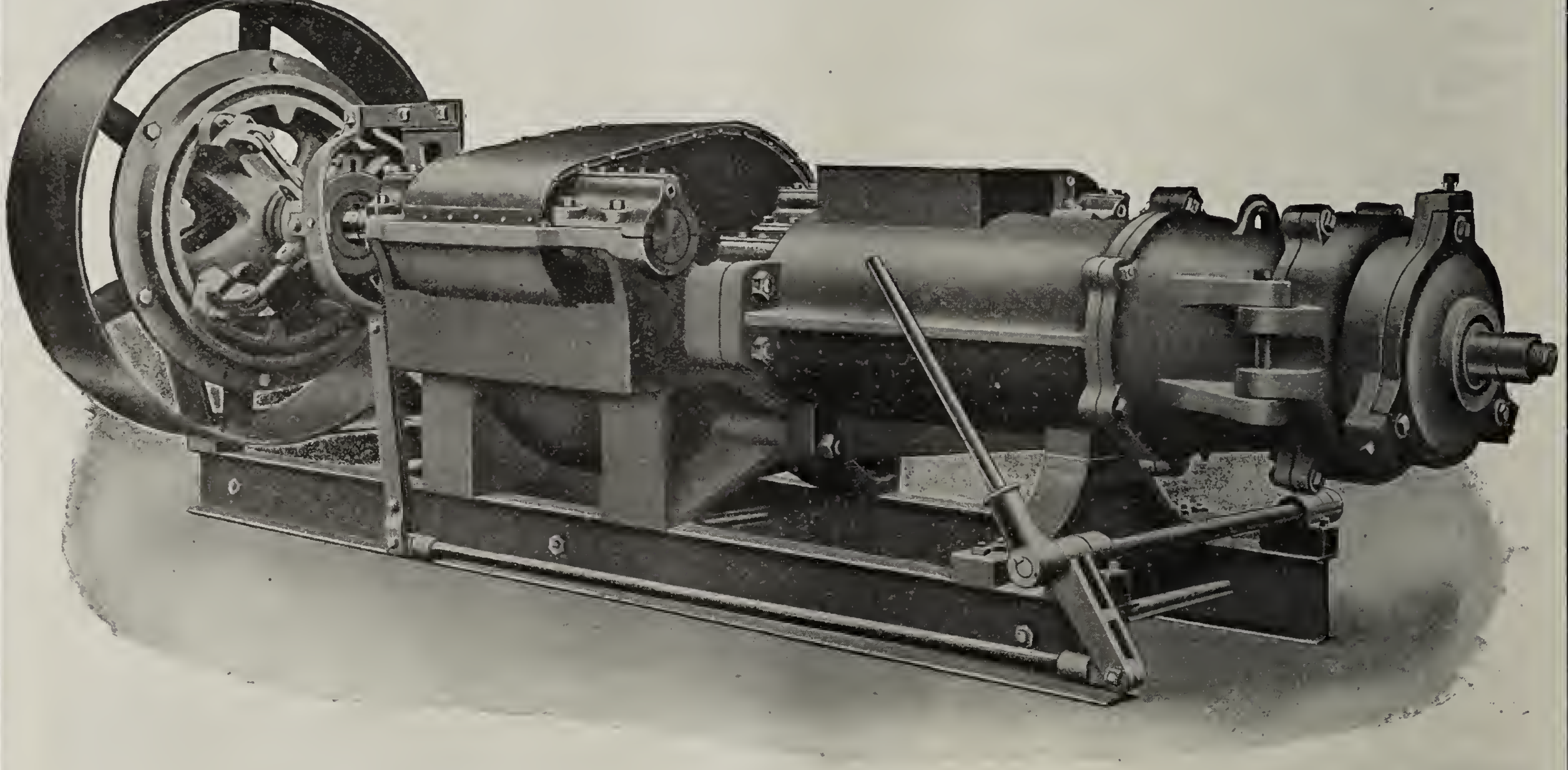
RUSHVILLE, INDIANA = = U. S. A.

Infringements will be promptly and vigorously prosecuted.

The Brewer No. 88 Horizontal

DRAIN TILE MACHINE

A high grade, high speed, heavy duty pattern, new enough to be up to the minute, but old enough to have shown what it can do.



Here Are a Few Construction Points:

Cut gears, covered and running in oil.
Gear frame cast in one piece.
Cylinder cast in one piece.
Hammered steel shafts. Self-oiling bearings.
Sectional lined screw case. Heavy 29-in. disc clutch.
Tool steel bushed dies.

**Ask for complete catalog, references and prices.**

H. BREWER & COMPANY, Tecumseh, Mich.

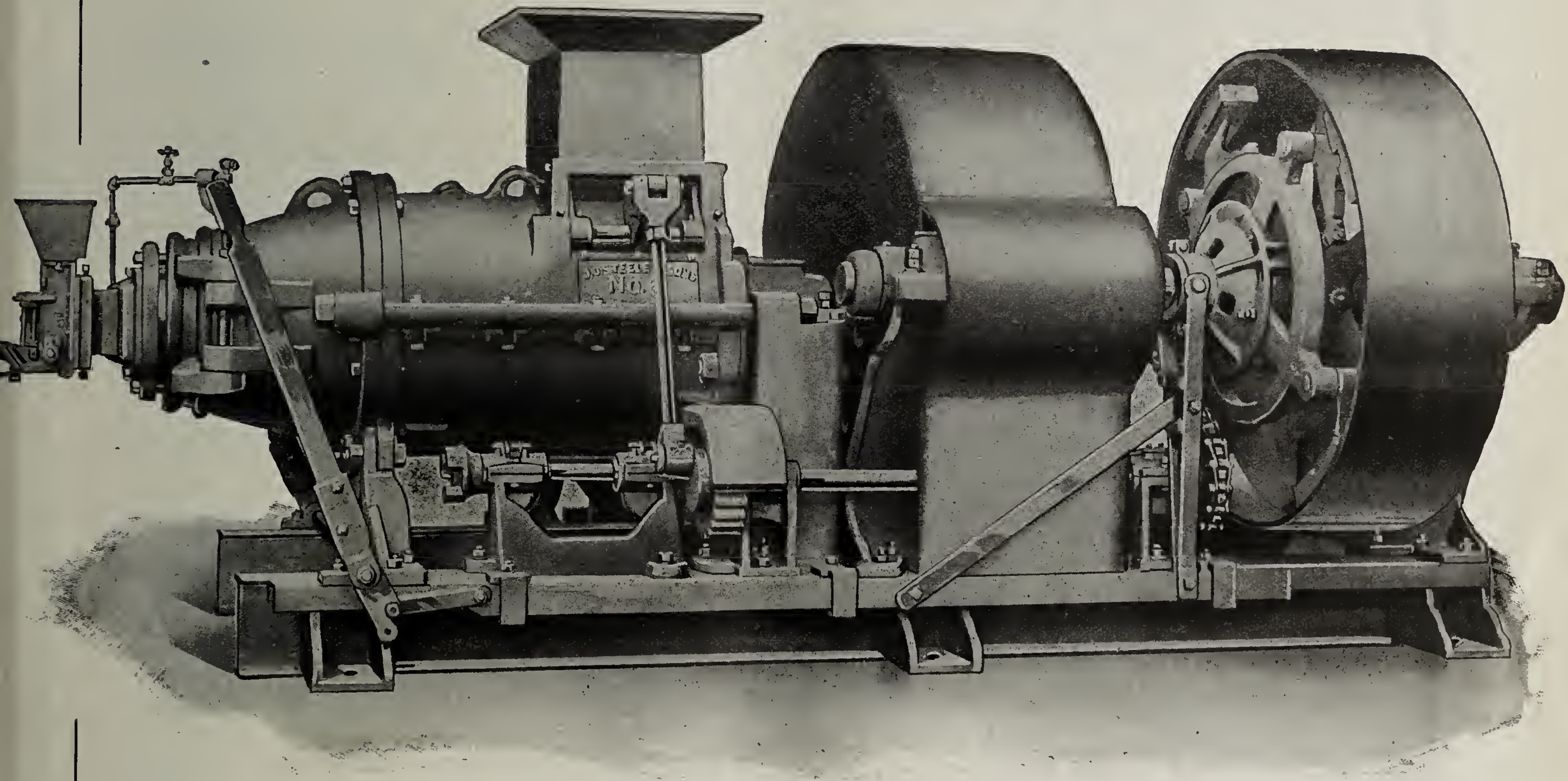
# THE STEELE CLAY MACHINERY

## Is the Result of Over Twenty-five Years of Team Work

The combined and continuous effort of our Organization in meeting the complex problems of working a great variety of material, from very short sandy clays to the most obstinate clays and shales, is producing most satisfactory results.

In many cases the superior quality of goods produced by our customers has caused the adoption of our machinery by competitors.

Experienced service and fair treatment is continually widening our field.



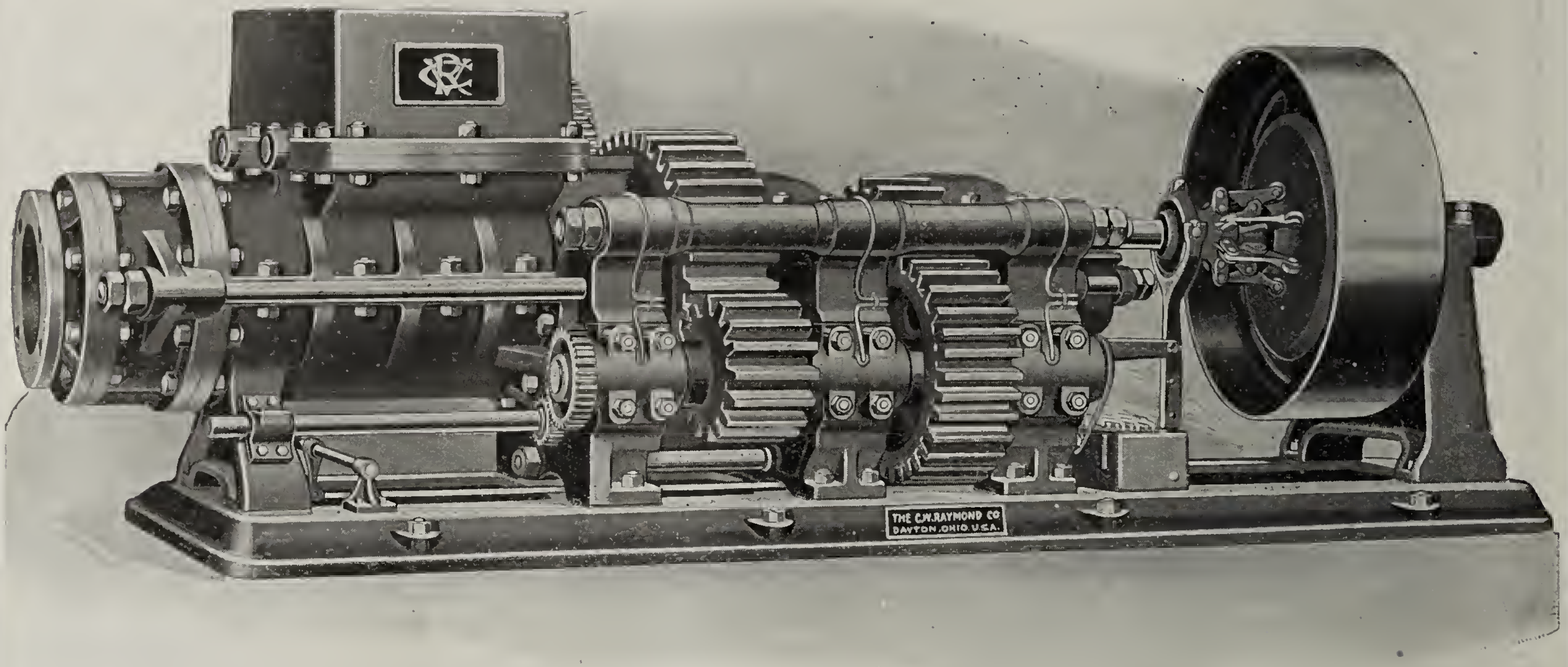
**J. C. STEELE & SONS**

STATESVILLE, N. C.

GEO. H. SMITH, KANSAS CITY, MO., Western Agent

# USING THE WHOLE DOLLAR

## By Investing in This Wonderful Machine



### THE RAYMOND "CVR" HOLLOWARE MACHINE

This machine is conceded by the majority of the leading clayworkers of this country and Canada to be the best, most reliable and nearest repair-proof hollow-ware machine that can be made. We've said that for some time but are glad that others say it now. You can never realize what power it has, or the large number of tile it can shoot out when pushed. We can truthfully say that you will get your 100 cents on the dollar's worth of good in this machine on your purchase. Then after it is installed and begins operations, you will save more than the 100 cents on the dollar by the total absence of repair bills. That's when your profits start to pile up. This machine is made of iron and steel, mounted on a solid base, giving rigidity and making vibration nearly impossible. Steel cut gears, full ten inch face; new friction clutch pulley; forced feed or direct oiling system optional.

"A Word to the Wise is Sufficient." Get busy, write now.

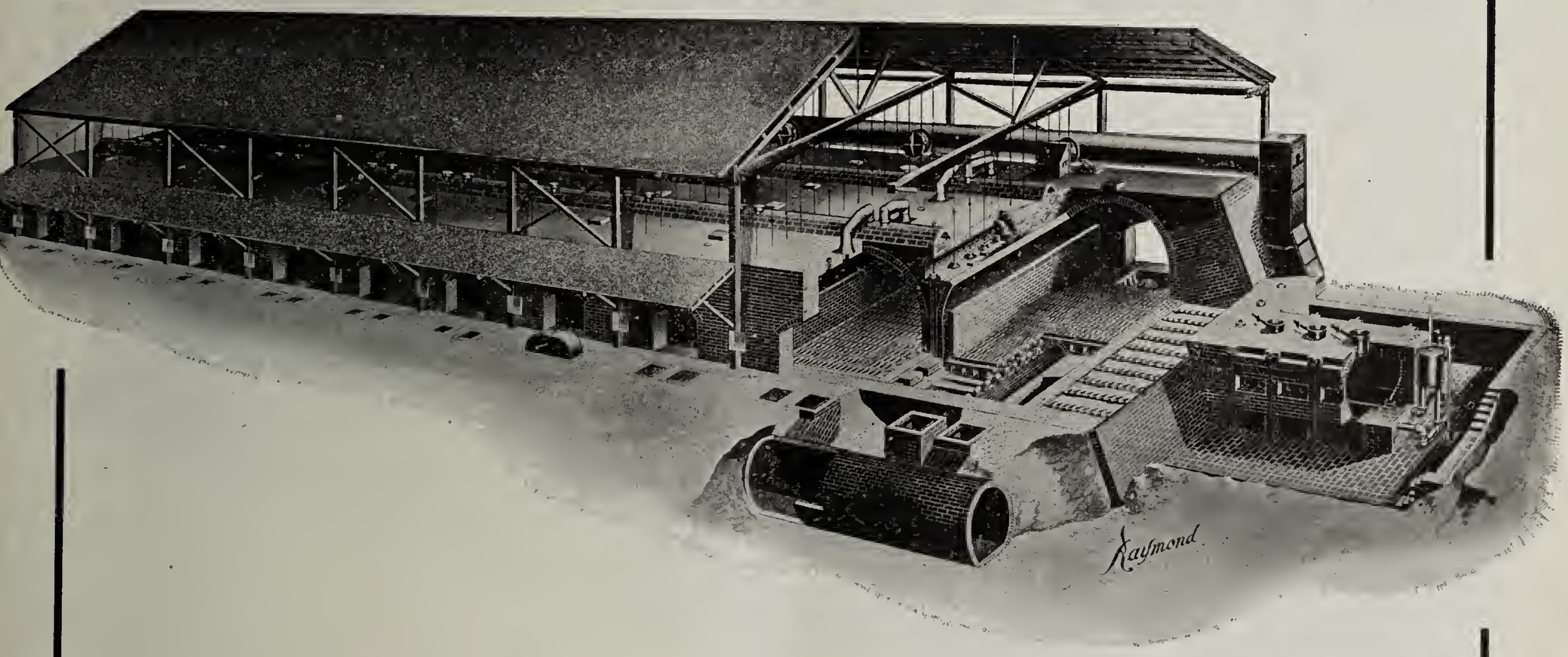
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# WHERE DO YOUR PROFITS GO?

Have you tried to figure out why you haven't as much money in the bank as you should have? Well, we have figured it out that much of your profit goes unnecessarily to the coal man, via the kiln you use. Of course, our kiln uses coal primarily, as the gas is extracted from it in the producer and burns the ware. You have no smoke (which is a waste as it contains carbon), no scattered coal piles, no waste and no large fuel bills. You get all the heat in the coal, use half of your present amount of coal for the same amount of brick or hollow-ware, and at the same time get much better results. Stop the leak now with a Raymond Producer Gas Fired Continuous Kiln. Get a stamp and write for complete information about it.



**The Raymond Producer Gas Fired Continuous Kiln**

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

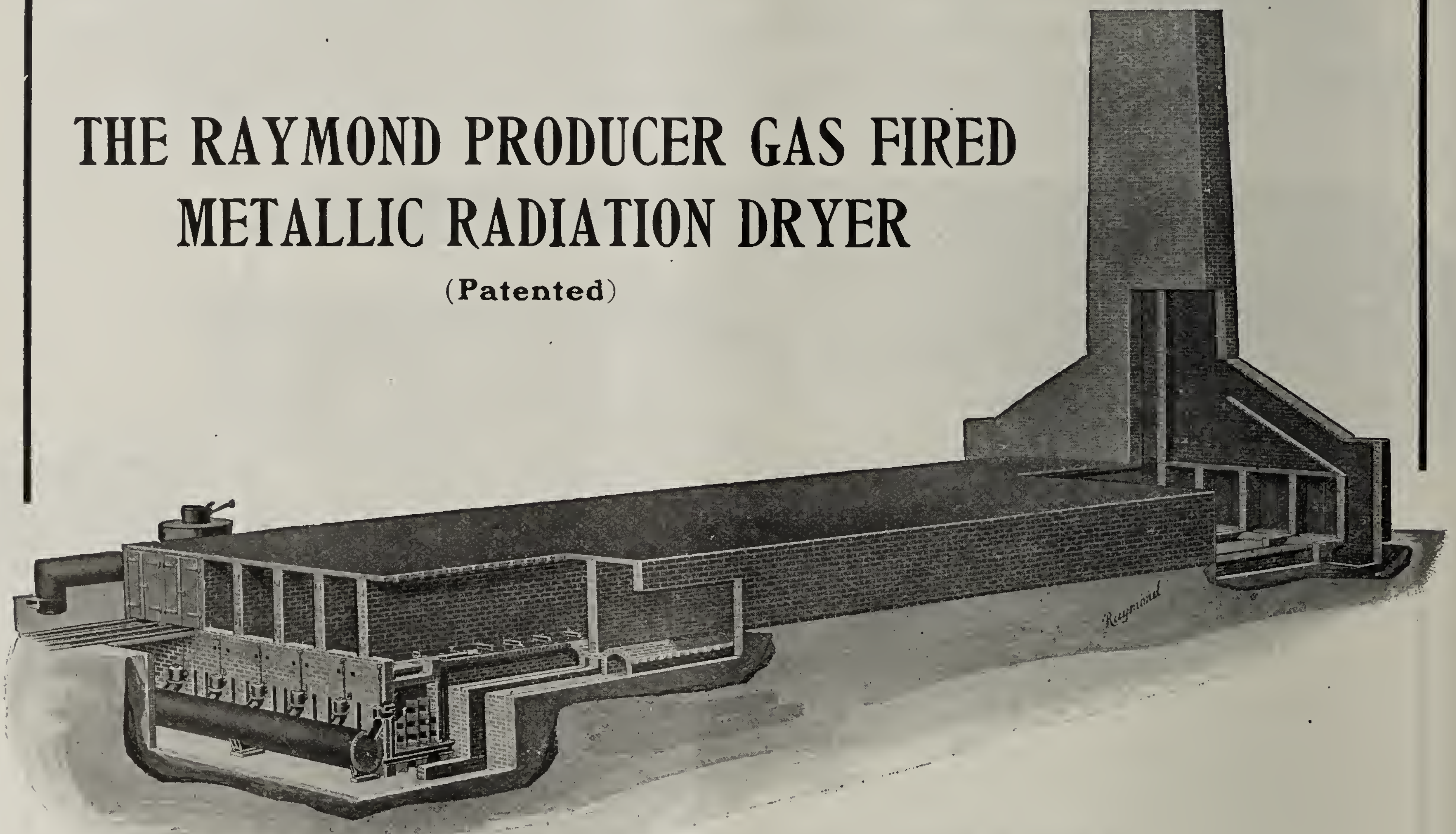
**Dayton Ohio U. S. A.**

# LISTEN TO REASON—

And if you're going to look out for "number one"—yourself—you will realize that all we have been telling you about producer gas is not "gas" or hot air. The fact that you use half of your former amount of fuel has been proven conclusively, and we can give you the proof, on request. We're willing to show you and we can, if we are given the chance. Your clay will be bone dry in just 24 hours, if properly tempered. You can feel assured that there will be no cracked or scummed brick or tile, and that good results will be secured if you use

## THE RAYMOND PRODUCER GAS FIRED METALLIC RADIATION DRYER

(Patented)



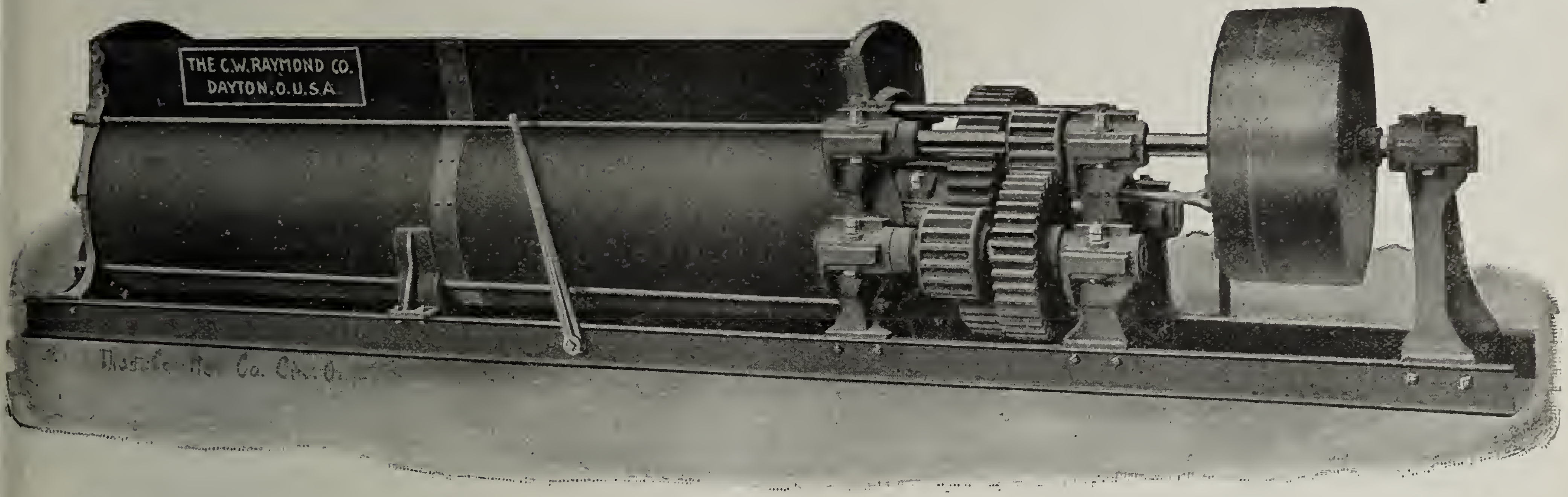
**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# WHEN IS A PUG MILL NOT A PUG MILL?

## WHEN IT IS NOT



### A RAYMOND PUG MILL

There are so many so called pug mills that have the appearance of one and the cost of one, but they do not do the work of one the way it should be done. A pug mill that **rolls** the clay in **balls** down the chamber instead of **working** the clay between the knives and walls and forcing it smoothly in a steady stream, is certainly not a pug mill. If you have to put in an excess of water to get the clay plastic enough to prevent crumbling on leaving the machine, then don't blame the dryer for the inferior product, but get a pug mill that **is** a pug mill—the Standard here shown—and you will get the best old pugger there is. We have many different kinds for different purposes, so ask for information on any one you want. They are constructed of steel and iron, mounted on channel steel skids, with the new Raymond Friction Clutch Pulley (not shown on cut.) We'll show you what a Pug Mill is, so write to us now.

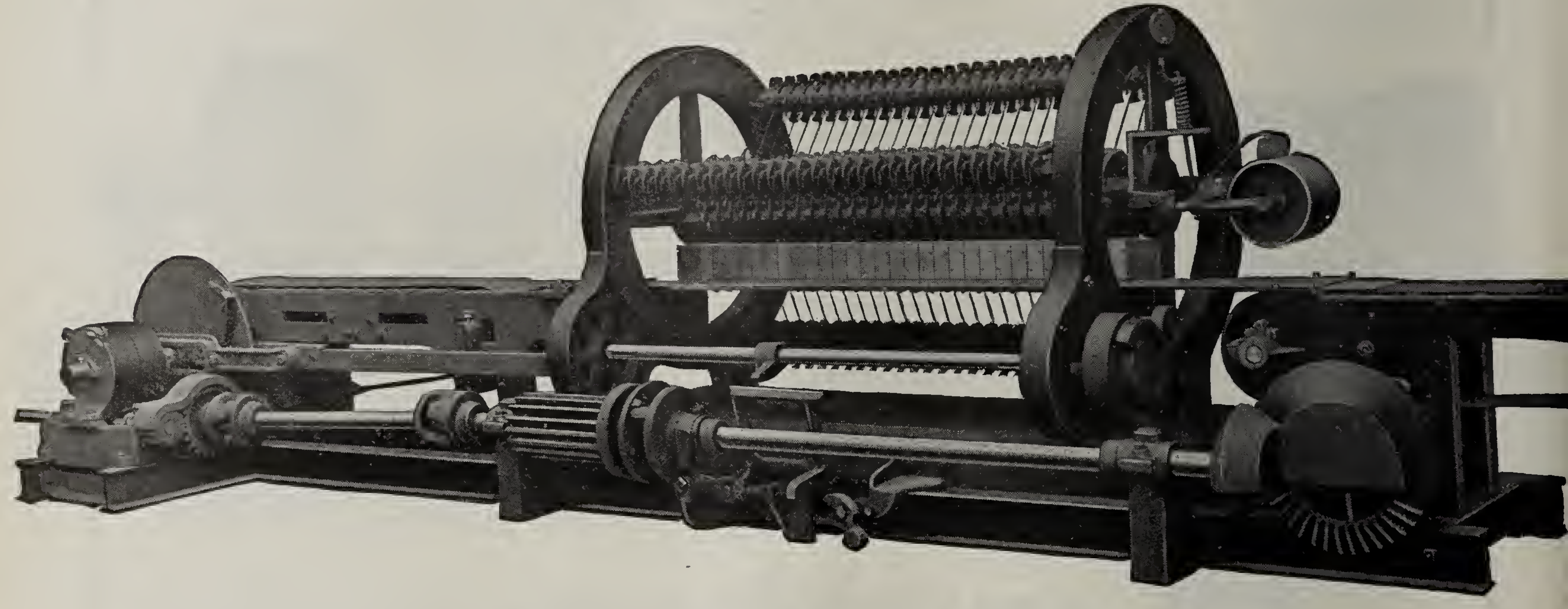
---

**The C. W. Raymond Company**

**The Largest Exclusive Builders of Clayworking Machinery in the World**

**Dayton Ohio U. S. A.**

# DEPENDABILITY FIRST!



Model C 30 Rotating Automatic Cutter

A thoroughly dependable automatic cutter---**sure-acting,** because its mechanism is positive; **economical,** because of the very few wearing parts; **understandable,** because of the extreme simplicity of the mechanism; **a producer of smooth sharp edges** because of the steady downward shearing movement of the wires.

---

## E. M. FREESE & COMPANY, 140 South St., Galion, Ohio

**Dependable Machinery of Proven Efficiency**

Mention The Clay-Worker.

For
Sixty-Three
Years
The Name

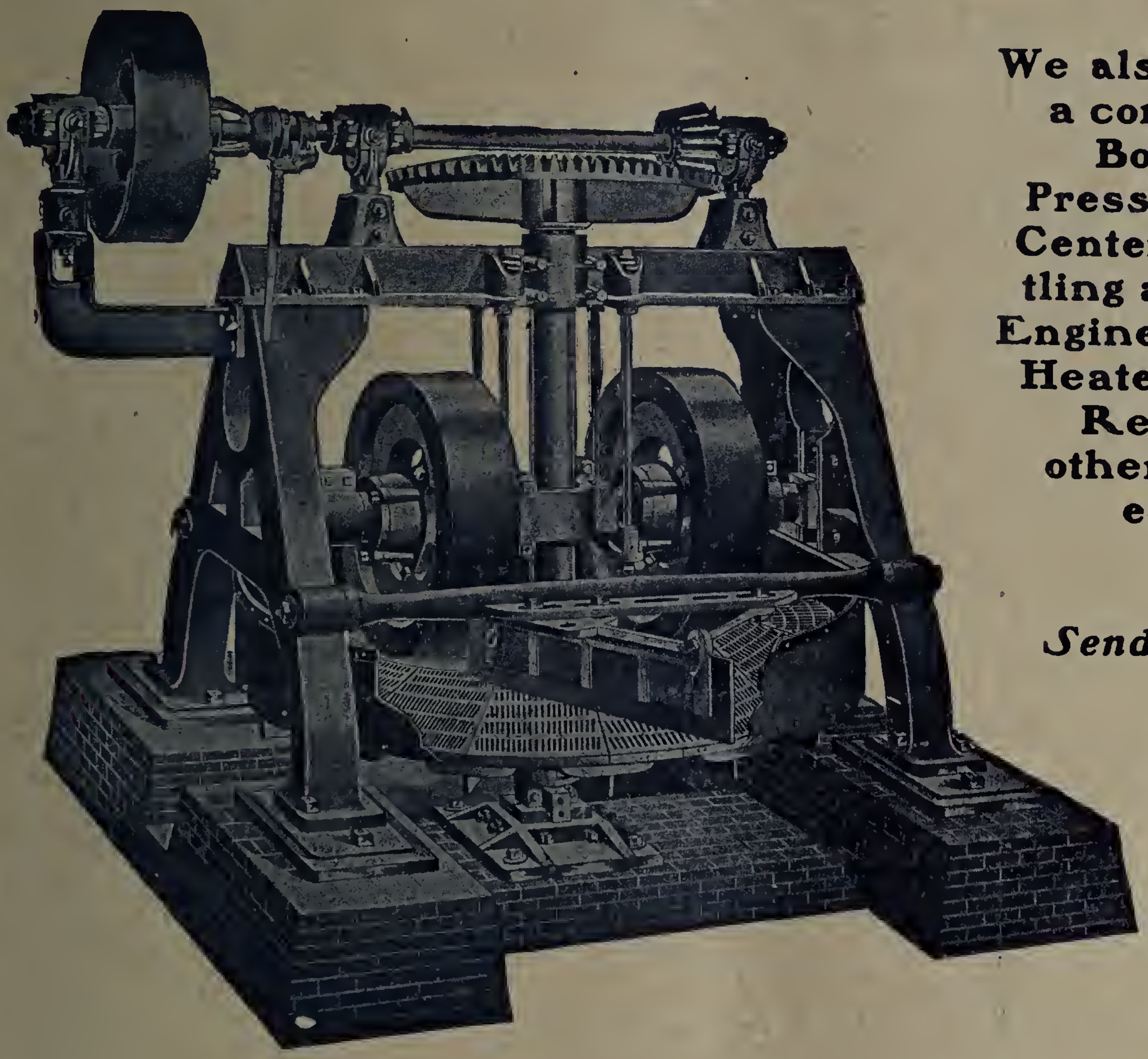
**Frost**

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.

**WHY!** Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.



We also manufacture
a complete line of
Boilers for all
Pressures, Side and
Center Crank Throttling and Automatic
Engines, Feed Water
Heaters, Tanks, Air
Receivers and
other power plant
equipment.

---

*Send for Bulletins.*

**The Frost Manufacturing Co.**

Works at
GALESBURG, ILL.

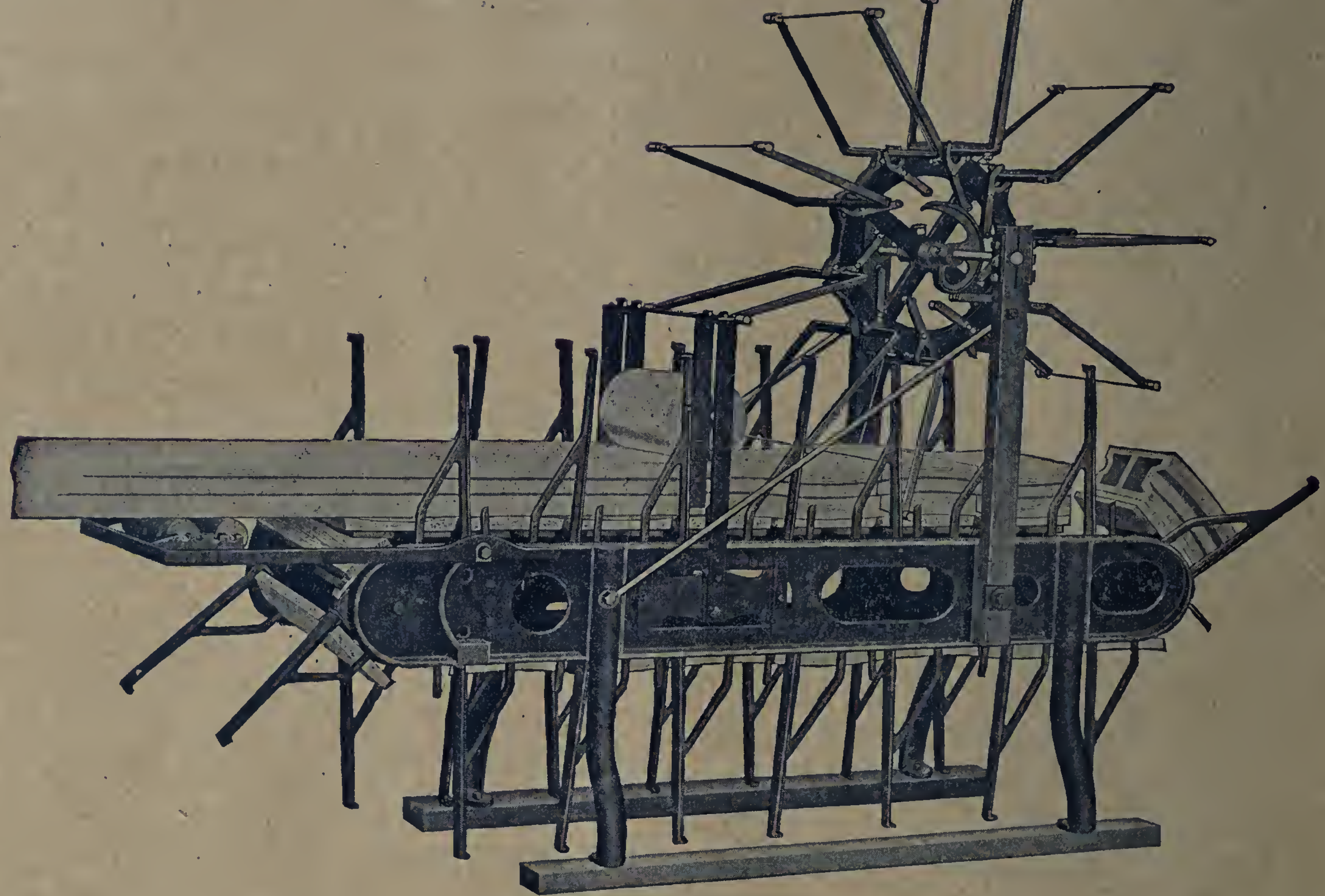
Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

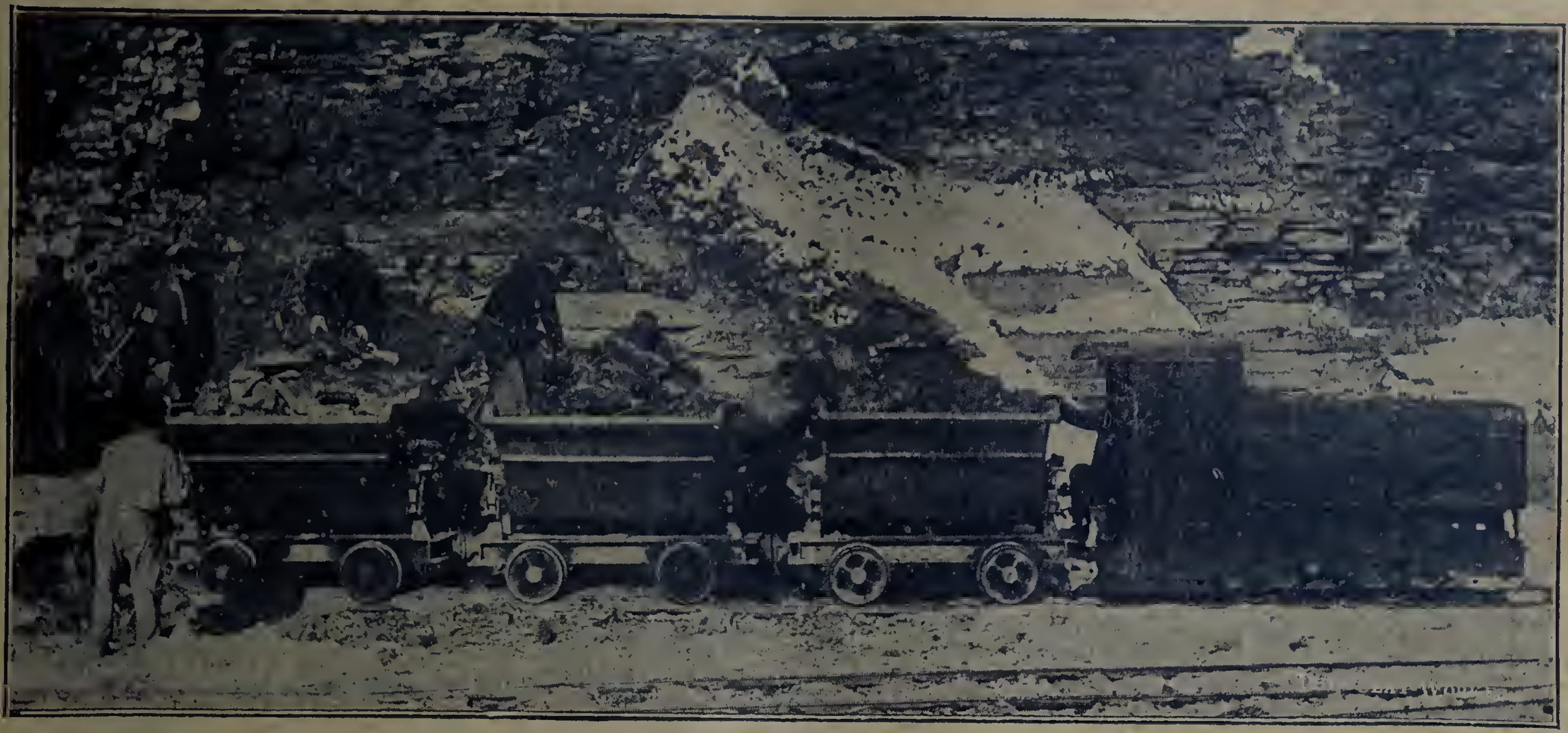
After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

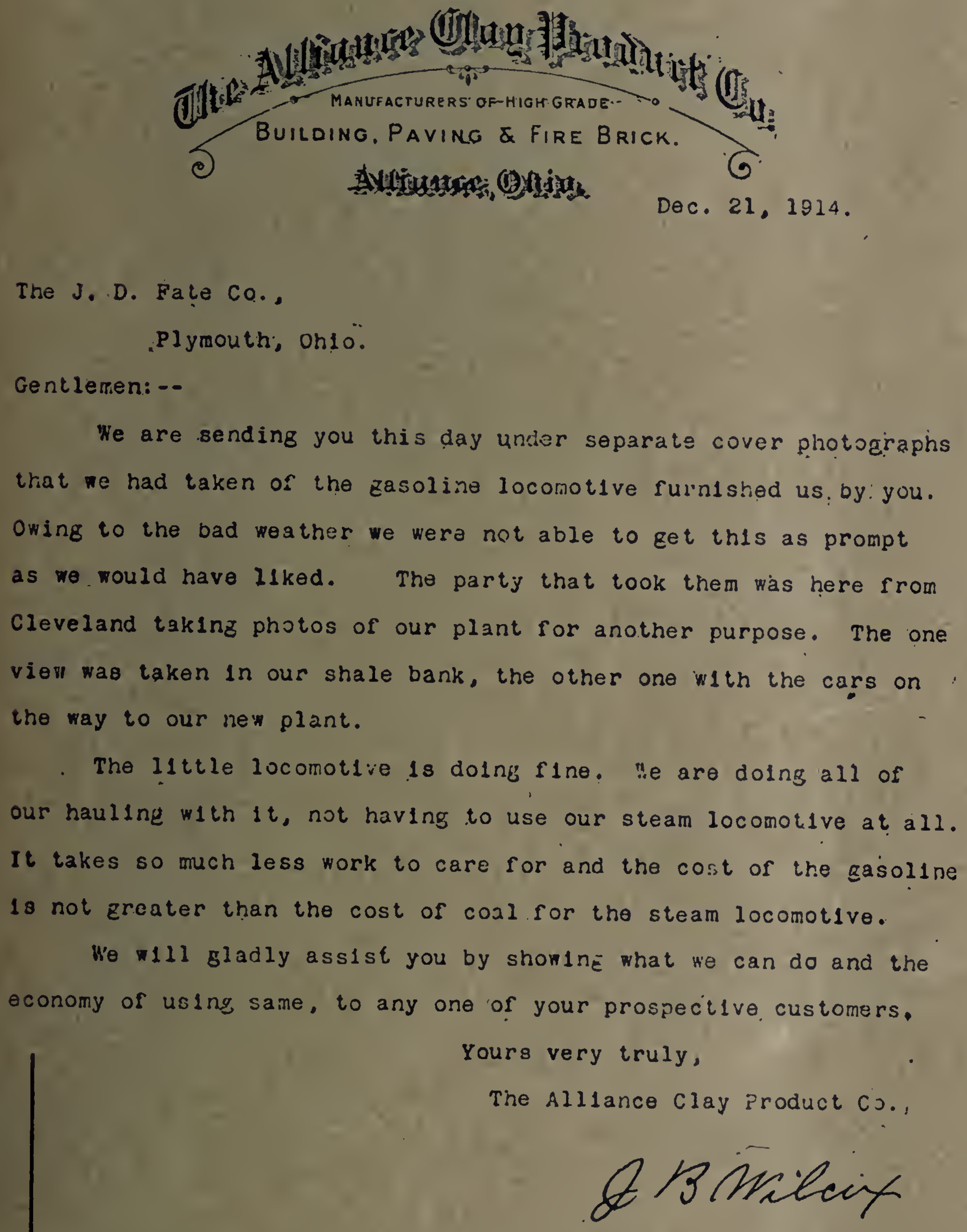
## The J. D. Fate Company

Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O



The Alliance Clay Product Co.
Manufacturers of High Grade
Building, Paving & Fire Brick.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
Plymouth, Ohio.

Gentlemen:--

We are sending you this day under separate cover photographs that we had taken of the gasoline locomotive furnished us by you. Owing to the bad weather we were not able to get this as prompt as we would have liked. The party that took them was here from Cleveland taking photos of our plant for another purpose. The one view was taken in our shale bank, the other one with the cars on the way to our new plant.

The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers.

Yours very truly,

The Alliance Clay Product Co.,

J B Wilcox

# The "PLYMOUTH"

## is the

## IDEAL HAULAGE for CLAY PLANTS.

Efficient, Economical to Operate, Low in Price and Low in Upkeep.

Any Speed—Forward or Backward—Power Equal in Both Directions.

No Licensed Engineer Required.

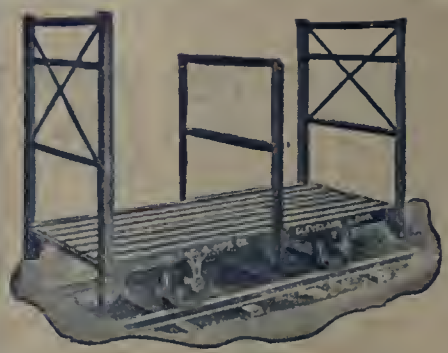
Eats Only When it Works.

Continental 4-Cylinder Motor, Bosch High Tension Magneto, Schebler Carburetor, Hyatt Roller and New Departure Ball Bearings—Power, Brakes and Sand on all 4 wheels, and all parts very accessible. Any Gauge, 20-inch to Standard.

Let us tell you more about them, and how an 8-year old boy operates one in a clay plant at Morrisonville, Ill.

## The J. D. FATE CO.

Eastern Office, Woolworth Bldg., New York City
Western Office, Blake-McFall Bldg., Portland, Ore.

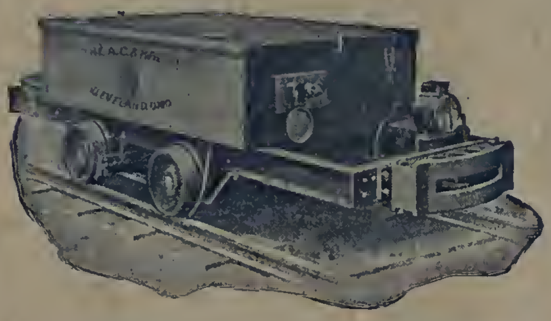


REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives



Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

# BAIRD
## POT MOLDING MACHINERY

We specialize
Machines
for the
Manufacture
of Pottery
and Guarantee
Every One We Sell

*Write us for information*

**Baird**
**Machine & Mfg. Co.**
54-56 Jefferson Ave.
Detroit, Mich.

With Chase Flexible and Reversible Bearing and Folding Deck.

**Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.**

**The Chase Foundry & Mfg. Co., Columbus, O.**

# "LAKEWOOD LINE CARS"

LAKEWOOD NO. 166

**Dryer Cars**
**Rack Cars**
**Dump Cars**

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
Cleveland, Ohio

Chicago: 506 S. Canal St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802.
Baltimore: Munsey Bldg. Kansas City: N. Y. Life Bldg.

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JULY, 1915

# THE CLAY-WORKER

South Main Portal of Manufactures Building, Panama-Pacific International Exposition. See page 28

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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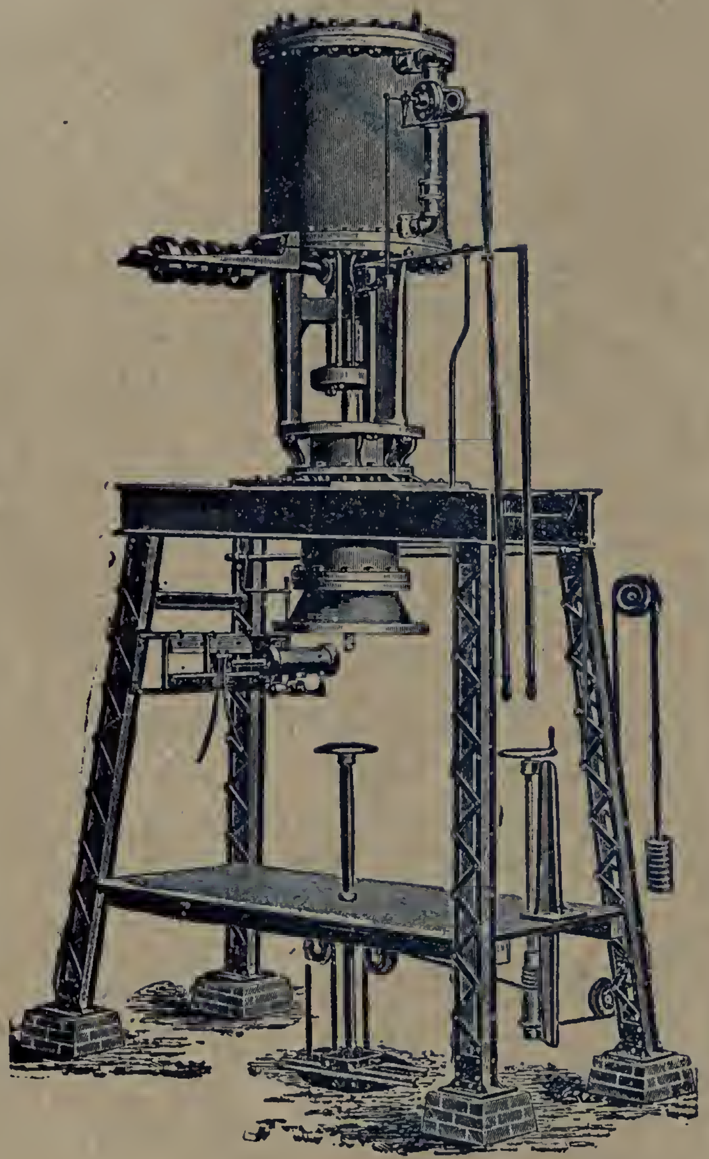
BUYERS' READY REFERENCE LIST
Pages 7, 9, 11 and 13.

INDEX TO ADS
Page 95.

All men get stung sometime. Some men get stung all the time, except the ones who buy PIONEER CLAYWORKING MACHINERY.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT, and well known, proved results.

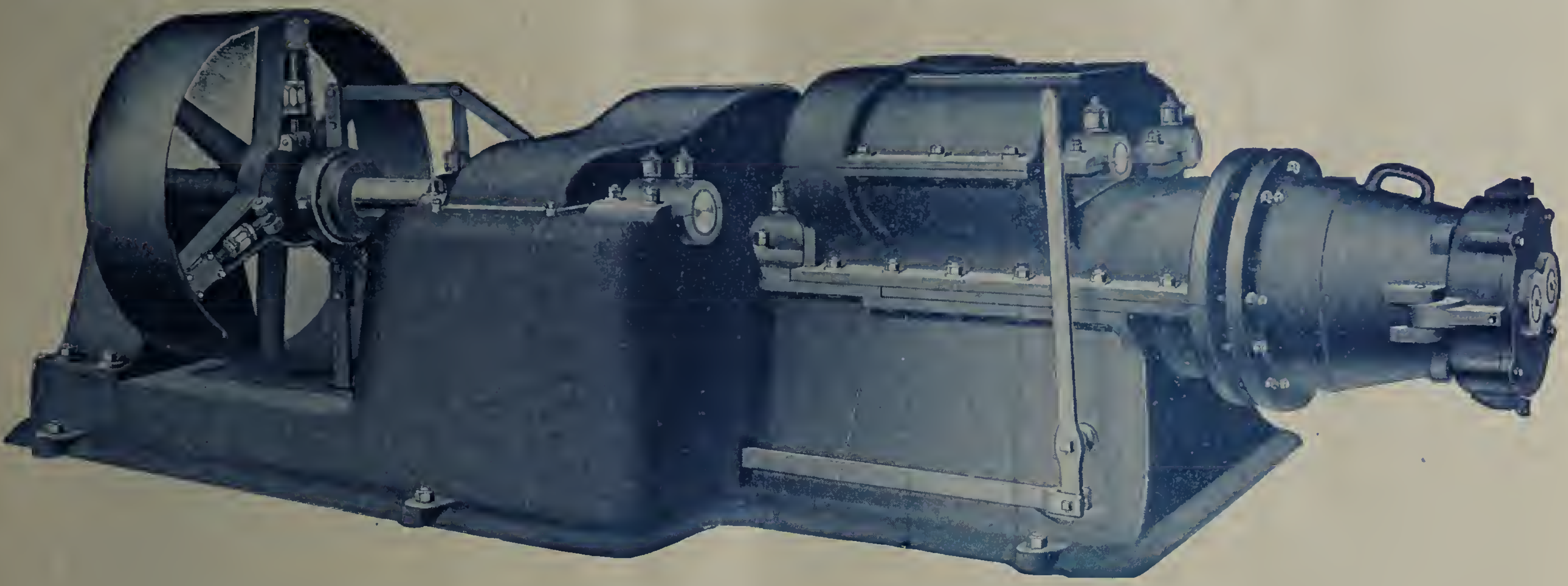
Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

**THE TAPLIN, RICE-CLERKIN CO.**

**Akron, Ohio**

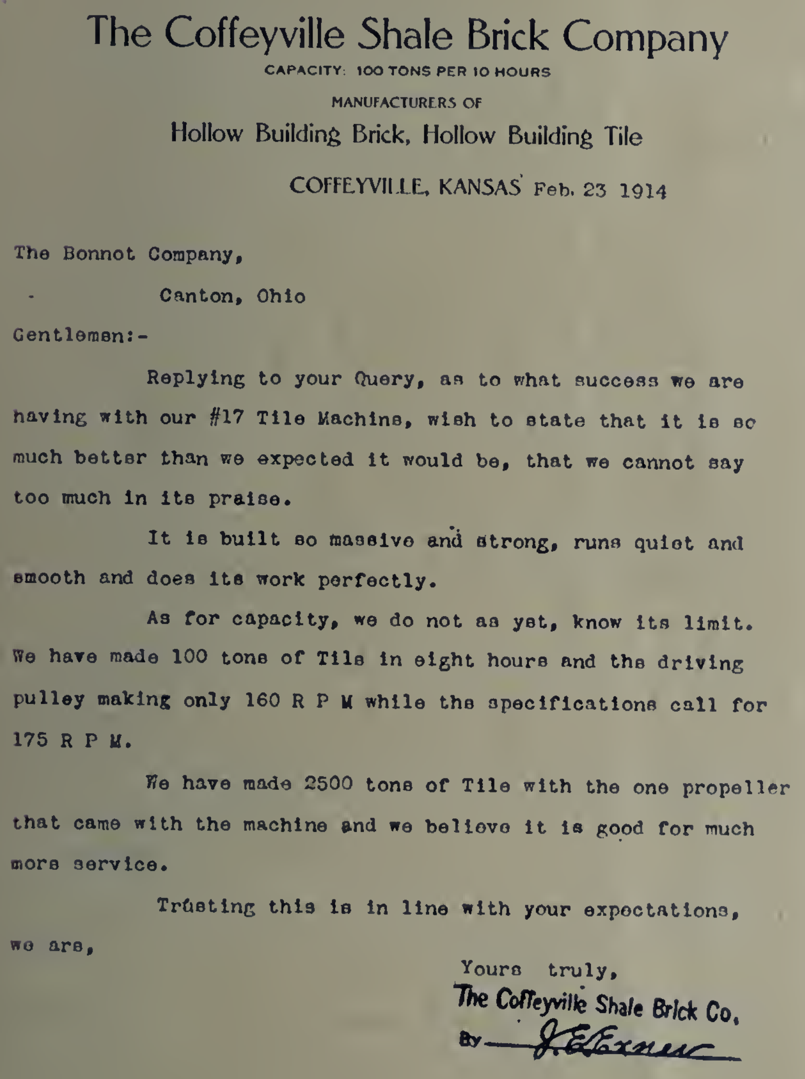
The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

# MAKING HOLLOWWARE FOR PROFIT



## Bonnot No. 17 Hollowware Machine.

Hollowware is made most successfully on a machine built especially for that purpose. The No. 17 is just such a special machine, and it combines also the very best in design and construction from the standpoint of durability and output.



The Coffeyville Shale Brick Company
CAPACITY: 100 TONS PER 10 HOURS
MANUFACTURERS OF
Hollow Building Brick, Hollow Building Tile
COFFEYVILLE, KANSAS Feb. 23 1914

The Bonnot Company,
Canton, Ohio
Gentlemen:-

Replying to your Query, as to what success we are having with our #17 Tile Machine, wish to state that it is so much better than we expected it would be, that we cannot say too much in its praise.

It is built so massive and strong, runs quiet and smooth and does its work perfectly.

As for capacity, we do not as yet, know its limit. We have made 100 tons of Tile in eight hours and the driving pulley making only 160 R P M while the specifications call for 175 R P M.

We have made 2500 tons of Tile with the one propeller that came with the machine and we believe it is good for much more service.

Trusting this is in line with your expectations, we are,

Yours truly,
The Coffeyville Shale Brick Co.
By J. E. Farmer

# THE BONNOT CO.

## Canton, Ohio

Branches
909 N. Y. Life Bldg. KANSAS CITY, MO.
211 Higgins Bldg. LOS ANGELES, CAL.

(Sign and mail this coupon)

..............................1915

THE BONNOT CO.
Canton.

Please send me specifications and full information on No. 17 Hollowware machine.

..............................
(Signed)

..............................

PERFORATED STEEL SCREENS

FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

Anything You Want in Perforated Metal.

Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

**See That Flange?**

That is the important Patented Feature of the

**MATHEWS GRAVITY BRICK CONVEYER**

This simple device acts as a guard rail, but is a part of the roller and revolves with it, enabling brick to be conveyed long distances on a very slight grade.

For all Brick Handling purposes, under all conditions, the Mathews conveyer is the only device now in successful use.

No power required.
Easy to operate.
Cheap labor employed.
Portable.
Strong and durable.

Ask for Catalog and list of users.

**Mathews Gravity Carrier Co.**

Branch Offices
In All Leading
American Cities.

Main Office and Factory ELLWOOD CITY, PA.
Branch Factories:-TORONTO, ONT. LONDON, ENG.

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# TAKING A CHANCE

may be risked **SOMETIMES,** but **NEVER** in regard to plant equipment.

A clay may possess all the requiste qualities for the production of a high grade brick, but, if improperly handled, the finished product will not fail to prove low grade.

Taking a dryer equipment chance is foolhardy. A dependable dryer is a brickmaker's ablest ally.

**RODGERS WASTE HEAT DRYERS** eliminate chance. They insure the production of the finest finished product to be made of the clays they handle and are the dryers installed by those who realize the lack of wisdom in

**TAKING A CHANCE**

---

## L. E. RODGERS ENGINEERING CO.

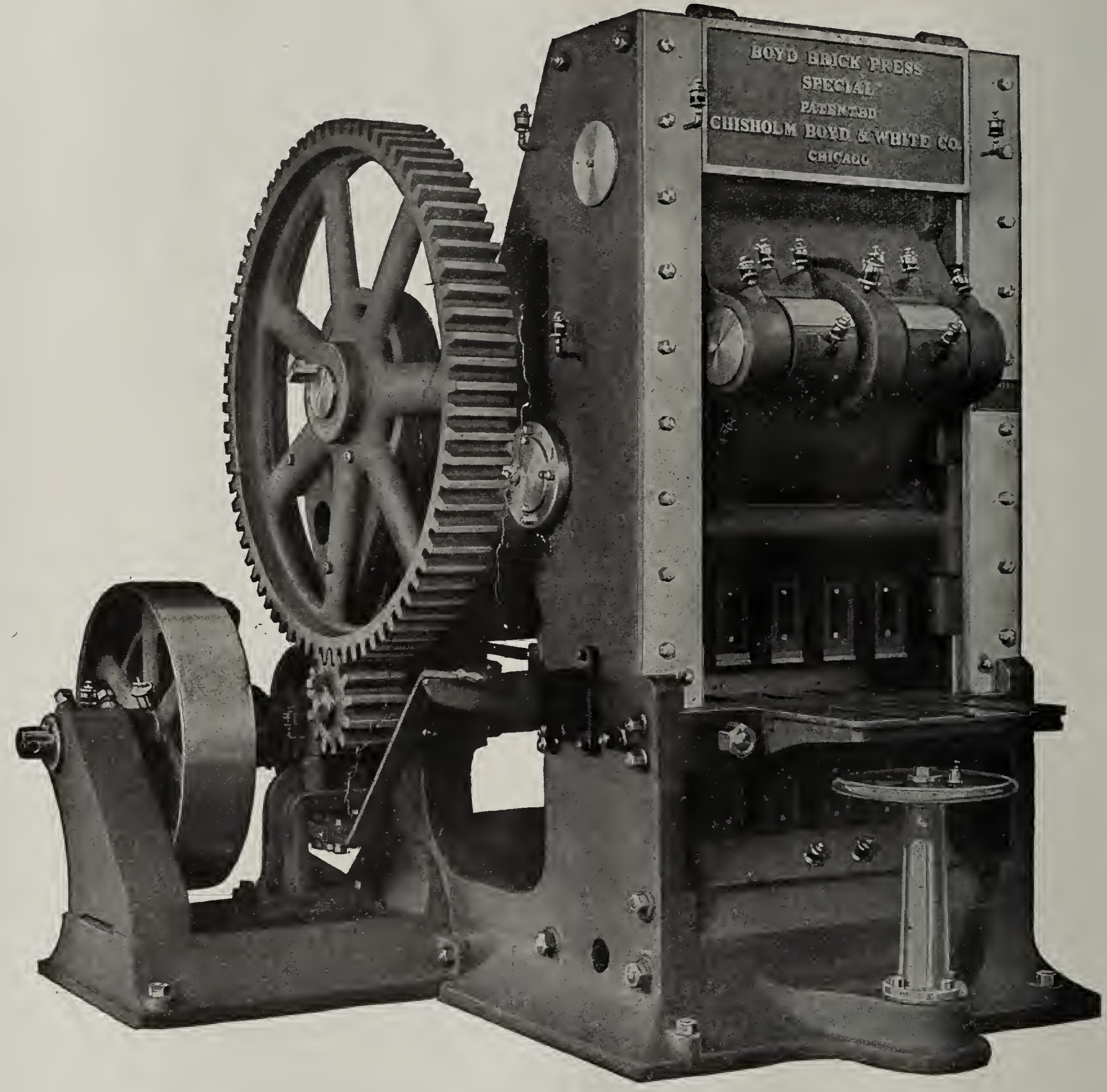
**Waste Heat Dryer Specialists**
**Brick Works Engineers**

**Largest Manufacturers of Brick Drying Equipment in the United States**

**30 North LaSalle St. .:. .:. CHICAGO**

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED=PRESSURE—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

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### Ammeters.
TheBrown Instrument Co.

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Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Arch Cutting Apparatus.
Ceramic Supply & Con. Co.

### Automatic Clay Bin Emptier.
Fate Co., The J. D.
Raymond Co., The C. W.

### Automatic Cutting Tables.
(See Cutting Tables.)

### Barrows and Trucks.
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Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
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Fate Co., The J. D.
Freese & Co., E. M.
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Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
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Wellington Machine Co.

### Barytes, Carbonate of
Roessler-Hasslacher Chem. Co.

### Bearings, Roller.
(See Supplies.)

### Belting.
Ceramic Supply & Con. Co.
Gandy Belting Co.
Sawyer Belting Co.

### Belt Conveyors.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Blowers.
American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

### Brick (Building).
Bloomfield Clay Co.
Hydraulic Press Brick Co.
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.

### Brick and Tile Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.
Wellington Machine Co.

### Brick Machines (Stiff Mud.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press.)
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

### Brick Recutter.
Raymond Co., The C. W.

### Brick Setting Machinery.
American Clay Machinery Co.

### Buffing Machinery.
American Clay Machinery Co.

### Burning and Drying Systems.
American Blower Company.
Boss, John C.
Dennis, F. W.
Koch, J. J.
Manufacturers Equipment Co.
National Dry Kiln Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

### Cars.
(See Dryer and Dumping Cars.)

### Castings.
Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.
American Pulverizer Co.
Arbuckle & Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Clays.
Bloomfield Clay Co., The.

### Clay Dryers.
American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Marion Machine, Fdy. & Sup. Co.
Raymond Co., The C. W.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.
Stevenson Co., The.

### Clay Gatherers.
(See Scrapers.)

### Clay Steamers.
Raymond Co., The C. W.

### Clay Technologists.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.
(See Supplies.)

### Coloring Materials.
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.
Orton, Edward, Jr.

### Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.
Ceramic Supply & Con. Co.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick and Tile.)
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Drills.
Ceramic Supply & Con. Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

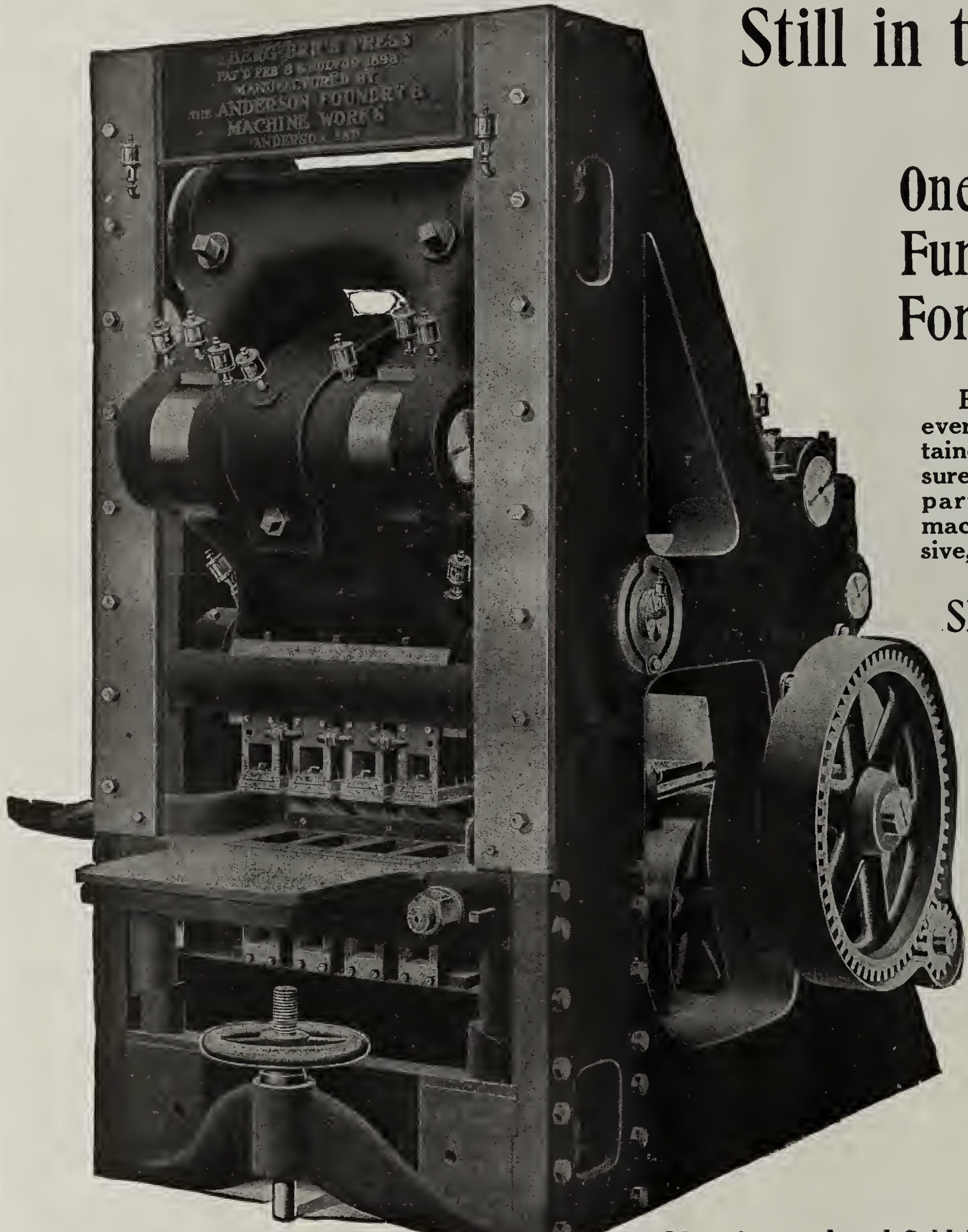
### Dryers.
American Blower Company.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.

(Continued on page 9.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.


BERG BRICK PRESS
PAT'D FEB 8 & JULY 29 1898
MANUFACTURED BY
THE ANDERSON FOUNDRY & MACHINE WORKS
ANDERSON, IND.

## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

**SHIPPED IN ONE PIECE.**

**All Machines Are Equipped With**

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

**ANDERSON, IND.**

## Buyers Ready Reference List—Continued.

Standard Dry Kiln Co., The.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

**Dry and Wet Pans.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Dump and Clay Cars.**

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wellington Machine Co.

**Electric Instruments.**

Brown Instrument Co., The.
Thwing Instrument Co.

**Electric Shovels.**

Thew Automatic Shovel Co.

**Electrical Furnaces.**

Brown Instrument Co., The.
Richardson-Lovejoy Engr. Co.

**Electrical Locomotives.**

Atlas Car & Mfg. Co.

**Electrical Supplies.**

American Clay Machinery Co.
Raymond Co., The C. W.
Westinghouse Elec. & Mfg. Co.

**Elevating Equipment.**

(See Conveyors.)

**Engines.**

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

**Engineers.**

Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

**Fans.**

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Feed Water Heaters.**

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

**Filler (Paving).**

Barrett Mfg. Co.

**Filter Presses.**

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Fire Brick and Fire Clay.**

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

**Fire Clay.**

Bloomfield Clay Co.

**Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Flower Pot Machinery.**

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The.
Taplin-Rice-Clerkin Co.

**Friction Clutch Pulleys.**

(See Supplies.)

**Furnaces.**

Brown Instrument Co., The.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

**Gas Fire Continuous Kilns.**

Raymond Co., The C. W.

**Gears.**

(See Supplies.)

**Granulators.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Grates.**

Marion Machine, Fdy. & Sup. Co.
Potts & Co., C. & A.

**Gravity Carriers.**

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

**Gravity Haulage.**

American Clay Machinery Co.

**Grouter.**

Marsh-Capron Mfg. Co.

**Hand-Power Presses.**

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

**Hollow Blocks.**

Smith, W. W.

**Hand Winch.**

(See Supplies.)

**Hangers.**

(See Supplies.)

**Hoists.**

(See Supplies.)

**Hollow Block Machinery.**

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Illustrators.**

Lamb, J. & R.

**Insurance.**

Mantel, Tile & Grate Monthly.

**Jacks.**

(See Supplies.)

(Continued on page 11.)

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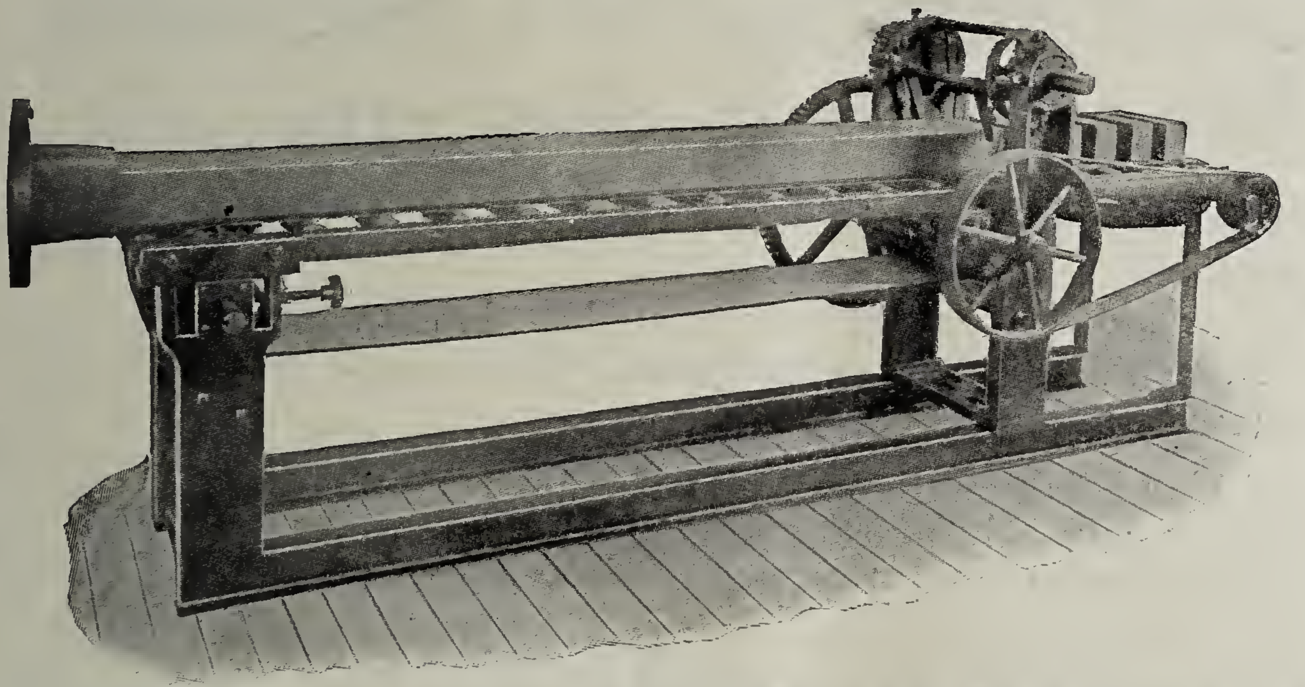
# MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

## ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

## MUELLER BROS.

**1436 Macklind Ave.** (on Frisco Tracks) **ST. LOUIS, MO.**

The Layton, Pa., Plant of the Kier Fire Brick Co.

**BUILD
WITH
BRICK**

# 25,000 Silica Fire Brick

## are being dried every day by the

# Sirocco

TRADE MARK.

# Waste Heat System

are dried economically at the Layton, Pa., Plant of the Kier Fire Brick Co.

They decided to convert their waste heat into a valuable drying element. You can do the same. The cost is small as compared to the results obtained.

Our Brick Engineering Department will lay out a Sirocco System for you, by the installation of which **you** can turn a **waste** into a **gain.**

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.

St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
Dallas, Texas, Southwestern Life Insurance Bldg.

San Francisco, Cal., 667 Mission St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lemcke Annex.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

**Kilns.**

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Klose, A.
Klose, K. W.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred.

**Kilns, Doors, Castings and Frames.**

(See Supplies.)

**Kiln Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Kiln Furnaces.**

Illinois Supply & Con. Co.

**Knives.**

(See Supplies.)

**Locomotives.**

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

**Manganese.**

(See Coloring Materials.)

**Mechanical Draft.**

Boss, J. C.
Rodgers Engr. Co., The L. E.

**Mineral Paint.**

(See Coloring Materials.)

**Molds (Brick).**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

**Mold Sanders.**

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

**Mortar Colors.**

(See Coloring Materials.)

**Motor Trucks.**

Fate, Co., The J. D.

**Oil Burners.**

Illinois Supply & Con. Co.

**Paints.**

(See Coloring Materials.)

**Pallets.**

Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

**Pans (Dry and Wet).**

(See Dry and Wet Pans.)

**Paving Brick or Block.**

(See Brick.)

**Perforated Sheet Metal.**

Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Harrington & King Perf. Co.

**Pitch (Paving).**

Barrett Mfg. Co.

**Plows.**

(See Scrapers.)

**Poidometers.**

Schaffer Eng. & Equip. Co.

**Portable Track.**

Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

**Pottery Machinery.**

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The.
Taplin-Rice-Clerkin Co.

**Power Plant Equipment.**

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Presses.**

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

**Pug Mills.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Pulleys.**

(See Supplies.)

**Pulverizers.**

American Pulverizer Co.
Fate Co., The J. D.
Taplin-Rice-Clerkin Co.

**Pumps.**

Ceramic Supply & Con. Co.
Dean Bros. Steam Pump Wks.
Potts & Co., C. & A.

**Pyrometers.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

**Rails and Railway Equipment.**

Atlas Car and Mfg. Co.
Arbuckle & Co.
Ceramic Supply & Con. Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

**Rattlers (Paving Brick).**

Ceramic Supply and Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

**Recording Gauges.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

**Represses.**

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson & Co.

**Revolution Indicators.**

Brown Instrument Co.
Ceramic Supply & Constr. Co.

**Revolving Steam Shovels.**

Thew Automatic Shovel Co.

(Continued on page 13.)

**When the Demand for Brick is Slack**

Is the time to improve your plant operation and secure reduced operating costs.

Others have done it by installing Westinghouse Motors and by using Central Station Power.

Our power engineers have studied the power requirements of clayworking plants and have helped many companies to save money.

How they did it makes a very interesting story. Their services are free.

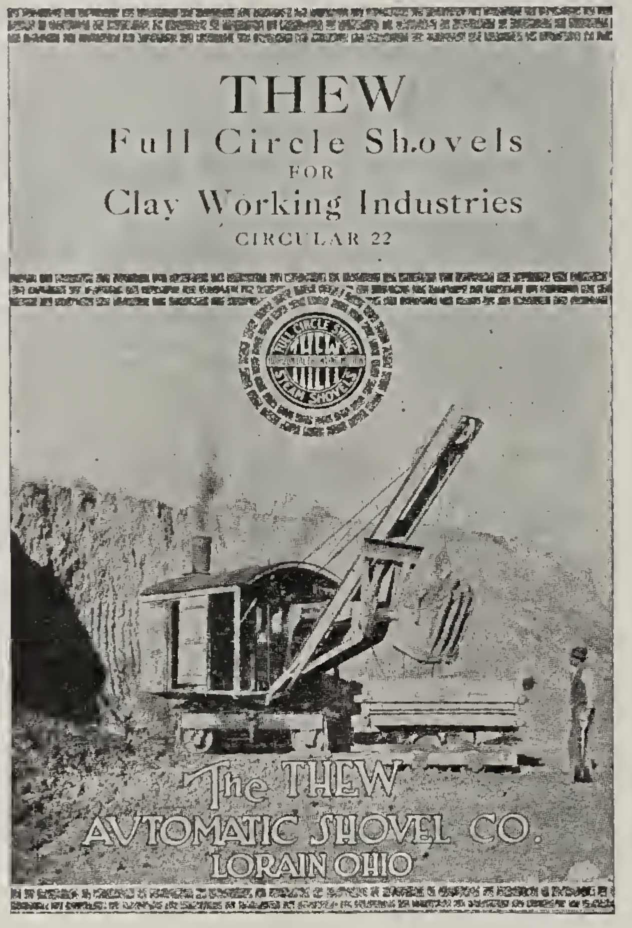
**Westinghouse Electric & Manufacturing Co.**

Sales offices in all
large American cities

W
WESTINGHOUSE ELECTRIC

East Pittsburgh,
Pennsylvania

# A New Book Specially Prepared for Clayworkers



THEW
Full Circle Shovels
FOR
Clay Working Industries
CIRCULAR 22

The THEW
AUTOMATIC SHOVEL CO.
LORAIN OHIO

THIS booklet contains information regarding Thew Shovels, of particular interest to those in clayworking industries.

Fifty-five actual records of the cost for digging material with a Thew Shovel are shown, and the operation of Thew Shovels as particularly applied to this work is interestingly explained.

This is a book, in fact, that will be of interest to everyone connected with the Clayworking Industry, whether considering the purchase of a steam shovel or not.

**Sign and mail or use for memorandum.**

City.................... Date..................

Thew Automatic Shovel Co., Lorain, Ohio:

Gentlemen—Send us your special Clayworker's booklet, Gasoline Shovel Circular and any other data which you may consider of interest to us.

Bank is........feet high.

Our material which is $\left\{\begin{matrix}\text{clay}\\\text{shale}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{can}\\\text{cannot}\end{matrix}\right\}$ be handled without blasting with picks and shovels.

We use........... $\left\{\begin{matrix}\text{yards}\\\text{tons}\end{matrix}\right\}$ of material daily, operating ........days per year.

Remarks..............................................

Firm..............................................

By..............................................

# Facts About The Thew Gasoline Shovel---

## Ideal for Digging Clay and Shale

**NOT AN EXPERIMENT.** With the exception of the power equipment and the means of transmitting it, the Thew Gasoline Shovel is exactly like standard Thew Shovels whose record is substantially established. Power is supplied by a 35 horse power gasoline engine of standard make.

**A ONE MAN SHOVEL.** This shovel requires but one operator. The few levers necessary to control the mechanism are within easy reach and the machine can work without interruption, as no time need be taken for firing.

**REDUCED OPERATING COST.** The gasoline engine uses only two gallons of fuel per hour at a cost of from 20 to 30 cents, and a barrel of gasoline will last 3 days.

**WATER SUPPLY.** A small supply of water is needed only to cool the gasoline engine and when the water tank is filled up, it will last for a week or longer. A non-freezing mixture does away with the danger of freezing in winter.

**BOILER TROUBLES AVOIDED.** The gasoline engine takes the place of the boiler, and, therefore, no state or local boiler requirements are to be conformed to, and no boiler insurance or other boiler expense must be encountered. All boiler troubles and expense for maintenance are done away with.

These and other advantages are explained in special gasoline shovel circular—a copy of which will be sent on request.

Type 0 Thew Gasoline Shovel
¾ yard bucket.

**THE THEW AUTOMATIC SHOVEL CO.** LORAIN OHIO

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.
Wellington Machine Co.

### Sand Dryers and Sand Sieves.

Ceramic Supply & Con. Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Central Iron Works.
Eagle Iron Works.
Illinois Supply & Con. Co.

### Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Stevenson Co., The

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(See Supplies.)

### Steam Shovels.

Thew Automatic Shovel Co.

### Steam Specialties.

Dean Bros., Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

### Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
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### Steel Pallets.

Ohio Galvanizing Co.
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### Supplies.

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Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Switches.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., H.
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

Fate Co., The J. D.

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American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

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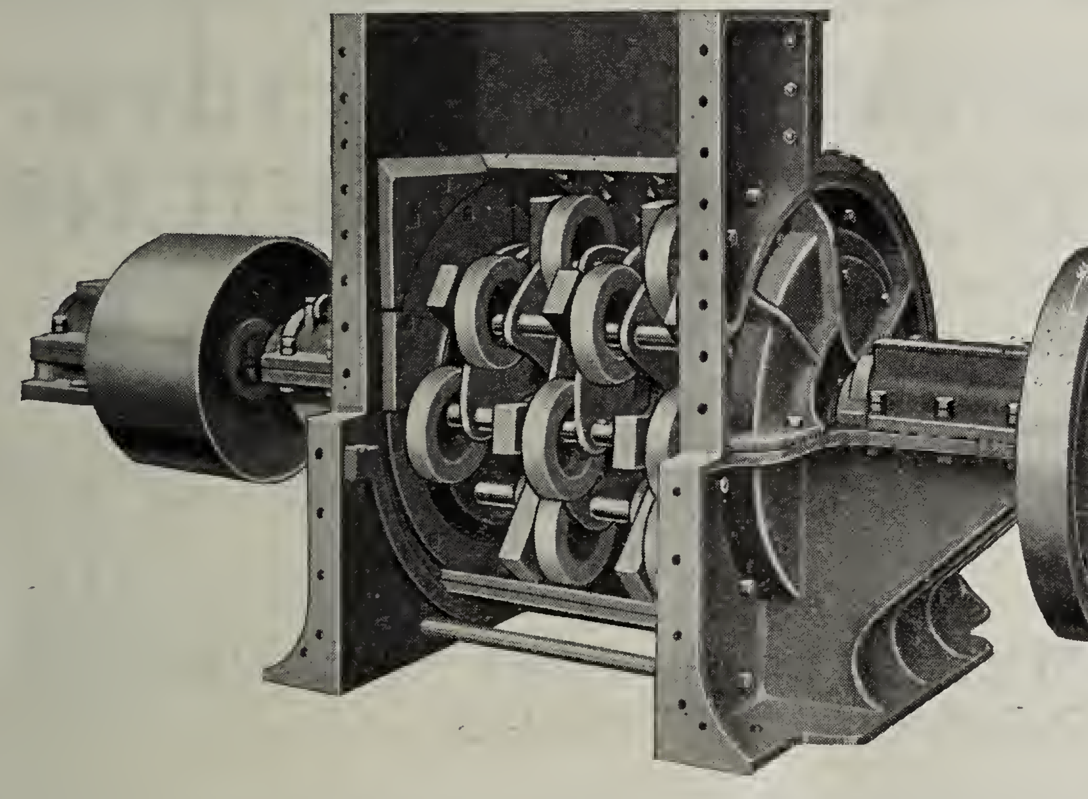


Powerful Housing—fully lined with chilled iron and Manganese Steel. 5 in. diameter shaft.

All crushing and grinding parts are made of

**MANGANESE STEEL**

**IF YOU WANT A GRINDER, GET THE BEST.**

Webster City, Iowa, April 29, 1915.

Gentlemen—Before deciding upon the kind of Clay Grinding Machinery to install in our factory, we made a very careful examination of the different makes of Dry Pans and Hammer Pulverizers. After watching them while in actual operation in several different factories, and after hearing the reports of those using the various makes, we were very much in favor of your Ring Pulverizer, and installed same spring of 1913.

Our clays and shales are quite difficult to grind. Some stratas are soft and some are extremely hard. A Dry Pan could not handle all these different stratas satisfactorily, but your Ring Pulverizer No. 48 is surely a hummer to turn out the ground clay. In the winter our clay is usually frozen hard, and nothing but your machine will handle it with sufficient rapidity to keep a plant the size of ours going.

We consider ourselves very fortunate, indeed, in having decided upon your machine. It does the work of two or three ordinary Dry Pans, and considering the tonnage obtained, is as cheap, if not cheaper, to operate and maintain.

Yours truly, NATIONAL SEWER PIPE CO.,
P. W. Hearn, Secretary.

Write us. Describe your material—Tons per hour—Screen fineness.

**AMERICAN PULVERIZER CO., East St. Louis, Ill.**

Trautwein
DRYERS

# INSURE YOUR CAPACITY

To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

## ASSURANCE

Of Increased Capacity
Greatest Economy
And Largest Profits

OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

**Trautwein Dryer & Engineering Co.**
**Manufacturers-Engineers**
**417 South Dearborn Street Chicago**

# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP-TO-DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

**Claude Smith Company**
**KILN BUILDERS**
**Plymouth Building Chicago, Illinois**

# JOIN THE

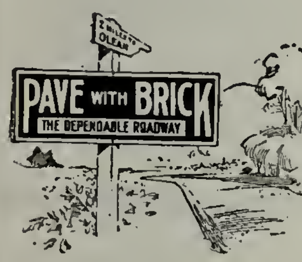
**BOOST** **BOOST**

# BUILD WITH BRICK

# CAMPAIGN

A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

## THE BUILD WITH BRICK MOVEMENT.



IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.

It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.

Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background. These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.

Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.

**T. A. Randall & Co., Publishers The Clay-Worker.**

Gentlemen:

You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ..............................................................

..............................................................

(Cross out the items not wanted, fill in and mail us the coupon.)

**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country."
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

**SHAWMUT VITRIFIED PAVING BRICK WORKS**

Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

**The Barr Clay Co.**

C. C. Barr, Pres. • Streator, Ill.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

**KUSHEQUA**

Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

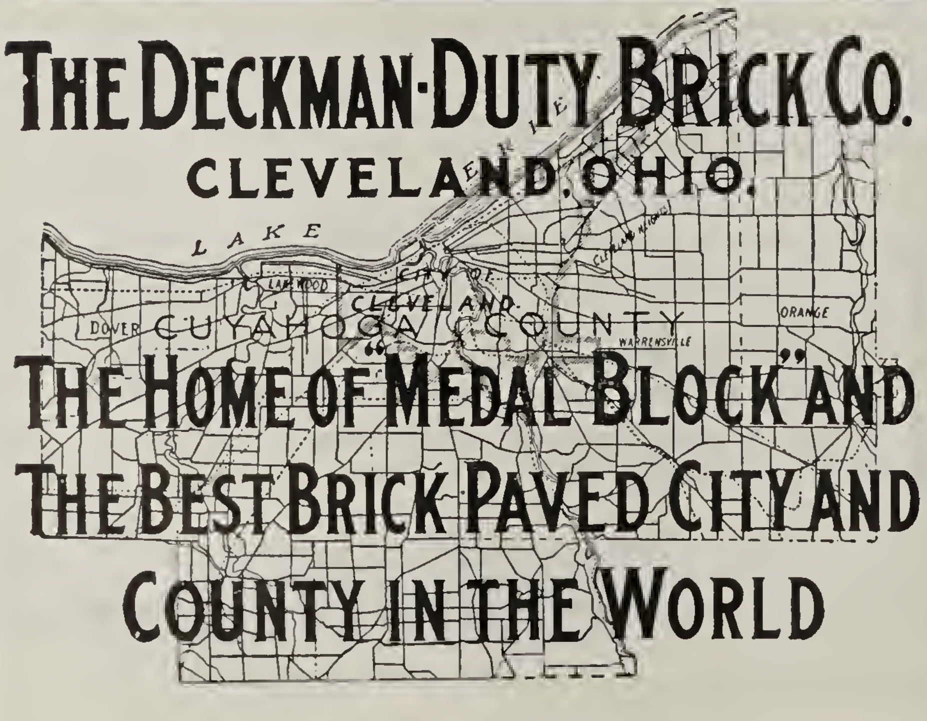
**PROMENADE TILE**

Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

**Tile Underdrainage.**

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.



**THE DECKMAN-DUTY BRICK CO.**

CLEVELAND, OHIO.

THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

**ALTON BRICK COMPANY**

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

**McAVOY VITRIFIED BRICK COMPANY**

PHILADELPHIA, PA.
*"McAVOY BLOCK"*

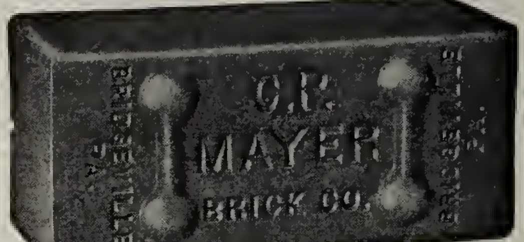
**VITRIFIED PAVING BRICK.**

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of $2.00.

T. A. RANDALL & CO., Publishers, Indianapolis.

**C. P. MAYER BRICK CO.**

BRIDGEVILLE, PA.



The MAYER BLOCK is Unequaled in Abrasion Test.

**"Best Paving Block Made"**

Daily Capacity
500,000

**The Metropolitan Paving Brick Co.**
Canton, Ohio

SERVICE FIRST!

**IRONSTONE BLOCK**

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

**Terre Haute Vitrified Brick Co.**

TERRE HAUTE, IND.

**Murphysboro Paving Brick Company**

Manufacturers of

The Celebrated

**EGYPTIAN PAVING BLOCK**

The Block That Stands the Test.

Prices and samples furnished upon application.

MURPHYSBORO, ILL.

**Do You Want Clay?**

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

**Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.**

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

(C. A. Bloomfield, Treas. and Manager)

P O. Box 413. METUCHEN, N. J.

**CLINTON PAVING BRICK CO.**

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

**Clinton Paving Brick Company**

Clinton, Indiana

**PAVE WITH BRICK**

THE DEPENDABLE ROADWAY

**Bessemer Limestone Company**

Youngstown, Ohio.

Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

**PURINGTON PAVERS**

ARE MADE OF

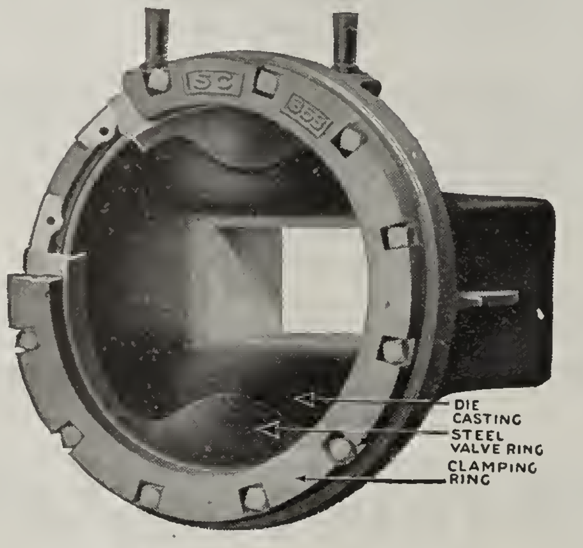
**GALESBURG SHALE**

PURINGTON PAVING BRICK CO.

GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

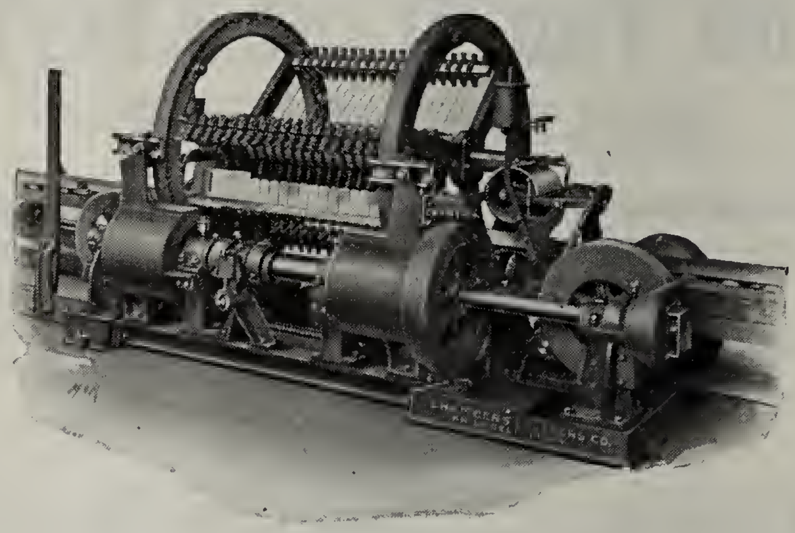
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

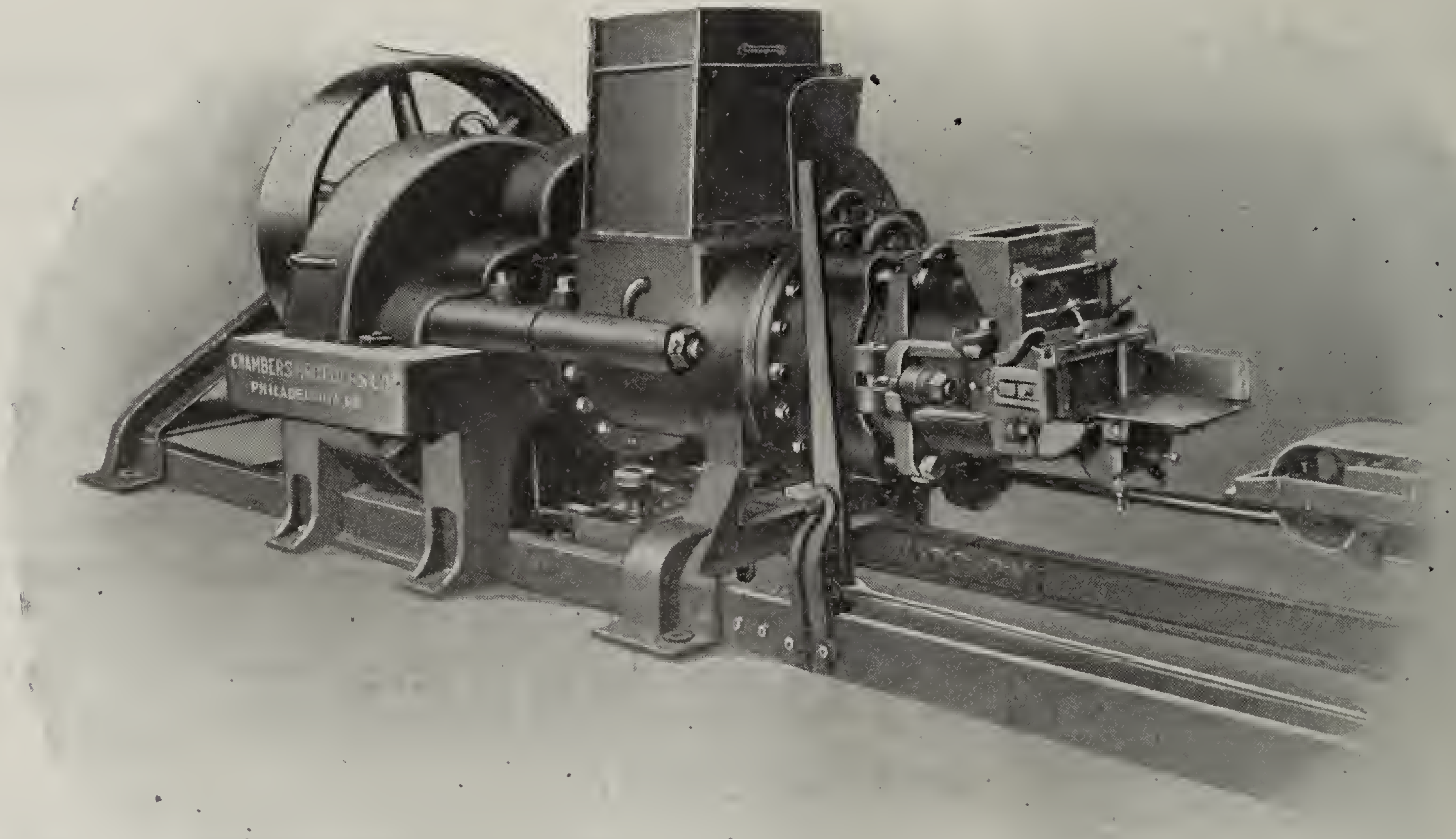
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine—For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

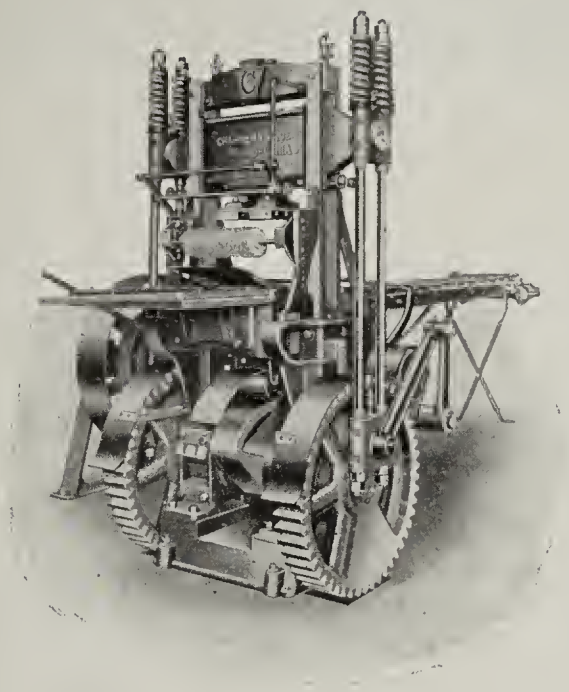
# Chambers Brothers Co., Philadelphia, Pa.

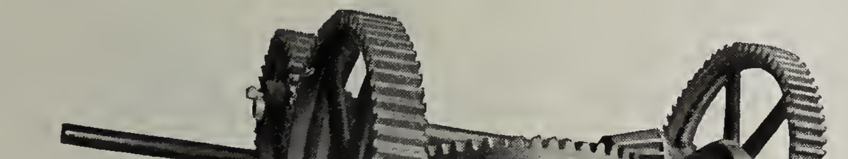
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





THE BELMONT
SOFT MUD BRICK MACHINE

## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

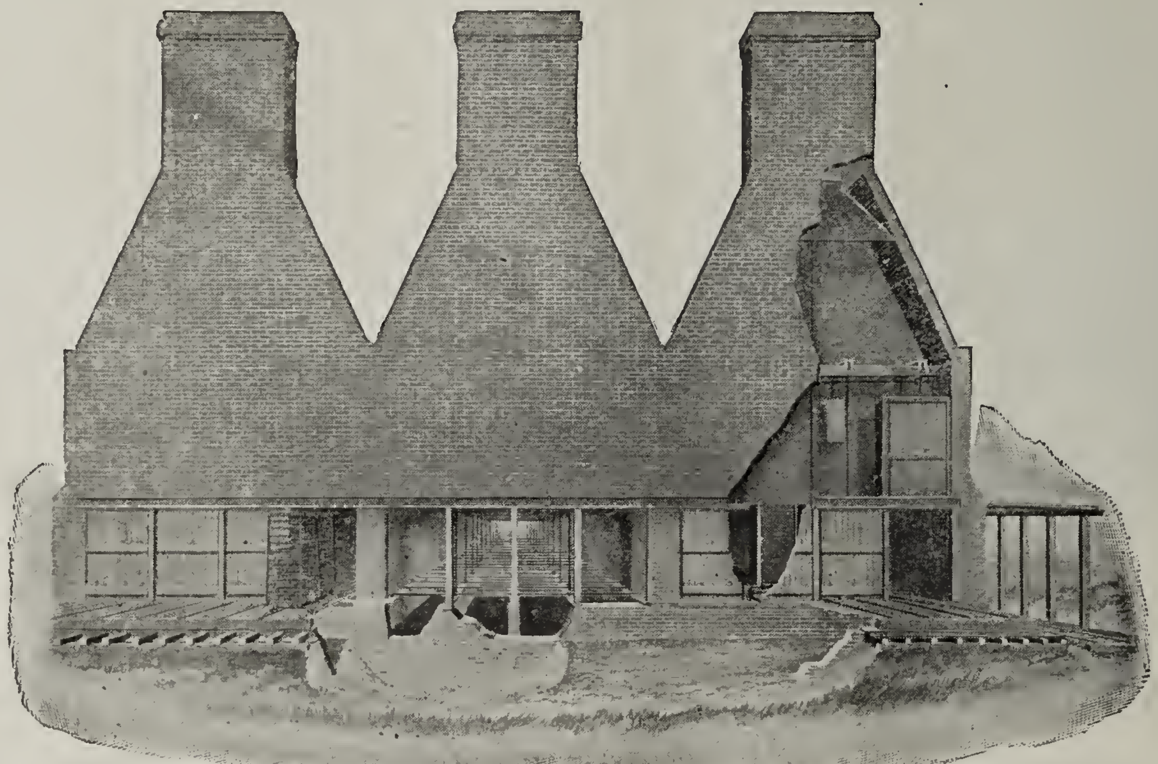
All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

Molds sharp clean edge brick as stiff as can be dumped from the molds.

Here is the point: The man in any business who clings to old-fashioned ways is headed for a sheriff's sale. The brick plant that's falling behind in the race for business can't put in a *modern drying system* a minute too quick.

**The Standard Drier**

is doing wonders with all kinds of clays all over the brickmaking world. Let us refer you to a bunch of "other fellows" who can tell you "from the "heart" how our Natural Draft Drying System will *tone up* your product. They *know*---because they were up against the same troubles before they installed The Standard Drier. Write us today if your drying system is not what it ought to be. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.



THE CLAY-WORKER

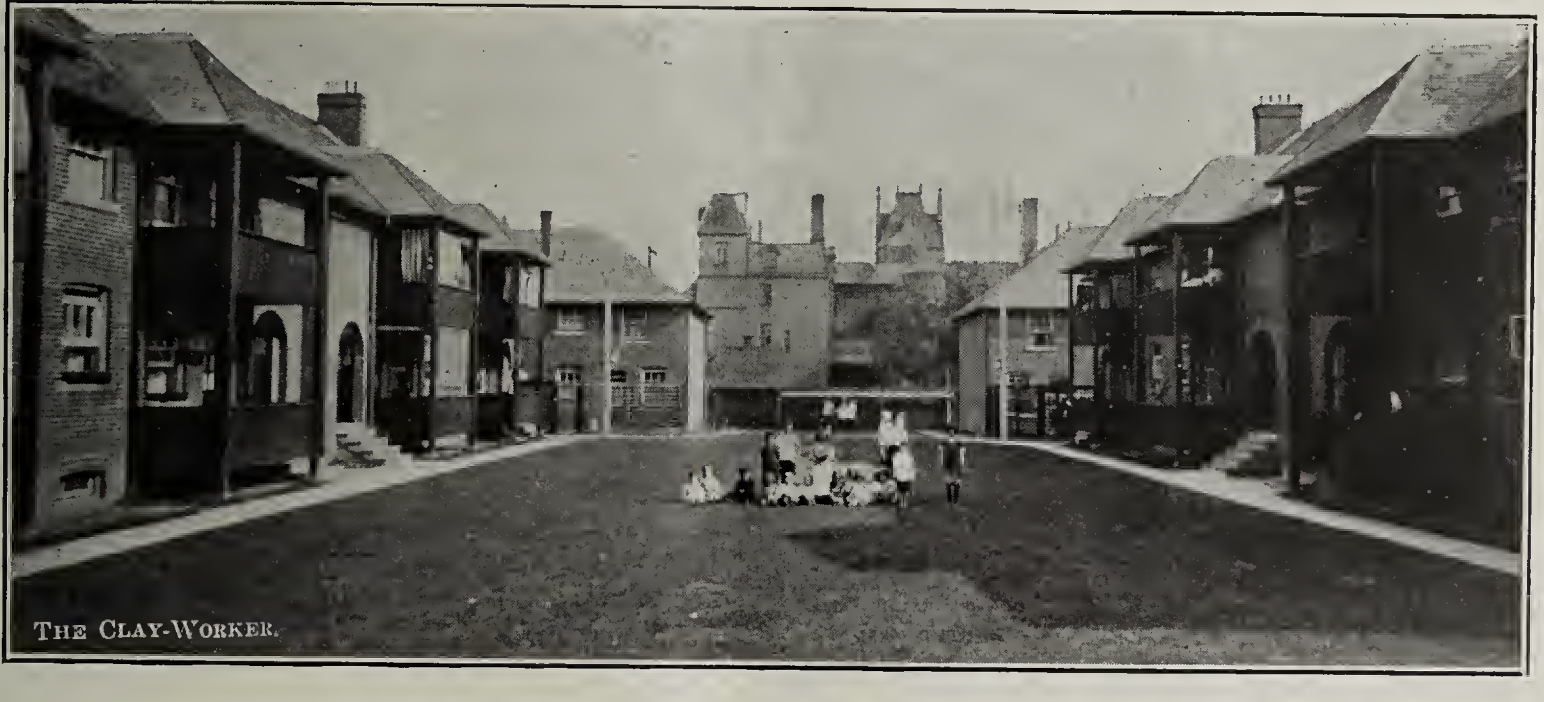
The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIV. INDIANAPOLIS, IND., JULY, 1915. No. 1

# LOW COST BRICK HOMES FOR WAGE EARNERS.

*The following extracts from an article appearing in the Boston Transcript of April 3, entitled "It Is Cheaper to Pay Rent Than Move and in Such Houses as These," relate to the splendid work of the Salem Building Trust in promoting groups of low-rent, brick cottages, and gives convincing proof of the many advantages of brick dwellings over the three-decker frame tenements. The first part of this article appeared in the May issue.*

OTHER very interesting accomplishments come to us from Toronto, Canada. This city is growing so rapidly that housing is its most urgent problem. This has led to joint action of the leading civic and business organizations to solve the question of supplying housing rapidly enough. Toronto, with 100,000 less population than Boston, must supply annually homes for 7,000 new families, while Boston has but 5,500 new families annually.



A Group of Low Rent Brick Homes, Spruce Court. Toronto, Canada
Built by the Toronto Housing Company.

Three "Boston citizens" attended a session of the National City Planning Conference held in Toronto. They report that Toronto has forbidden the erection of wooden dwellings in any but the extreme suburbs, and in consequence, the city is building all fire resisting buildings in the residential, as well as in the business sections.

Frederick Law Olmsted was chairman of the session of the conference, while John Nolen was a member of the executive committee, and John J. Walsh, the third member of the delegation, is a member of Boston's City Planning Board. These gentlemen agreed in the conclusions that Toronto had much to teach and Boston had much to learn. Chief among them was the fact that wooden buildings, and especially wooden tenements, were not necessary from any point of view for the development and growth of metropolitan Boston. If Toronto can afford to disregard the fact of being in the center of the lumber industry of Ontario and build with masonry construction, which costs much more than it does in Boston, then Boston can do as well.

The Toronto Housing Company is pointing the way in Toronto. The method of laying out grounds is far better than the method in Boston. A comparison of the ground plat of the Toronto method with the Dorchester method shows that in a plat of equal area Toronto has 114 families, while Boston's famous Draper road has 105 families in a like sized area.

### Plenty of Ground Area.

The Toronto plan is ideal in utilizing the ground area. The Draper road plan is vicious by way of contrast. Every foot of ground space is utilized in the Toronto plan. There is no back yard "dump ground" to become worse than waste land. The courts, or playgrounds, of the Toronto method give the children protection and safety from the traffic of the streets and from nomadic youthful depravity so typical of street child life of American cities. It was the life work of

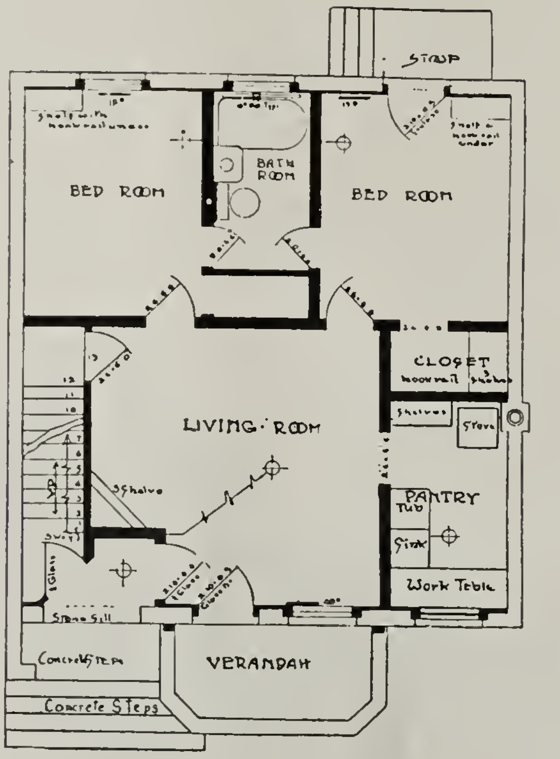
Jacob Riis to provide systems of small city parks for playgrounds. Better a little park at home for the child under the mother's care than high taxes to provide beautiful parks to be visited on rare occasions of the family outings.

A wise provision of the housing company is to lay aside a reserve fund by taking about two-thirds of one month's rent to make repairs as necessary, but to return the fund to the tenant at the year's end if the property requires no repairs. The effect has been to stop nearly all defacement of buildings.

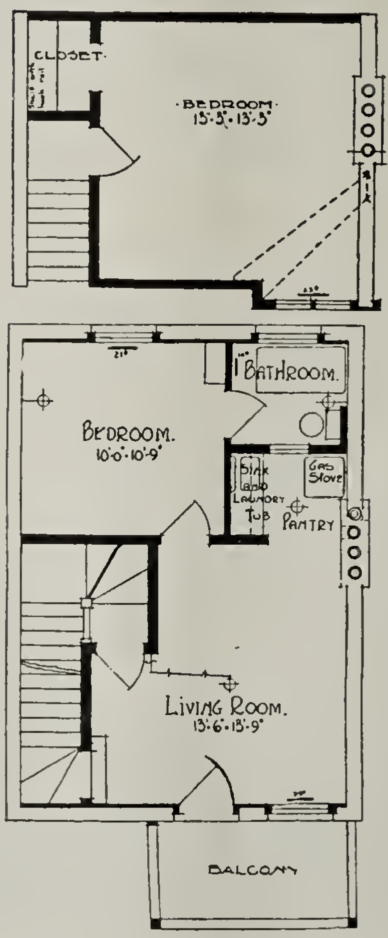
Toronto rentals in these brick cottage dwellings range from $14.50 per month up to $29, and include heat, hot water all the year around and reserve repair fund. The $29 rentals are for 1,100 square feet of floor space. Frame tenements in Boston that give the same accommodations and rental are 1,000 to 1,100 square feet of floor space, out of which must be taken the stair halls, which are common property.

From the annual report of the housing company we learn that "The Toronto Housing Company was organized two years ago after eight months of study and investigation by a joint committee representing the city council, the Civic Guild, the Manufacturers' Association and the Board of Trade. The object of the company from the beginning was not to build a few, or many houses, but to seek a solution for the housing problem. A first step in this undertaking, it was believed, was a comprehensive building program for Toronto. That was why it was decided to form a company instead of an association, the conduct of business necessitating capital and incorporation."

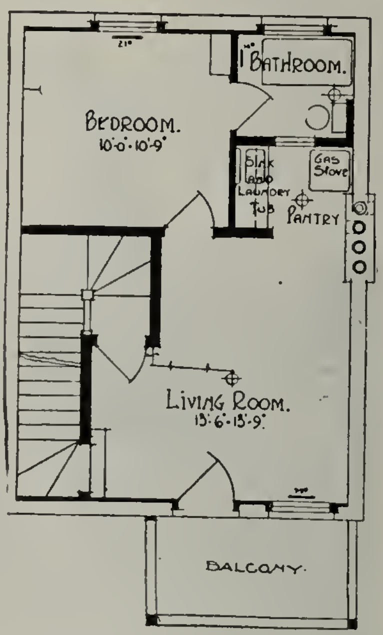
## LOW RENT BRICK HOMES



Plan No. 1.



Plan No. 2.



Plan No. 3.

The company was organized with a capital stock of sufficient size to enable the carrying out of their initial plans and 2,050 feet of frontage within fifteen minutes of the downtown section, and on this tract the first development was made. After very careful consideration the cottage flat was chosen as the first type of building to erect.

A cottage flat is a modern apartment with its own front door to the street. The first buildings are arranged around three grass courts, as shown in the plan. Each building consists of from two to nine houses; each house contains two cottage flats, one downstairs and one upstairs, that is, one on the ground floor, one on the first and second floors. The entire development is to be heated by steam from a central plant and the same plant will furnish hot water to every flat the year round. There are no dark or poorly ventilated rooms, because the buildings have free exposures on all sides and all rooms are outside rooms with no other building that faces them near enough to restrict light or air.

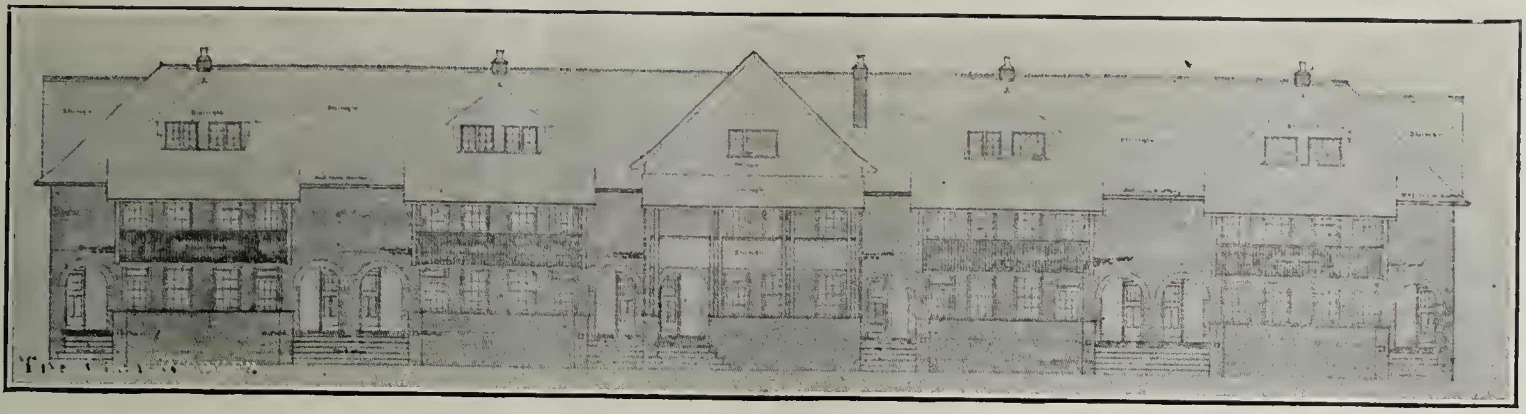
The company has purchased other lands, including a block near this development, and a tract with 685 feet frontage in a more outlying district. On this latter the company will erect single houses, for sale on easy terms. They have also secured two hundred acres for development as a garden suburb just in the borders of the city.

Commenting on the developments of Toronto, Mr. John Nolen says: "I have examined these houses very carefully, and the arrangement is very practical, and could be used, and would be very acceptable in Boston. In all Toronto I find nothing that resembles the kinds of construction so easily seen in some New England apartment house construction. I do not know of any three-decker of wood in any Canadian city, and I am familiar with many of their cities. I should say that there is nothing so dangerous from the point of view of fire. I drove extendedly with a gentleman thoroughly familiar with the city, and my impression was of the great charm and harmony of the buildings. The aesthetic charm of the homes is not excelled by anything in New England."

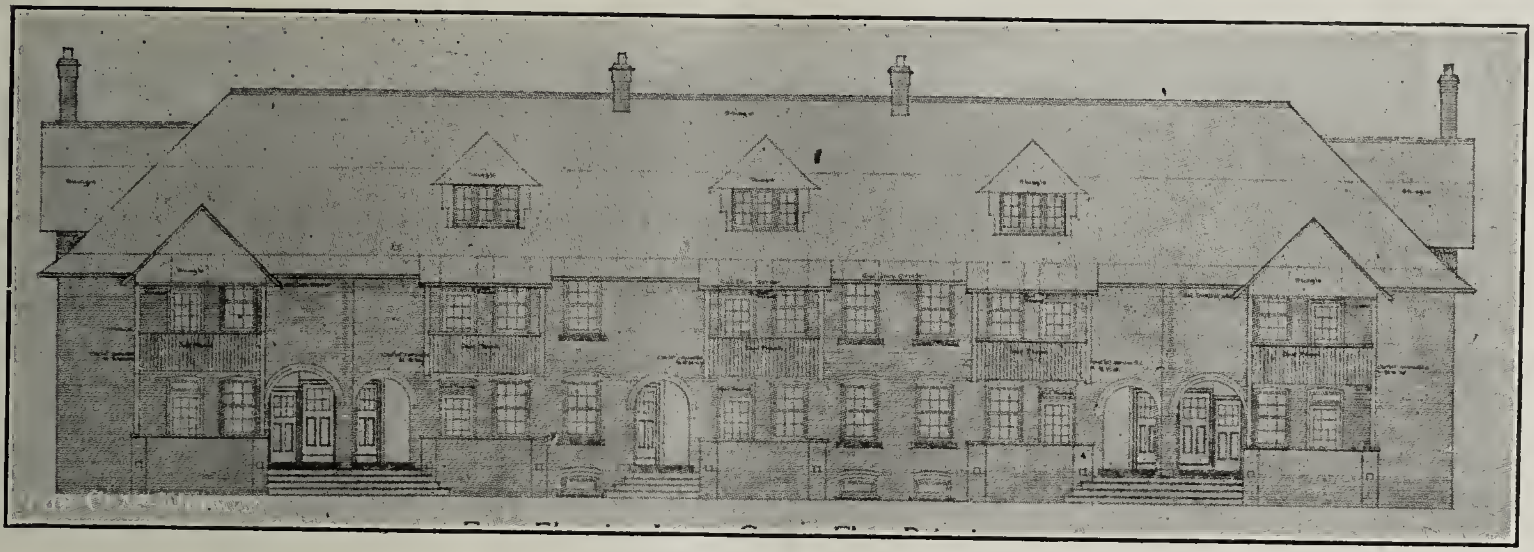
Mr. John J. Walsh, who gave particular attention to gaining practical data, states that over 76,000 families in Toronto own their own homes. This is nearly 75 per cent. of the population. It is generally stated that in Boston only 20 per cent. own their own homes. In only one zone in Toronto are frame buildings allowed, and the total of frame buildings annually is only between $200,000 and $300,000, out of a total of about $28,000,000, while Boston has between $6,000,000 and $7,000,000 annually of frame construction out of a total of about $28,000,000. There is not any question about the temperament of the people as to the character of the buildings required. They are all substantially constructed. The brick-built homes of Toronto are an indication of the city's character. They are evidences of its prosperity and permanency.

Mr. Olmsted, speaking of the housing operations, says: "The fund which provides the cottage flats pays a six per cent. dividend; although the rents are low, the tenants are well housed. The city of Toronto is a striking proof that the people can be well and safely housed under very attractive conditions when the fire limits include the whole city and the apartment houses are built safe.

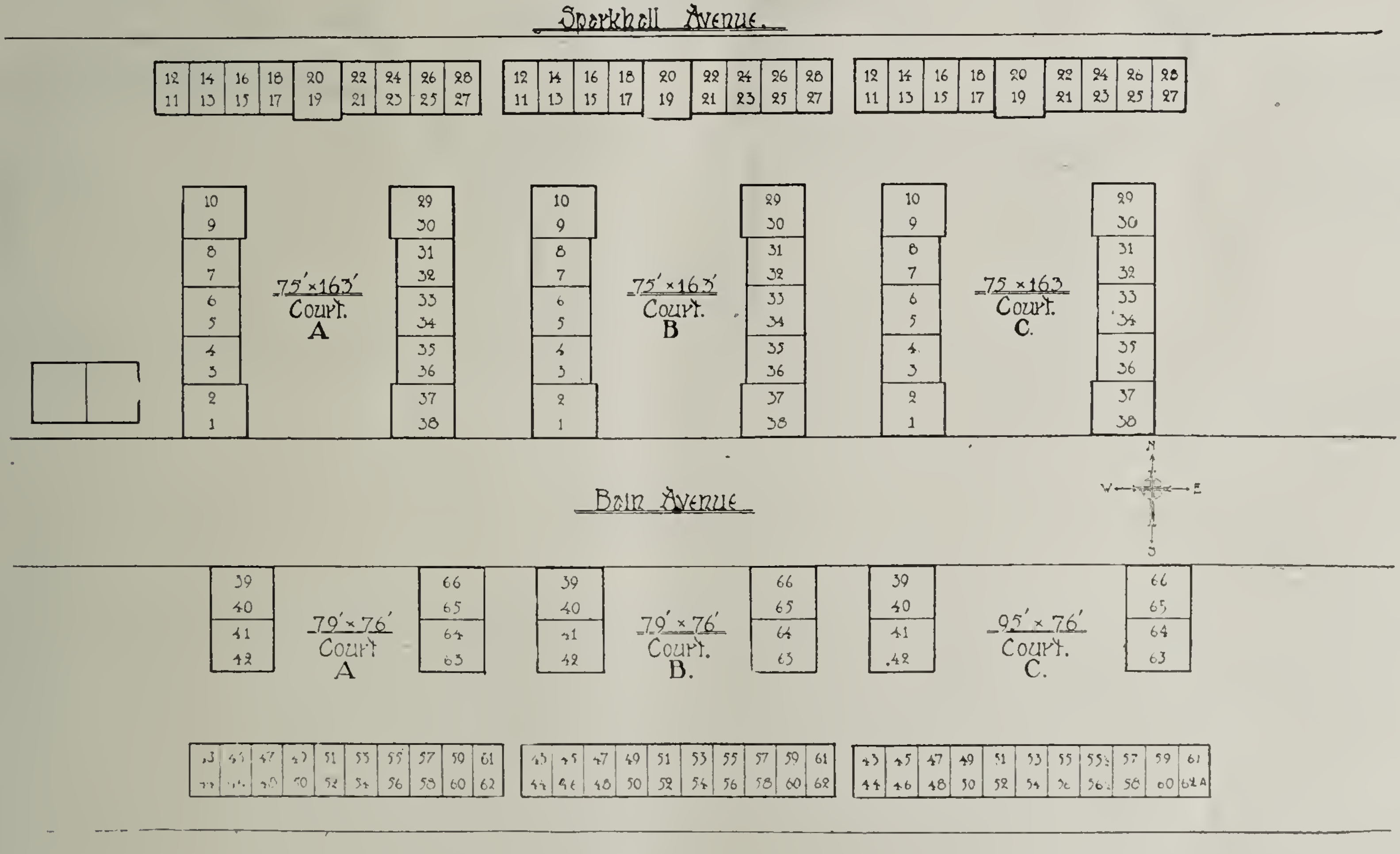
"Boston, which has always been the city of education and advancement, should now not only unhesitatingly profit by other cities' experience, but should try to take first place in these matters and lead the United States in the protection of life and property, as she does lead in so many other ways."



Front Elevation, Smallest Cottage Flats, Bain Avenue, Toronto, Canada.



Front Elevation, Larger Cottages, Bain Avenue, Toronto, Canada.



—Courtesy of The Toronto Housing Co.

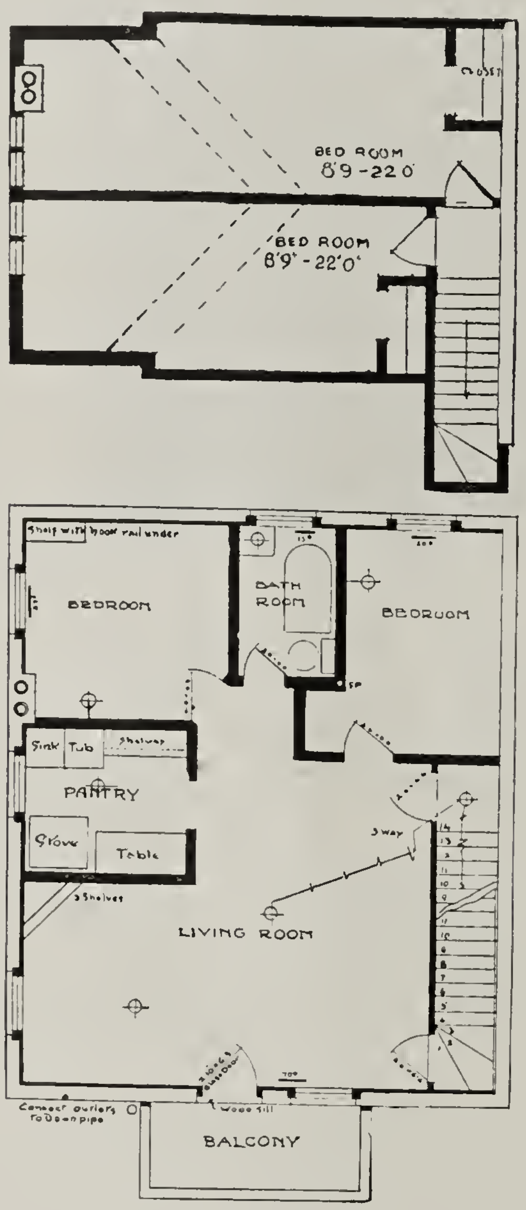
Riverdale Courts. General Plan of the Cottage Flats Built of Brick for Low Rent, Safe and Comfortable Homes for the Workingman's Family.

The question of fire hazard should be most carefully considered. The experience of Salem is directly in point. The fire there started in a small group of factory buildings, but its spread was entirely through a district of wooden houses and the total destruction of the Naumkeag Mills was almost wholly due to the fact that it was surrounded by a densely built three-decker district. This can be verified by reference to the report of the National Fire Protection Association. The conditions of Salem were not as bad as exist in several parts of Boston, and no one can say that we might not at any day have just such a catastrophe, which would spread in just such a manner and menace the whole city because of the close proximity of the wooden three-decker district."

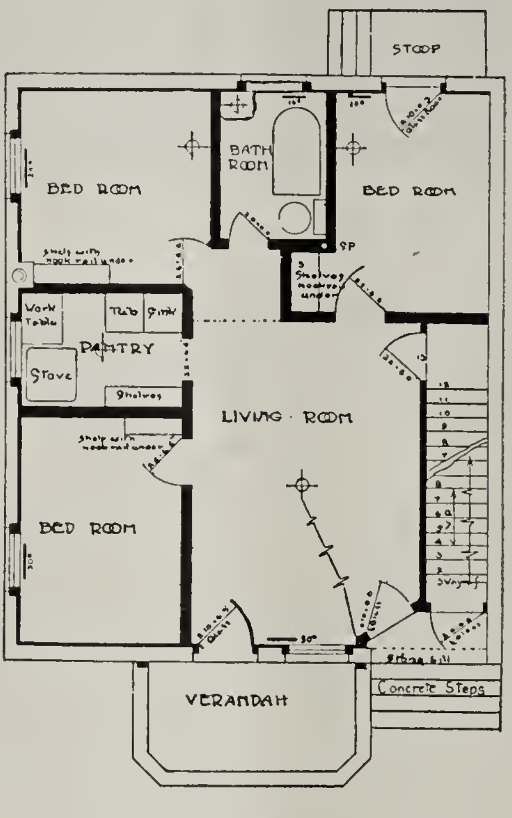
Still further expert and mature judgment on the question of the hazards and all around dangers of frame tenement buildings comes from a gentleman who has for twenty-five years conducted the business of fire prevention in the state of Massachusetts. The entire life work of this gentleman has been to try to protect the credit, property and lives of individuals against the consequences of their own indifference, carelessness, neglect, and, primarily, their own ignorance. This work of a lifetime of experience and observation gives peculiar force to his conclusions.

"The three-decker has never been advocated for its beauty, its effect on neighboring real estate or its saving qualities along the lines of spreading fire, but some commercially inclined individuals have urged it very apparently for their personal profit while standing behind the screen of economic necessity. In arguments they have admitted the depreciations of values in the neighborhood and the appalling fire risk as evidenced by at least three holocausts in Boston within the twelvemonth, and they also admit its rapid deterioration when built for speculation and acknowledge the truth of the forecast, as dismally as any one else, of the appearance of such tinder-box districts a couple of decades hence. On the other hand, they have attempted to point out that only a small proportion of any community can live on the handsomer streets, and have raised the question, what would become of the thousands of people now 'sheltered'(?) in three-decker flats, and how would they otherwise be housed?"

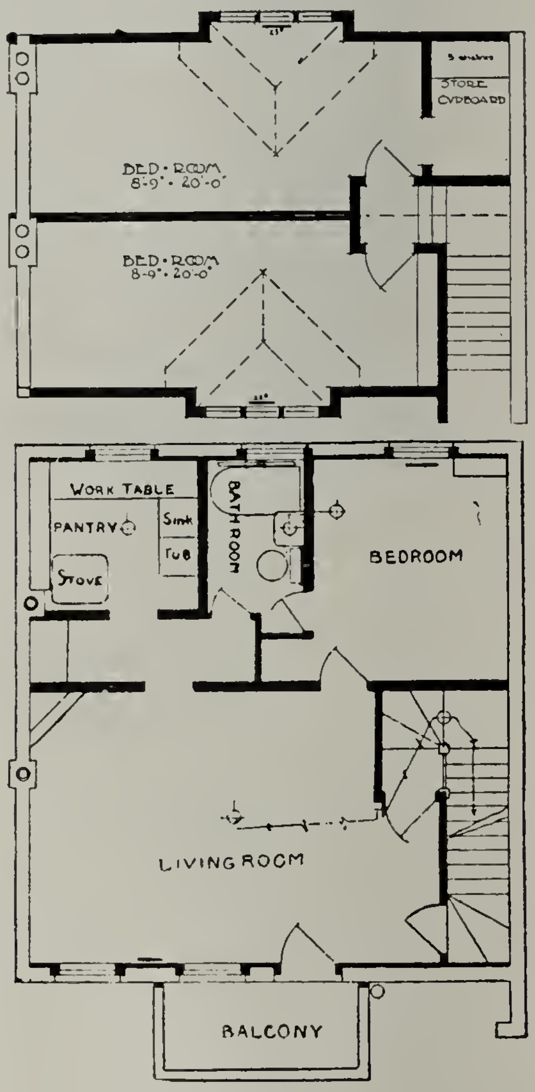
Plans of the Toronto Housing Co.'s Brick Built Low Rent Cottage Flats.



Plan No. 4.



Plan No. 5.



Plan No. 6.

In 1912-13, the General Court of Massachusetts passed an "Act relating to Tenement Houses in Towns," with a referendum attached that said act was to take effect in any town on the acceptance of it by the town's own voters. This act expressly forbids the construction of frame apartment houses either exceeding two or two and one-half stories in height and arranged for more than two families. Now, would any town by freely adopting this measure knowingly shut itself from obtaining a type of dwelling that was an 'economic necessity?'

"The evidence is best shown by what the towns have done. During the past three years this anti-three-decker flat law has been adopted by more than twenty towns. And they were not the high-browed towns, such as Lenox in the Berkshire Hills, nor the solid, bed-rock communities such as Barnstable and Plymouth, but they were towns which needed houses of moderate cost. But they are thoroughly well acquainted with the three-decker proposition as well as Raphael knows his Madonna, for these towns are all practically towns of the Metropolitan district.

"Could it be imagined that these progressive towns, representing widely different interests, could not have known what they were doing? Doubtless they were well acquainted with the acres of three-decker tracts of Boston and Somerville, which contain in certain sections of their borders an invitation to another Chelsea, Bangor or Salem panorama; and as a final work just now, the pot is boiling in the best governed and richest town in the world, that of Brookline, Mass. In this town they are putting up a stiff fight against a duplication on their hillsides of a similar much dreaded fire risk located on Parker Hill in Boston."

* * *

## Garden Cities in England.

Most readers are aware that England furnishes many examples of ideal housing under suburban conditions. These were at one time confined entirely to the wealthy, but about fifteen years ago one enthusiastic friend of his fellow man felt that by co-operative methods the best of living conditions could be made possible to the very poor. Though he was at first called a hair-brained enthusiast, the results of his work are now rapidly becoming history in every civilized country, for we are beginning to recognize the tremendous economic importance of housing all of our people in an ideal way. Out of the ideas suggested by the Garden City developers in England have come these developments in Toronto and many other examples very similar in many other cities in the United States. Our own Massachusetts Homestead Commission, in outlining four plans for improvement for housing conditions in Massachusetts, deals with the subject almost entirely from the financing standpoint, their financing plans are entirely practical and are adapted from those now in fully successful use by the Garden City developers in England. They can be made entirely practical in Massachusetts just as soon as we apply good business judgment and collective common sense to the solution of our housing problems instead of leaving them to the speculative operator. The same money which we at the present time allow him to use in supplying us with the necessary housing, will, if properly handled, give us all far better homes than we are now getting.

The examples of Salem and Toronto are just the beginnings of better homes and show some of the results that are possible by intelligent effort. Recent examples are found in many other cities. One conclusion is common in all these developments, the tenants are entitled to conditions that make home life possible and this is practicable at a moderate cost and moderate rentals, and the most practical way to provide these is to build better houses of permanent character.

(Reprinted from the Boston Transcript.)

# DRYING OF CLAY WARES.

## By Ellis Lovejoy.

### Part XVII—Steam Progressive Dryers.

THE ARRANGEMENT of a steam progressive dryer differs from that of a steam periodical dryer in that: The steam piping is massed at the delivery (hot) end of the dryer, the air enters at the delivery end, moves horizontally through the dryer, and, with the vapor, is drawn off through a suitable stack at the receiving (cold) end of the dryer.

The steam dryer may be a series of tunnels, each equipped with the proper amount of piping and under individual control, or more often it is a single large room.

The piping is arranged in coils, four to six pipes deep at the delivery end, two to four pipes deep in the next section and two pipes in the section most distant from the delivery end. It may extend the full length of the dryer, or only one-half or two-thirds, depending upon the character of the clay, or as the designer deems best.

Either exhaust or live steam is used for heating.

The air volume required is relatively low, since the heat is not dependent upon the volume of air. As the heat is used up by evaporation of the moisture, it is replaced by direct radiation from the pipes under the ware and by circulation of the air around the ware, among the pipes, and up through the ware.

Fig. 72 is a longitudinal vertical section and Fig. 73 a transverse vertical section of a steam pipe tunnel progressive dryer. The air enters from the outside at the delivery end and is distributed under the piping by a floor with graduated openings. The piping is under the tracks and fully exposed within the tunnel. At the receiving end there is no piping shown and this section of the dryer is used for heating up the ware in a humid atmosphere. If the clay will stand severe treatment the piping may be extended fully to the receiving end and drying begins very quickly after the ware enters.

The drawing does not attempt to go into any details of construction and is merely a sketch to illustrate the principle.

Calculations of heat requirement and amount of piping were made for periodic steam pipe dryers and need not be repeated here. Both rely upon natural draft and use a small air volume. The draft in the progressive type may be somewhat stronger, thus increasing the heat taken from the piping by convection, but the difference is not material and is easily within the conditional variations of the problem.

The steam pipe progressive dryer for very tender clays is sometimes built in two compartments in series.

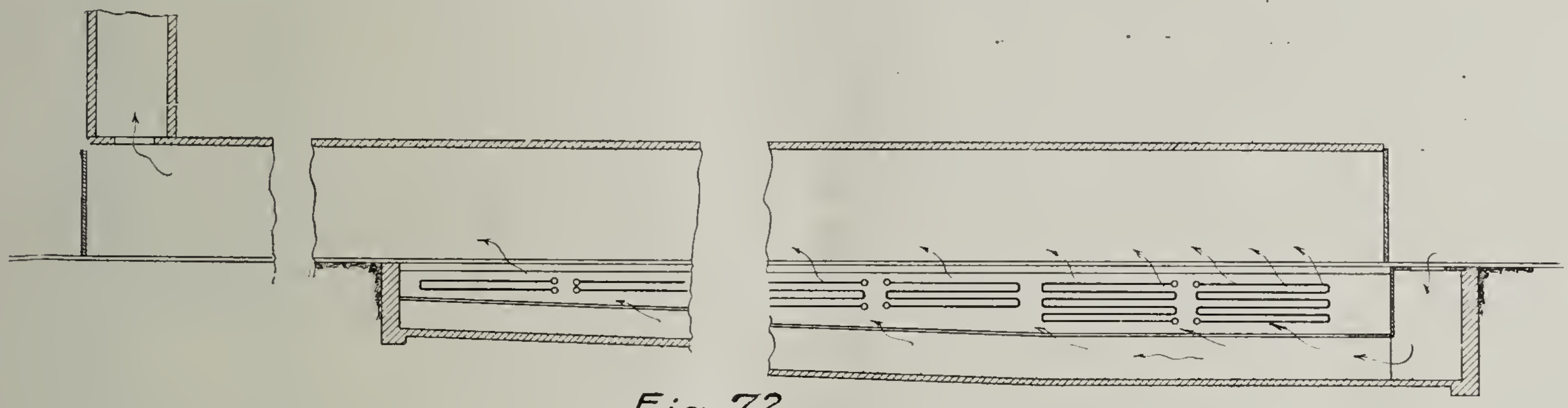


Fig. 72

The first or receiving compartment is short and without any provision for the admission or removal of air—in other words, the first compartment, in which a constant temperature is maintained, is merely a heating-up room. The air in this room is necessarily nearly saturated with moisture since no air escapes except by leakage and wall and roof absorption. The room also serves as a storage room and it is immaterial whether it is kept full or not, provided the ware remains in the room sufficiently long to become thoroughly heated up and put in condition for the drying process. As ware is removed from the delivery end of the dryer proper, and the cars of ware moved forward, the space thus provided at the receiving end is filled from the heating-up room. The dryer proper is truly progressive, and since the ware is previously put in condition to withstand the first stages in drying, the piping may extend from end to end.

A heating-up section is common in other types of dryers, but in none of them do we go to the extent of a separate closed room.

In one or two instances in the operation of radiated heat dryers it was found beneficial to enclose the receiving tracks and at the same time remove the original tunnel doors at the receiving end. The smoke and exhaust air and moisture ducts were not extended to the end of the receiving tracks (converted into a receiving room). The ware on the receiving tracks became heated in some measure by circulating air from the tunnels, but it was removed from direct heat radiation from the smoke ducts and also from the draft current of air. The ware in this warm dead air space went through a sweating stage which has been proven of value in preparing tender drying materials for the drying treatment.

In the single progressive dryer this heating-up space results from not extending the piping to the receiving end, but the ware is subjected to the current of nearly saturated air, although not necessarily so.

So, too, in progressive waste heat dryers do we provide dead air heating-up space where the ware requires it. The difficulty often is that the need of the ware is not previously determined. A dryer is designed and guaranteed for rapid work and afterward its adaptation to the ware requires material changes.

### Waste Heat Progressive Dryer.

The progressive waste heat dryer has found wide use in this country. As the name implies, it is progressive and uses only waste heat where there is sufficient waste heat for the work and on this score the margin is sufficiently small to make suitable equipment and proper operation important.

In round numbers under the conditions assumed in a problem to be discussed later, about 1,632,000 heat units are required to dry 1,000 bricks. If the bricks are burned at a temperature of 1850° F. (Cone 07) and in cooling the heat is recoverable down to 500° F., we have an available temperature of $1850-500=1350°$ F. The bricks weigh 6,000 pounds and the specific heat is .2. Thus we get from the cooling brick $1350\times6000\times12=1{,}620{,}000$ heat units. There will be approximately 1,000 brick in the kiln construction for each 1,000 brick burned and the average temperature of these brick will be about 1000° F., half of which, perhaps, is recoverable, or $500\times5000\times.2=600{,}000$ heat units. This makes a total of 2,220,000 heat units, not counting radiation losses, which may be 30 per cent. to 50 per cent. If the radiation losses in cooling are proportional to those in burning, we have under the above assumption insufficient heat in the cooling kilns to dry the product. Higher temperatures in burning will increase the heat supply and the balance may be better or worse than our figure, depending upon the dryness or wetness of the green bricks. We do not give the above figures as data, but simply as an illustration.

Besides the waste heat of cooling kilns, there is the waste heat in the exhaust steam. If the factory is using 150 h. p., we have in the exhaust $\frac{34.5\times150\times970\times10=1{,}003{,}950}{50}$ heat units per thousand brick.

34.5 = Pounds of water per h. p. hour.
150 = Total h. p.
970 = Heat units per pound exhaust steam.
10 = Hours daily operation.
50 = Capacity per day in thousands.

A waste heat dryer necessarily involves the use of a fan, and the most modern installations use two fans. In considering the steam supply, we only reckoned ten hours operation, but the fan operation will be twenty-four hours per day and every day.

Probably 30 h. p. will be required to drive the dryer fan engines and from these we will recover $\frac{34.5\times30\times970\times24=}{50}$ 481,185 heat units per thousand brick. This is not in addition to the factory waste steam, but materially increases the total as previously estimated on a ten-hour basis.

The losses between the engine and the dryer is much less than those between the kilns and the dryer and the value of the steam is a material one in reckoning the available waste heat supply. With the exhaust steam it is evident that there should be sufficient waste heat to do the drying with a safety margin of 100 per cent., yet through improper design, faulty construction and inefficient operation, the waste heat supply oftentimes falls short and has to be supplemented with additional fuel in some way. Small and complicated hot air ducts between the kilns and fan and restricted kiln connections are frequently the cause of excessive loss in collecting the heat, and failure to approximate the dew point in the dryer exhaust results in great loss in the application of the heat. A manufacturer would not load his cars with useless dead weight, but complacently moves a dead load of useless and expensive air through his dryer. That he may be getting his ware dry is no evidence that the work is being economically done.

The use of the fans brings up a factor of cost which must be considered. On the basis of five pounds of coal per h. p. hour, the fan engines will require 3,600 pounds of coal per day, which, at $2.00 per ton, is $3.60, or $0.07½ per thousand brick. Maintenance brings this cost above $0.10. In fact, we find many fan installations where the operation cost exceeds $0.15 per thousand brick.

The progressive waste heat dryer is undoubtedly the most economical mechanical dryer, but one must not jump to a conclusion that it will be most economical in every situation. We may be burning a low temperature product and not have sufficient heat from the kiln; public service electric power may be available at a less cost than steam; licensed engineers command higher pay. When the waste heat supply is short, we supply the deficiency by direct fired auxiliary furnaces. This introduces fuel cost besides power, and often scumming difficulties.

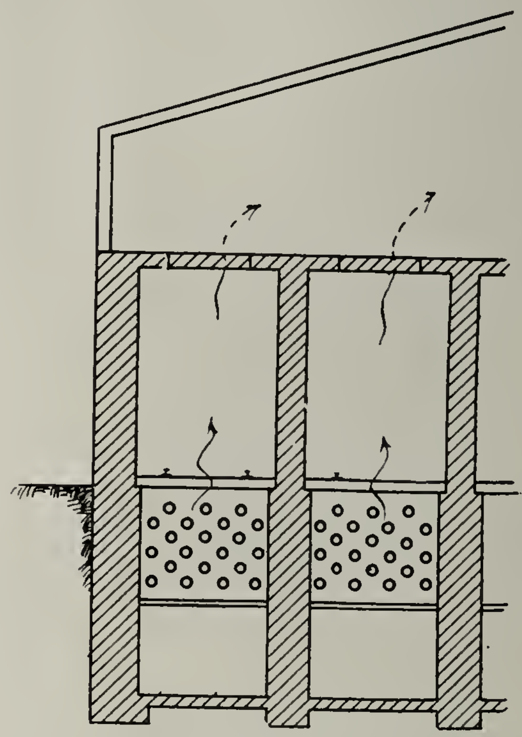


Fig. 73

Difference in size of kilns and in character of product are frequently annoying factors—indeed, they enter into the cost in proportion as they affect the capacity. When a large kiln is cooling there is an excess of heat, but a small kiln may not have enough to carry the drying over until a large kiln is ready to turn in. In changing from hollow ware to brick, the hollow ware does not contain heat enough to dry the heavier ware and the operation of the factory is delayed until kiln of cooling brick are available for drying.

(To Be Continued)

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We feel that there is no question about burned clay tile being the best roofing material on earth, but when we look about and see sheet metal tile, and asphalt shingles and various other offerings conspicuously exploited, with not much said about burned clay, there is some question arises as to whether the makers of this product are doing as much as they should in the way of exploitation.

# BUTTON-HOLE TALK.

## JOGGLING AND JIGGLING—Number 6.

THE Man with the Square Toed Shoes evidently had seen that I was watching him and he drifted over to me and sat down beside me, remarking as to the outcome with the "Man with the Jag." As we sat there, there came in through the door a man closely followed by a disreputable cur dog. The cur slipped in through the closing door, as accustomed to shying in through such places, as though its whole life was made up of such incidents. Its eyes were bugged out as though looking for, and expecting a kick, and its ears were cocked to catch any sound to warn it to get away. It was clearly a mongrel, with traces of all breeds and excellences of none. Evidently of a careless ancestry and itself paying the penalty for the carelessness of those ancestors. It knew it was not wanted by anybody but the hero it followed and even he cared but little for it and seldom, if ever, caressed. Rather he kicked and abused it, but he was, to the cur, a God and, as a God, the cur adored him. Even a kick was, from him, prized as, at least, some attention, and about all the attention that the cur ever got. Pedigreed dogs were petted and fondled while he was kicked and sworn at. Why this should be so, puzzled the cur's small brain not a little. He really couldn't understand why they should be so prized and pampered just because of their careful ancestors and that he had just kicks and cuffs because of his careless ones, while neither he nor these thoroughbreds had anything, themselves, to do with it or any choice in the matter. Being just a pup, and not a wonderful, intellectual, human he knew nothing of "The sins of the fathers being visited on their children, to the third and fourth generation." Possibly had he possessed this thinking power, he might have noted cases in which he might have detected human mongrels, that led much such a life as he was leading and got about what he was getting and were about as much responsible for their condition as was he. In their case, as in his, it was just wished on them.

W. D. Gates.

Well, the cur slid through the door, sniffed at the sign "Dogs not Allowed" and, glancing fearfully from side to side, slunk along at the heel of his master. The two of them were pretty well matched and both out of place in their present surroundings. The cur was a cur, knew he was a cur and a cur only, and acknowledged it frankly. The man was a cur and knew he was a cur but he was a bluffer and tried to work the bluff. The dog was beyond bluffing and didn't try it on; but just slunk on at the heel of the man who was his God. All the attention he had ever received from mankind was of a character that made him suspicious; was wholly and entirely in the line of kicks and cuffs. These were all the attention he had ever gotten, and all he expected to get, and so he was not trying to attract attention, striving to avoid it in fact.

The man was a mongrel plain and simple. The worn out, misfit shoes fell on the marble floor with a fluffy sound as he shuffled them along. Protruding from under the fringed bottom of his trousers, they formed an added or supplemental fringe, that spread out and merged with the floor on which he walked. His tattered coat was hung on him, did not in any wise clothe him, and from under the brim of his faded and shapeless hat, from a swollen red and dirty face, fringed with unkept hair and scraggly beard, his furtive eyes looked out enquiringly and fearfully. He knew he was out of place as well as the dog did, but he had the bluffing instinct that the dog did not have, or had lost, and while he knew that it would not work, still he was going to try it on. His furtive eye caught the highly colored uniform of the austere attendant, he knew his eye was on him, knew that he was starting after him, and he shuffled faster just to get as far as possible into this his forbidden world.

But the uniformed guard caught him and thrust him out, none too gently, at the same time aiming a kick at the frightened pup but missing him, for the pup was skilled in dodging and got away howling.

This scene created much hilarity in a near-by group and, pointing to them, He of the "Square Toes" said to me: "That bunch over there think that the throwing out of those two is a great joke, a very hilarious affair. They look down on them and in doing so seem to think they lift themselves higher, while as a matter of fact they themselves are no better, if as good. They are the men of wasted opportunities. They had the chances that that poor devil who was just cast out never had. They are all remittance men. They had family and position to help them but they didn't have it in them to make good, so their families have sent them way off—as far as they could send them and the further the better—and then supply them with regular remittances. Just enough to keep them going and not enough to come back with, so as to keep them away. They live dependent lives, listless lives, profitable to no one, drones in a busy world that is full of opportunity. They need not scoff at the poor down and out pair, just kicked out, for those pups didn't have the chance that these pups had, they didn't have the parentage to start them and do for them. They were from a different litter. Such as they are indeed the curse of this country up here. They not only do no good but they do bad, and they are an import that helps no country but the country that sends them away and rids itself of their presence. When I see them scoffing at anyone, no matter how low he may be, it makes me mad clear through and through and brings my American blood to the boiling point. Thank God they send them up this side our line for we don't want them over with us; no, far better have the pair whose exit caused their hilarity."

He talked on a lot more in this strain but while he was talking my attention was distracted by a uniformed attendant who stopped before me and handed me a telegraphic envelope addressed to me, which I hastened to open and found:

W. D. GATES, EMPRESS HOTEL, VICTORIA, B. C.
COLLECT 31.

CUT OUT JOGGING STUFF. CANT USE IT. WONT DO. READERS WONT STAND FOR IT. STOP IT. QUIT. FLAG YOURSELF. SEND REAL PICTURE OF YOURSELF FOR YOUR OBITUARY AND DO IT NOW. RANDALL.

Well, I had expected it. Knew it would come, it had to. I couldn't stop. Someone had to do it, and Randall was the one to do it properly. When I started the thing, I did it for just one session and had no idea it would run away with me, but it hung to me and wouldn't quit me, so that if someone didn't interfere the thing would go on forever.

The command to send the picture of myself, however, was a real joy to me. Really, I had sometimes felt hurt that Randall had continued the use of the "Before taking" patent medicine cut that he insisted on publishing with my name attached. It never seemed to me that he had made a good selection. He certainly could have picked out a better one, unless his collection of those cuts was unusually small. Or, if he was bound to use this one, he could have done something to it, hit it with a hammer or filed it, anything he tried would have helped it, but he was careless and just didn't try.

Then, too, the "Do it now" struck my fancy. I would have it taken here in a foreign country, so that it would be "Imported." It would carry with it a flavor of foreign travel, so I started at once to hunt up my friend of the "Square Toes" to chaperone me in the operation. GATES.

# THE PANAMA=CALIFORNIA EXPOSITION.

## By Frank P. Allen, Jr., Director of Works.

IT is very difficult for anyone who has had much to do with the design of a large project to judge clearly the result or even describe it truthfully. In looking at the finished work, he will see not only what is actually there, but also that which he was trying to express and the feeling he attempted to put into it. His perspective is too close for him to know how far he has succeeded.

This is particularly true in our case where we have tried to produce by buildings and planting an "atmosphere" of an older time and of a race foreign to most of our visitors. It has been said that "beauty is in the eye of the beholder." This certainly is true of atmosphere. If the beholder does not feel it, the whole picture becomes cold and colorless; it may hold his curiosity, but nothing more. But if the visitor is "sympatico," then the color and life are all there. For him the flowers bloom, the birds sing, the buildings carry him back to the age that produced them and romance waits in the next patio.

So I will not attempt to say what we have done, but rather what we tried to do and our reasons for doing so.

The fact that California was first explored by Spaniards coming from Mexico, and later settled by Spanish people from the same colony, provides sufficient historical reason for giving the exposition a Spanish character. But the best reasons for using the Spanish-Colonial lie in the style itself. Spanish-Colonial is a very broad term, as it covers the architecture of the Spanish colonies—particularly in America—through a period of almost three hundred years. The Colonial architects of these three centuries took their material from almost all the styles that had preceded them, as well as from those that were contemporary. They also took a great deal from the Aztec and Maya buildings which were scattered throughout Mexico and Central America. The work that resulted ranges from carefully designed and beautifully detailed examples of Spanish Renaissance, through the ornate and whimsical extravagance of Churrigueresque and Plateresque, down to the simple lines and plain surfaces of the California mission buildings. Although differing so widely, the various phases of the general style have a structural unity which makes them complementary to each other, even in the most extreme cases. An illustration of this may be seen in the two exposition buildings designed by Mr. Goodhue. He has given the California Building a most elaborate and finely detailed frontispiece and opposed this with the Fine Arts Building, which has perfectly plain surfaces and is absolutely devoid of ornament. Yet the two parts make a perfect whole and each is the better for the other.

—Courtesy of The Architect.

Vestibule of Machinery Building, Panama-Pacific International Exposition.

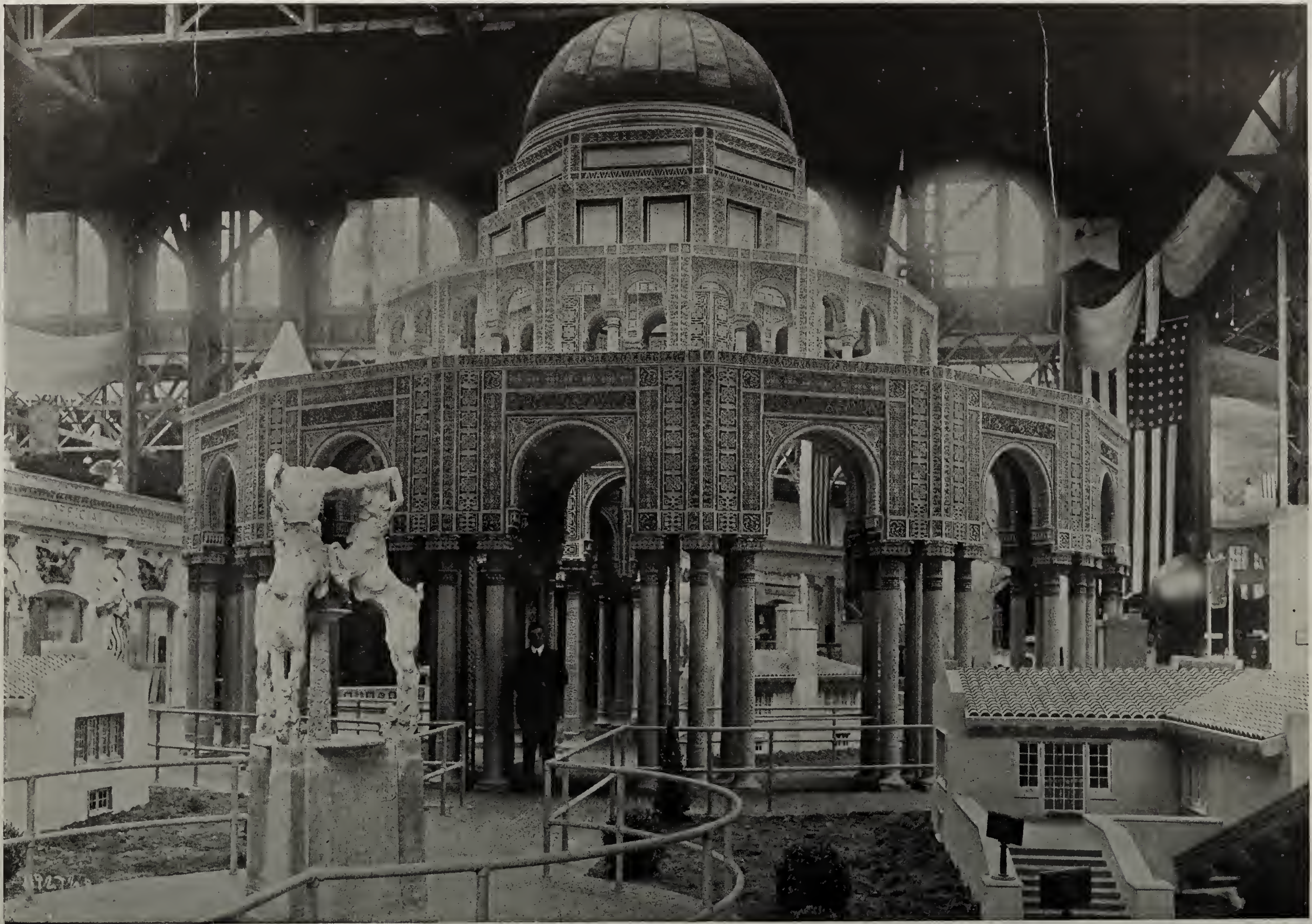
Thus Spanish-Colonial is probably one of the best styles for exposition use. The buildings may show an unending variety so that the visitor finds a new picture in each vista; the half-concealed patios and gardens continually arouse his interest and admiration, while color is abundantly supplied by the red-tile roof, the multi-colored tiles of domes and towers, and gay awnings and hangings. Furthermore, the architect is enabled to design buildings that are well in the style, consort agreeably with their neighbors, play their part in the general picture and still stay within the limits of any reasonable appropriation, which last always secures the enthusiastic support of the finance committee.

The Exposition is in the center of Balboa Park, standing on a mesa which is from 250 to 300 feet above the bay and overlooking the main part of the city, the bay, Point Loma, Coronado and the ocean. The principal approach is from the west, over a bridge spanning a wide, deep canyon. Thus the Exposition can be seen in its entirety from two sides. From the main canyon on the west run several smaller ones that cut into the Exposition at many points and surround it on the south.

In preparing the general plan, we had several points to consider: the site with its canyon, the view from the city,

—Courtesy of The Architect.

Detail of Main Arch, Court of the Universe, Panama-Pacific International Exposition.



—Courtesy of The Architect.

AN ATTRACTIVE EXHIBIT IN THE MINES BUILDING.

and, most important of all, a comparatively small budget. This last consideration determined the size of the Exposition and, to a great extent, the scale of the buildings.

In most of the large expositions the main group has been quite solidly built, with buildings comparatively close together and more or less symmetrical in plan. This arrangement was impossible with us on account of the frequent canyons and undesirable because the funds available were insufficient to cover the space. Consequently, our buildings are symmetrical around the main axis only, are all irregular in plan and are separated so that gardens and patios may be placed between them. The buildings are all connected by arcades which tend to make them count as groups rather than as individuals and so increases the scale of the whole.

This same informal treatment produces many charming effects from the gardens and parks, and is of constant interest to the visitor. In leaving a building he may enter a formal flower garden ablaze with color. Leaving this by a walk with solid walls of living green, he comes into a park where he has the choice of several routes; he may enter an exhibit building or continue through the park, in which case he discovers new views of the buildings he has left, and unsuspected vistas through the planting; and as he follows the path, he may stop to rest in a rose-covered pergola, in the cool shade of old trees or in the warm sun on the south.

These parks have been designed with as much care as the buildings and always with the object of holding the interest of the visitor. Long straight walks have been avoided; instead paths swing easily from one view to another; a view over the city and far to sea; turning back, a glimpse of a building with a tower rising high above the trees and then the path swings around the rim of a canyon which is a jungle of palm and bamboo with all the rich bloom, giant ferns and rank undergrowth of the tropics. And these paths have no ends. They are joined to one another and to the main avenues in such a manner that, once started, you may make a tour of the whole grounds without once turning back or running into a cul de sac.

The planting of the Exposition is fully as important as the buildings. The Southern California climate permits the use of such a wide range of planting material that the landscape architect may choose any treatment from pine-clad highlands to tropical jungle. In our work, however, we have avoided the extremes, endeavoring to secure natural effects and escape any effect of artificiality. The canyons and their slopes are planted as the typical natural canyons of Southern California. In the bottom are groups of trees and meadows of wild flowers bright with color. The pools and small water courses are overhung with a heavier growth, while the slopes are covered with a dense chaparral which grows deeper and richer as it nears the buildings on the mesa.

And so we have tried with tower and dome, palm and vine, bright color and soft foliage to express not Spain nor Mexico, but Southern California as it is to those who love it. A land rich in color and strong in contrasts, demanding much and repaying more, where life requires the best that is in us and in return makes mere existance a delight. If this sounds extravagant, remember that nature made most of this land a desert and only untiring effort and devotion have made the picture we see today.

With such an aim, it is impossible that we should wholly succeed, but also impossible that we should wholly fail; the result is truly "in the eye of the beholder," as he sees it so will it be to him.—The Architect.

BUILD WITH BRICK

## FORCE OF HABIT.

IT is said that self-preservation is the first law of nature. There are times when one feels inclined to add that the second law of nature is the force of habit, for habit in time becomes a sort of second nature.

In physics we find that there are a number of different forces met up with and among them one of the most obstreperous we have to contend with is that of the force of expansion and contraction.

In business progress we have a sort of counterpart of this in what is known as the force of habit—that human inertia—which makes difficult the work of inaugurating a new idea, no matter how worthy it may prove.

One of the pioneer stories of this country illustrative of the force of habit and the difficulty of introducing innovations is that pertaining to the farmer's boy who was going to mill with a bag of grain across his horse. He had a measure of grain in one end of the bag and a stone to balance it in the other end.

A man of ideas met the boy and told him that he was carrying an unnecessary burden and to illustrate and prove it took the stone out of one end of the bag and divided the grain in equal parts in each end and let the boy go on his way. The boy was proud of the new discovery, but when he got home and told his father about it, he received a sound scolding because his father contended that in case the tie string should break and the bag come undone, he would lose half his grain, whereas, if he carried the stone in that end to balance it there would be no loss of grain and only the stone would drop out. In other words, force of habit held this man to the idea of carrying a burden of stone to counterbalance the measure of grain on the slender chance that the bag might come untied and lose some of the grain in that end.

An old Kentucky colonel, while in a reminiscent mood, recently told a story of an early employee who went wrong, which graphically illustrates that phase of the force of habit pertaining to Sunday observance and religious customs.

The story was of pioneer days of industry when money was made rapidly and books were kept loosely. They had a bookkeeper whom the colonel had raised from a boy and had all manner of faith in, but one day something happened to create suspicion and they called in an outside expert to check up accounts.

This expert soon discovered serious discrepancies and when confronted with these the bookkeeper admitted converting money to his own use, and they found by casting up all the accounts that he had robbed them of something like $80,000. The company had been so busy and making money so rapidly that they had actually not missed this amount, but they were naturally properly shocked to discover that their bookkeeper had robbed them in such a way.

They were all good personal friends, however, and belonged to the same lodge, so, instead of legal prosecution and a penal service, they let the defaulting bookkeeper turn over to them all the property he had, together with some insurance policies, and gave him the chance to go away somewhere else and start anew in life.

Practically the whole week had been spent in closing up the affairs and turning the books over to a new accountant, and it was on Saturday and the defaulting bookkeeper was cleaning up and packing up to depart from the office. He had told them of a distant city he intended to journey to and take up life again. So, as he was getting ready to leave, the old colonel turned to him and said: "When do you expect to start away, in the morning?"

The departing bookkeeper looked around with a sort of shocked air and said: "Why, colonel, you know I wouldn't travel on Sunday."

It was force of habit, nothing else, that made him consider this observance of Sunday duty and forget for the moment that he had just been convicted of the crime of robbing his employers.

# HOW A LITTLE DRAINAGE BENEFITS AN OLD FARM.

### By C. G. Elliott.

NEAR THE TOWN of Lawrenceville, Pa., hard by the Tioga river, is a little farm which is managed by a young woman after the manner of modern agriculture. The farm comprises about two hundred acres, separated from the river by a public road and extends into the hills for half a mile. Sixty acres along the river are bottom land forming the cultivated portion of the farm and the balance is hill land, used entirely for a dairy pasture. For a hundred years or more the farm has been in the ownership of the same family, and in the order of natural events the ancestral acres fell to the lot of our friend, the youngest of the family, who did not shirk the responsibility of taking up the active management of the place.

The dairy feature had been for a generation or more a source of constant, though not large, income. The back hills, though wooded, were fairly well covered with grass and abounded in copious springs of good water. The barn was ample for the storage of forage and shelter of the cows in winter, from which point the milk of the herd was daily delivered to the nearby railroad station for shipment.

Residence and Garden of Miss Lucy Baldwin,
Lawrenceville, Tioga County, Pa.

#### Studying Conditions.

The cultivated part of the farm was excellent land, with the exception of one field of fifteen acres, which was wet and sour and one whose crops had nearly alwas been disappointing. In the words of our friend: "My father ditched it and worked it without ever getting full remuneration for his labor, and his father before him had done the same thing with the same or similar results." It was boggy in the spring and cold in the summer. The few crops which had been grown when conditions were favorable proved that the field was fertile and would produce excellent crops when moisture conditions were right.

Our friend sought the advice of good farmers and of scientific men from the State College, all of whom agreed that the field must be drained before better results could be expected. One of her neighbors said: "Yes, we know the field has always been wet and ought to be drained, but how are you going to do it? There's a good ditch along the lower side of the field and plenty of ditches through it, but still it is too wet every spring." This was true. The source of the permanent wetness was largely seep water that came out of the hills lying back of the field. The top soil was good. I suppose it had been enriched by the wash from the hills, and doubtless to some extent by the overflow from the river, which had taken place occasionally. The sub-soil was open, but the continual oozing of water into it, with no adequate relief by way of underdrainage, kept it wet, notwithstanding the presence of open trenches. There is no water so harmful to soils as seep. As fast as it vaporizes from the surface more comes from below to supply its place. Excess of water through rainfall upon the surface can be removed and sun and wind will warm the soil at intervals between rains, but seep never ceases to push up to the surface until the supply in the hills runs short as it does frequently in the latter part of the summer season.

#### The Problem of Proper Drainage.

The general outlet for the farm was an open ditch which extended across the public road and discharged into the river. At times the river rose so high as to flood a part of the land. To obviate injury from this source, a culvert equipped with an automatic iron gate was constructed, and the road supervisors built a low levee along the border of the road to protect both road and farm from the river when it overflowed its natural banks.

Strange as it may seem, tile drainage was new in that part of the state, but our friend acquainted herself with its principles by carefully reading books on the subject and succeeded in securing the services of a young man from an adjoining state, who was able to lay out the drains and look after their construction. One who looks over the thrifty crops which cover a drained field has little conception of the painstaking work that was required in accomplishing its drainage, unless he has had experience with the details of the work. The field must be studied, the lines of drains located, staked out and leveled, the grades and depths determined, the clay tile purchased and distributed on the ground, the trenches dug and the tile laid. All of these steps are equally important.

#### Overcoming Difficulties.

In the field under discussion the depth and location of the drains were particularly important because the drains must remove, not only the excess of rainfall from the land, but also the seep which came from the hills and forced itself up toward the surface throughout the field. To accomplish both objects, the drains were laid diagonally across the slope of the surface, so that the underflow would be intercepted in its course through the sub-soil down the slope. In one case, a drain was laid at the foot of an abrupt bench which delivered water in such quantities as to make a bog at the foot of the slope. In order to have such drains effective, the tile must be laid in the horizon where the seep water moves; if laid above or below that horizon, the drain will fail to intercept the water.

The sub-soil was joint clay with good drainage properties, so that a depth of about three feet was considered the proper one, and lines of three-inch tile, laid 100 feet apart, were adopted for the lateral drains. Whether this distance apart will prove sufficiently close has not been fully determined, but so far the drains are satisfactory. The entire series of laterals discharges into an eight-inch drain laid below the bottom of the open ditch which passes across the farm, and discharges into the river through an iron outlet pipe with an automatic flag gate. The open ditch carries the surface flood water and discharges it through a gate at the outlet end of the culvert, the underdrainage from the tile being discharged through an independent pipe and gate.

### Benefits of Underdraining.

Unfortunately the farm is subject to occasional overflow from the Tioga and from a branch which joins it above the town, which, in its haste to reach the outlet stream, sometimes cuts across the intervening farm, particularly during the early spring months. When this occurs, the water moves off the land through the open ditches and subsides as the water in the Tioga river recedes. Of course, the land is thoroughly saturated after the water passes from the surface.

Drained Part of the Baldwin Farm.

Under such conditions, underdrains are much more efficient in drying the land than open ditches alone. There is really a virtue in moving water. Crops will grow for a time in moving water, but will perish speedily in stagnant water. Underdrains keep the soil water moving, warmth and air follow and occupy space vacated by excessive moisture. Thus it is that the soil is restored to a condition of friability and good tilth and plants continue to thrive. Possibly the land has been fertilized by the overflow, and increased growth of the crops may, and frequently does, follow the drenching which the land has received.

Corn, cabbage and buckwheat were planted on the field after it was drained, and excellent crops of each were grown. Some parts of the field were difficult to subdue, because they had been abandoned as unprofitable ground in former years. By means of drainage, a part of the farm which for a century or more had been the scene of much unrequited labor and a blemish upon an otherwise fair farm had become a tractable and productive field. The improvement is permanent, and full crops will be a feature of the Baldwin farm for all subsequent years.

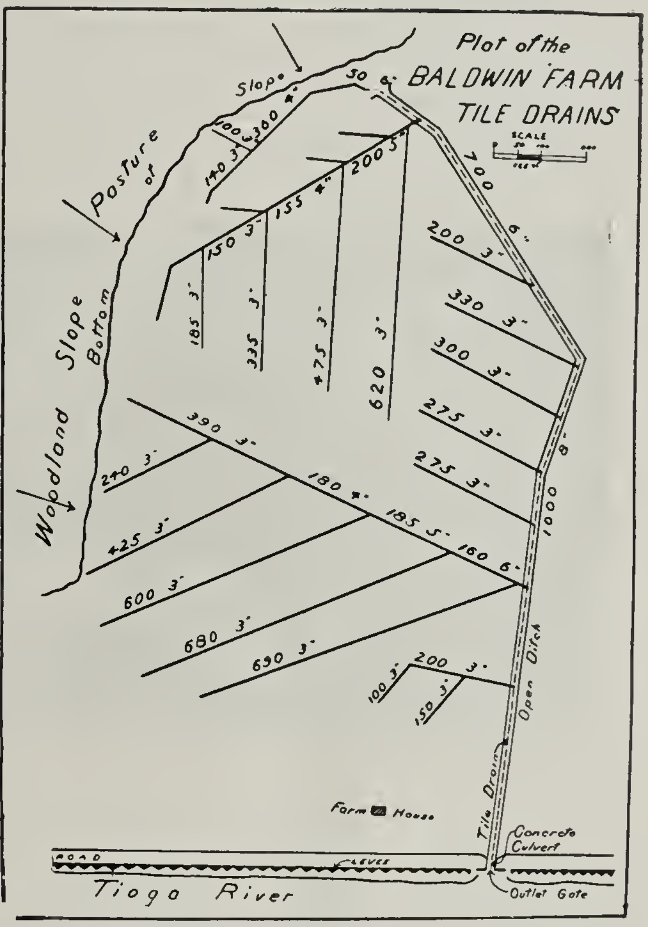
There are fields on many old farms in the East and elsewhere that would respond to underdrainage with bountiful crops. The neglected bog, the low land field, which have been wholly abandoned, or, at most, exceedingly erratic in the production of crops, would yield abundantly if tile drained. Such improvements do not require repeating, as do the application of fertilizers, building fences and many other operations incident to good agriculture.

The drains become a part of the land and contribute their beneficient effects to all subsequent owners, and confer a lasting benefit upon the community where such improvements are made.

## STRIKE REMEDIES.

Practically every spring brings with it problems to solve in the matter of contention between capital and labor and especially between labor engaged in building operations and the contractors employing it. Many and various remedies have been tried and theories offered, but this problem, like the poor, remains with us always.

In Chicago they thought they had solved the problem and had perfected a system of organization on co-operative plans among both the employers and employes, with arbitration committees and agreements to settle difficulties without strikes, then, just about the time it looked like the Chicago plans were perfected and to prove ideal, there comes a great strike in the building trade of Chicago and everything is literally up in the air.



Tribunals for the solving of questions of this kind are considerably like those for insuring universal peace between nations. About the time they seem perfected, the whole thing blows up. Maybe some day, some way, we will devise a real strike remedy and learn thoroughly the lesson that strikes, like wars, are destructive things and not constructive or productive of desirable results, but it is evident that we have to reach the solution yet. The problem confronts us every spring and both capital and labor suffer unnecessarily as a result of dissensions which should be straightened out without strikes if we can but once solve the puzzle and learn how to straighten them out.

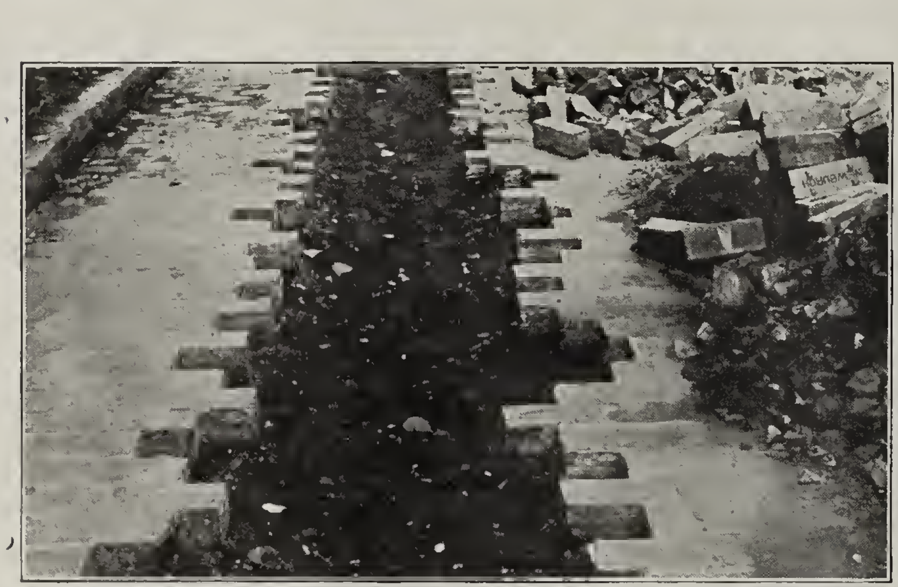
## DRAIN YOUR FARM.

# METHODS OF REPAIRING BRICK PAVEMENTS AFTER STREET OPENINGS.

### BY P. J. MASTERSON.*

SO MUCH of the mechanism of a modern city lies under the surface of its streets that the question of street repair is scarcely less vital than that of good original paving construction, if streets are to be constantly serviceable. The excavator is the worst foe of any pavement and the efficient repair man is its best friend, and will be, so long as sewer, water, gas, telephone, power and steam lines are laid in conduits or trenches.

Foresight will cut down the number of openings that it is necessary to make in a completed pavement, but no pavement is ever laid in a growing town without the certainty of being disturbed from time to time. In Cleveland, where we have a preponderating mileage of brick streets, it has been necessary to work out careful methods for the replacement of brick paving that has been disturbed. While the process calls for workmanlike exactness, we pride ourselves on patching brick streets so that their strength is unimpaired and, in many instances, so that the patch cannot be noticed at casual observation. This is more than can be said for some other forms of pavement.


Brick Pavement Toothed Out Preparatory to Laying Conduit, East 90th St., Cleveland, O.

Brick Pavement Replaced in Opening Shown in the Illustration Opposite.

Our first precaution is to have the city relay all the disturbed pavement. Service corporations and other private concerns are permitted to make openings in streets upon filing proper application. With this application must come a deposit sufficient to cover the cost of replacing the pavement. The city inspects the methods of excavation and particularly dictates the methods of backfilling. But when it comes to the actual repaving no one but the employes of my department are entrusted to do the work. The cost is deducted from the deposit, and the balance, if any, returned to the party making the excavation.

I am a firm believer in the policy of compelling the return of all excavated earth to the trench. Only in case of rock excavation would I make any exception. It may be argued that the pipe or conduit takes up a certain amount of space and therefore a corresponding volume of earth may be left out of the trench. But experience shows that by tamping, more earth can always be returned to a trench than was removed from it, and the practice of requiring it all to be returned leaves no pretext for spongy backfills, which are a dangerous menace to the security of any pavement.

In replacing a brick pavement over a trench, we adhere closely to the original specifications used in constructing the pavement, leveling the subgrade and laying, successively, the concrete base, the sand cushion and the brick.

The joint of the completed patch with the original pavement must, of course, be in the original serrated pattern. In making the cut through the pavement alternate brick will sometimes be broken in the middle, leaving a series of broken bricks along the edge of the cut. These half bricks must be "toothed" out with a chisel. We use one about eighteen inches long, so that none but the whole bricks remain. It is then possible to break joints in patching. A patch which does not dovetail into the original pavement, but leaves a long straight longitudinal joint between patch and pavement, cannot be too strongly condemned.

I may remark that a long handled chisel is the best instrument to use in making the original cut in a pavement. After an opening has been broken with a maul the chisel can be used to cut and pry out each brick separately, making a cleaner opening and facilitating the patcher's job.

Matching brick for the patch is an important matter. If the color and size coincide with the original pavement, the patch will be scarcely noticeable. The brick should be carefully measured in matching for size. Where the new brick are a hair's breadth thicker than the old ones, the courses are thrown out of series and good joints are impossible.

The proper compacting of the sand cushion presents a difficulty that is not found in new jobs of paving. Sand has probably been lost from the original cushion during excavation, and it is necessary, not only to compress the sand cushion downward in making the repair, but to force it laterally under the edges of the old pavement. For this purpose we use a form of sand rammer, consisting of an iron handle 6 feet in length, with a rectangular head turned at an angle of 45 degrees from the line of the handle. This compacts the sand at the edge of the cut and an ordinary wooden rammer or a narrow hand roller does the same service for the width of the patch.

Grouting must be done with care and exactness, two to four applications being swept into the joints and the brick swept clean at the last application. The remaining part of the task is simple precaution against disturbances while the grout is setting. The patch should be covered with three inches of moist sand and barricaded for a period of ten days or two weeks. It is a good extra precaution to barricade the entire street, where conditions permit, and thus avoid the jar of passing vehicles. But this is rarely possible on the ordinary busy street, so the best that we can do is to keep traffic off from the patch during the period of setting.

These were the methods used in replacing over 42,000 feet of pavement last year. Our department deals with many kinds of pavements, and while there are others upon which superficial repairs can be made more easily and promptly, there is none in which the original strength of the pavement is more fully restored than in a brick pavement where there is due care in the workmanship and a careful selection of materials.—Courtesy Good Roads.

# THE LEGAL INTERPRETATION OF THE WORD "VITRIFIED" AS APPLIED TO CERAMIC PRODUCTS.*

By Edward Orton, Jr.

### Summary.

THE WORD "vitrified" is employed widely by engineers, architects, contractors and others in describing the physical status of the following ceramic products, namely, paving bricks, sewer pipe, roofing tiles, drain tiles, encaustic flooring tiles, quarry tiles, face brick, stoneware pottery, earthenware pottery, table porcelain, insulator porcelain and others. In applying it to these different products, the word by implication and general usage means very different things in different cases. The reasons for this are fundamental, depending (1) upon the fact that vitrification is a process towards or through which all clay products pass in burning with markedly different results in different clays, and (2) upon the fact that different clay products require widely different degrees of vitrification to fit them for their respective purposes.

For the protection of clay-product manufacturers and dealers, who often suffer severely by the arbitrary enforcement of literal interpretations of the word, where trade usage did not contemplate such an interpretation at all, a definition of the word "vitrified" to apply to all cases where the specifications in question contain no definition of the term, has been suggested as follows:

"Where the word 'vitrified' is used in a contract or agreement in describing the properties of a clay product, and is not further defined in the contract, it shall mean that the product shall have attained in the firing process such a degree of compactness that its mean absorption does not exceed three per cent. of its own initial weight of pure water, when subjected to complete immersion in cold water for forty-eight hours, or boiling water for three hours. Not less than three tests shall be made in determining the mean absorption, and no single test may exceed the mean by more than 0.5 per cent. Neither the possession of the visual properties or appearance of a glass; nor any definite degree of physical strength hardness, color or specific gravity shall be implied as an attribute of vitrification."

Prof. Edward Orton, Jr., Columbus, Ohio.

### The Proper Definition of Clay Products.

The clay products of this country, exceeding the gross valuation of $180,000,000 annually, are as yet being marketed in a very immature and unscientific way. The larger part are marketed without any formal specifications, as is the case with the bulk of the common brick used. A considerable amount is also marketed under specifications couched in such general and undefined terms that they amount to little except as declarations of good faith between buyer and seller. In some instances, general specifications are signed up which are usually treated as mere formalities, not to be taken literally, but which are nevertheless capable of making endless trouble and loss if a change of feeling causes them to be overhauled and applied with rigidity. It is difficult to say which form of laxity has cost the people more, that which uses undefined terms, or that which uses sharply defined terms on the understanding that they will not be enforced.

Clay products may be grouped into two greater divisions, namely, Vitrified and Porous. This division extends into practically all branches of clay manufacture, whether utensils or construction materials. Such a distinction, for instance, may be drawn between common brick, fire brick, insulating brick, hollow brick, etc., as one group, and paving brick, and the better grade of face brick in another; again, in quarry tiles, floor tiles and hard roofing tiles as against wall tiles and soft roofing tiles; and again, in sewer pipes, chemical pipes and electric conduits as against drain tiles, building tiles and fireproofing. Similar comparisons could be made equally well in the pottery group.

The vitrification of the one group is its main title to excellence, while the porosity of the other is essential to the fulfilment of its function. And yet, with such obvious and direct importance attached to this word "vitrified" no clear and generally accepted definition is in use, and the word is being used in diverse senses to the disadvantage of the whole public. No single step of more importance toward the standardization of clay products can be taken than the definition of this term.

The first great stumbling block in clearing up this unfortunate situation is the fact that there are two allied, but nevertheless clearly distinct, points of view in regard to the use of the term. These may be characterized as the chemical and the physical conceptions.

### The Chemical Meaning of Vitrification.

Vitrification is understood among clayworkers to be the chemical process by which a clay is hardened by heat. It is essentially a process of silicate formation. A clay may be burnt at temperatures below 900 degrees C. without any appreciable silicate formation taking place, in which case, there is virtually no increase in hardness or strength over the dried condition. At 900 degrees C., or above, the granular structure begins to yield to the cementing action of silicates formed by combinations of the different minerals present. This cementing material at first is formed in small quantities, and if the burn is stopped at this stage, a weak, friable and porous product is formed. At higher temperatures it may be abundant enough to fill the voids and to thoroughly bind the unfused matter together. This produces a strong, tough product. In some clays, the whole mass of the mineral material may tend to combine at about the same time, forming altogether too much silicate matter to have the necessary stability of form. Such clays fuse or deform suddenly. No two clays show exactly the same behavior in respect to their silicate formation or vitrification.

The principal factors causing these variations in the process are as follows:

1. The mineral mixture, natural or artificial, of which the clay body consists.
2. The fineness of grain and homogeneity of the mineral mixture before heating.
3. The rate of heating, or the use of the time factor in bringing the minerals into combination with each other.
4. The temperature to which the heating is carried.

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*A paper presented to the American Society for Testing Materials, June 25, 1915.

5. The chemical condition of the kiln atmosphere.

A discussion of the operation of these factors is not necessary to the present purpose of this paper. Suffice it to say that any one of the five factors is able to profoundly influence the duration of the process and the physical character of the product, and jointly they sufficiently explain why clays exhibit such individuality in their properties. Nevertheless, the nature of the process through which they pass is the same for all.

The beginnings of vitrification are in the formation of small foci or centers of fusion, in which a single fusible mineral grain, or two interacting grains form a minute quantity of fused mineral. This acts as a solvent or flux to neighboring grains. The material formed in these early foci may not be uniform in nature, but as the amount of material brought into solution gets larger, it becomes more uniform in type. As the process goes on, the amount of fused silicate solvent increases more and more, until, after a time, the resistant framework formed by the solid grains is cut in pieces here and there by the inroads of the solvent, and the mass begins to gently sink out of shape. It has reached its deformation temperature and if the heat treatment is still kept up, the mass will ultimately pass from viscous solid to a real fluid.

*The Differentiation of Vitrification and Fusion.*—The key to the dividing line between these two stages is the physical state. In vitrification, the status of the body must remain that of a solid. Fluids are being formed within it during this process and the whole mass is approaching fusion, but we only recognize that fusion is reached when the mass will no longer support its own weight without deformation, and begins to obey the laws of a fluid.

The use of the terms "incipient vitrification," "complete vitrification," "viscous vitrification," etc., serves to convey the idea of progressive stages of a process tending towards fusion, but no definitely identifiable boundaries between these stages can be set, and hence they have little real value.

According to the chemical conception, vitrification is not conditioned by the quantitative possession of any single physical property or group of properties, but is a process, or better, a stage in a process.

It will be apparent, I think, that between chemists or clayworkers, it is proper to speak of a clay product as completely vitrified if it has undergone its hardening process so far as its mineral composition enables it to go. This may be a long ways from dense, or non-porous, but the criterion in this use of the word is not how hard or dense it may be, but how far its chemical transformation has progressed. If any additional heat softens it and puts it over the line and into the group of fused bodies, then it is at its stage of complete vitrification, regardless of its physical structure at that stage.

In this sense clayworkers allude to the vitrification period (of the burning process); to a broad or narrow vitrification range (meaning the temperature interval between the beginning of hardening and the loss of the solid state); to its vitrification rate or speed, etc.

### The Physical Conception of Vitrification.

The physical idea of vitrification deals with the possession of certain properties, without any regard as to how these properties have been developed, or whether they are as fully developed as they may be by variation of the vitrifying treatment, etc. This is the usual point of view of the engineer, contractor and dealer. They are not at all concerned with or interested in the difficulties that the clayworker undergoes in the process, but devote their whole attention to determining whether he has brought his product to a certain state which they call "vitrified."

This view of the meaning of the word is also supported by its history, or derivation. In a previous article by the writer[1] upon this subject it was shown that from its Latin derivation, the verb "vitrify" means "to make glassy," and that all dictionaries, encyclopedias and books of reference preserve this signification unimpaired after two thousand or more years. This theoretical meaning is, however, subject to attack, (1), on the ground that it is not now and has not for a long period of time been used at all in the glass industry—indeed its use is wholly foreign to that industry; and (2), that in the clay industry, where it is used largely, it does not and has not meant literally "to make glassy." Claywares burnt to a condition where visible glassiness exists are the very rare exception, and are usually defective from over-fire.

From this, it appears that the interests of the clay-product manufacturer are in danger from this old historic meaning of the word. Let a case arise where the law is invoked to settle a controversy as to whether a clayware is "vitrified" or not, without any other definition in the contract, and the lawyer will at once fall back on this idea of glassiness; and failing to find any glassiness in the product will make capital out of that fact and will usually win his case. It is absolutely necessary to shatter this old idea of glassiness as a condition of vitrification, for the protection of the clayworker, who cannot safely make his ware glassy if he wants to, and the clay-product user, who would suffer if glassy ware were actually furnished.

In this physical concept of vitrification, it is evident that there must be some quantitative measurement of the properties by which the matter can be decided. One man's opinion is as good as another's in a case which does not admit of measurement, and hence no decision is possible in contested cases, unless the properties of vitrification are defined and measured.

There are quite a number of such properties which may be used but only six need be considered, namely, color, texture, hardness, strength, specific gravity, and compactness or freedom from voids.

*Color.*—Changes in color have no necessary relation to silicate formation. Silicates of every color imaginable can be produced. Colors are therefore not direct indices to vitrification and can only be used as a guide insofar as their variations are found to be serial and regular, and correlatable with the other properties of vitrification. As between different clays, no sharp comparisons can be drawn. Between different stages of vitrification of a single clay, the color changes are commonly pretty regular and dependable. Between red-burning clays as a group, the variety and sequence of the color changes are fairly similar. The buff-burning clays exhibit a similar degree of comparability. Furthermore, the measurement of color, *per se*, is not easy, and requires a skilled physicist, with abundant equipment.

The color index to vitrification will therefore probably remain as a crude and very imperfect guide. It may offer a very convenient visual test for one observer dealing with one clay, but it can never become of general application between different clays and different observers.

*Texture.*—The texture of a natural mineral or fused silicate may vary from a coarsely granular, or crystalline mass, through every degree of fineness, till an apparently structureless homogeneous glass is reached. In clay products, the texture is habitually due to the gradual disappearance of the initial mineral grains into an indistinguishable matrix. Consequently, we get every variety of texture, as the initial grains vary from very coarse to impalpably fine, and as these grains are but little affected, or greatly affected, or wholly dissolved in the matrix. A third variation comes in from the fact that most silicate magmas tend to crystallize or become stony in cooling, and their crystallization may be of a coarse type visible to the eye, or so fine as to require the microscope to detect it.

Many people are misled by the fact that a fairly well vitrified clay, if cooled very suddenly, by withdrawal from the hot kiln, shows a glassy or smooth fracture on breaking. This is because it did not have the usual time to crystallize. In thin sections, under the microscope, every burnt clay shows abundant glassy material surrounding the residual undissolved grains. Sometimes it will show crystals, which have separated out of the fused matter in cooling. But to the eye, normally cooled clays very rarely look glassy, even when very far along in the process of vitrification. The normal microscopic texture of a well-vitrified clay shows abundant pieces of the initial mineral grains remaining, but firmly bound and cemented into a strong body by a matrix usually glassy in character, but sometimes crystallized quite thoroughly. The type of the claybody, whether natural or artificial, naturally imposes wide differences in this respect. One would not expect a piece of fine porcelain and a paving brick to show an equally fine texture, though each may be almost equally well along towards viscosity. It is therefore not an easy task to so accurately define the texture of vitrification, as to make it possible to use it quantitatively in the decision of cases. It offers useful resistance to any single observer dealing with one product, but like the color test it cannot be applied by different observers to different products in any but the most general way.

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[1] "The Legal Definition of Vitrification," *Transactions*, Am. Ceramic Soc., Vol. XVI, pp. 497-514 (1914).

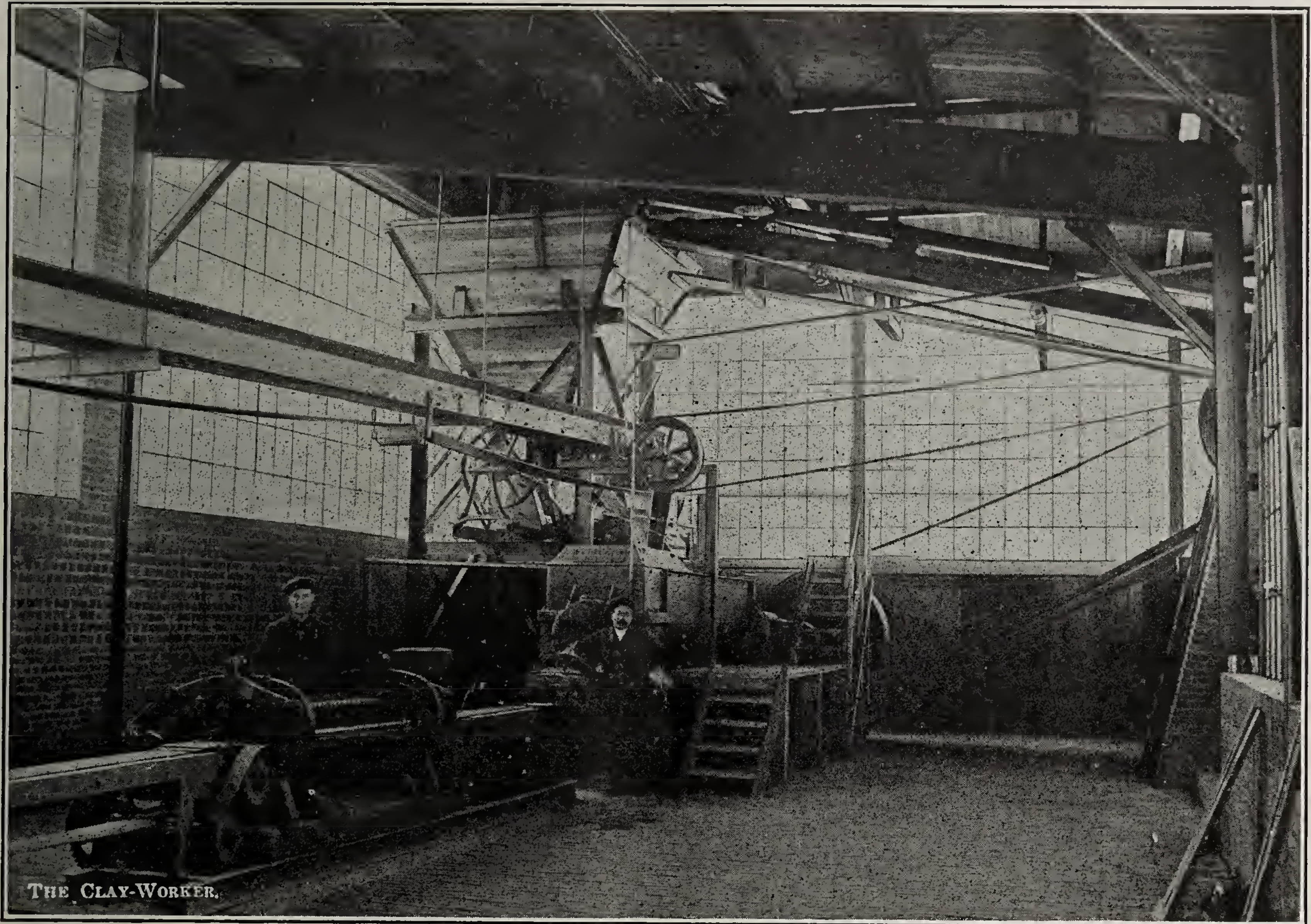
(Continued on page 90.)

The Bureau of Standards of the Department of Commerce has been making a study of the Atterburg Plasticity Methods, and has issued a pamphlet upon this subject which should be of interest to those studying the plasticity of clays. It is the Atterburg method of measuring plasticity that is used to considerable extent abroad for the rating of clay, and it is suggested that we have a revised adaption of this method in this country. Copies of the publication covering this subject can be had on application to the Bureau of Standards, Department of Commerce, Washington, D. C.

## THE SPLENDIDLY EQUIPPED PLANT OF THE ALLIANCE CLAY PRODUCTS CO.

JUST OUTSIDE the eastern corporation line of Alliance, Ohio, on the Cleveland-Pittsburg division of the Pennsylvania railroad, is located the double-unit plant of the Alliance Clay Product Co. From a six-kiln plant, it has, within a few years, expanded and developed until today it is one of the best-built modern plants in the country, with a kiln-holding capacity of 2,100,000 brick.

The material is a fine quality shale and fire clay, the bank showing a 30-foot vein of red-burning shale, below which is a 3-foot vein of coal, and below that a buff-burning fire clay, which has been worked to a depth of 20 feet. The shale is used for paving and building brick and the fire clay for face brick.



Machinery Room of the Alliance Clay Products Company's Plant, Alliance, Ohio.

The material is handled in the bank by a Marion electric shovel, and transported to both plants by a Plymouth gasoline motor.

Number 1 plant is equipped with the Stevenson dry pan, Freese 12-foot pug mill, Mammoth Jr. brick machine, and Freese rotating automatic cutter. The brick are dried by waste heat and burned in downdraft kilns.

On the new plant, recently completed, the material enters the shale storage room on a steel trestle, and is ground by two Stevenson heavy duty dry pans with gravity discharge.

From the pans the material is elevated by two Freese steel bucket elevators, each driven by separate motor, and then passes through Louisville screens and onto a Weller trough conveyor, discharging into a bin. Below this bin is a Freese automatic disc feeder, arranged so as to start and stop with the brick machine.

The feeder discharges the material into the pugging chamber of a Freese Model KA Union brick machine, and the column is cut by a Freese Model T60 cutter. This cutter is equipped to cut both building brick and Dunn wire-cut-lug paving block.

The entire machinery equipment, excepting the elevators, is driven by a 200 h. p. General Electric motor.

The shale storage room—60 feet long, 40 feet wide and 28 feet high—is built of brick to a height of 18 feet, above which, and extending the length of the building on both sides, is solid glass in steel sash and frame. The machine room is 100 feet long, 40 feet wide and 20 feet high. To an average height of 6 feet it is of brick construction, and all above this, entirely around the building, the construction is ribbed glass in steel sash.

From the cutter the brick are placed on Koppel cars and transferred to a 20-tunnel waste heat dryer. The dryer equipment (Rodgers) includes a 13-foot and a 12-foot steel plate fan, each driven through Link Belt silent chains by a 50-h. p. motor.

The kilns are rectangular, and are of special construction developed by this company. The burns obtained have been unusually good, the bottom course showing No. 1 brick although it is their "first round." Each of the ten kilns have a holding capacity of 140,000 brick.

The Electric Transfer in the Dryer Cooling Shed.

The coal is brought to the plant on an elevated switch supported by a heavy steel structure. It is dumped from hopper cars into steel bins, under which the distributing cars run. A Lakewood electric transfer car distributes the coal to the kilns, and also transfers the dry brick from the dryer to the kilns.

The entire plant is exceptionally well built. All buildings are of fireproof construction throughout, and the shale bin, feeder, conveyors, etc., are supported by steel structures. The lineshaft is on heavy brick piers. The entire plant, including the machine room, elevator pit, and kiln yard, is paved with brick and is electrically lighted.

The output of this plant is principally pavers—the "Speedway Block"—though they also manufacture a beautiful shade of red face brick and a buff face brick. Their office, shown in the photo, is built of the red and buff face brick and is roofed with green clay tile. The inside is also faced with the buff brick, trimmed with the red, producing a very attractive effect.

The personnel of the company are: Mr. J. B. Wilcox, manager; Mr. D. C. Wilcox, constructing engineer; Mr. J. Rahn, superintendent; Miss Emma Rahn, private secretary.

Mr. J. B. Wilcox is well known to the brickmaking fraternity throughout the country, as he is a regular attendant at N. B. M. A. conventions.

Written for The Clay-Worker.

## NEW YORK AND VICINITY.

WITH A STRIKE up the river to delay movement and an uncertain market, Hudson river manufacturers do not find the season altogether satisfactory. Yet, demand is better than it was last year at this time and prices, while very irregular, are tending upward, partly because of the shortage in stock and partly because builders are more insistent. Building operations of considerable magnitude are planned for New York this season and inquiries for brick are fully as numerous as they were last year at this time, but sellers still say that actual transactions are not as active as they would like to see.

Good, well-burned common brick sell at $6.25 to $6.50, and occasionally $6.75. On the other hand, some dealers sell at $6.00, and here and there one drops to $5.75. Last year's product, of uneven color and burn, brings $5.75 to $6.00, though the higher figure is rarely reached. Raritan common are worth $6.00 to $6.25, or even $6.50, though rarely the latter price is paid.

A Well Built Gasoline Locomotive.

The Coal Dump.

A number of operations of considerable size will shortly begin in New York. The principal business buildings under construction now are lofts. These are put up without partitions and then divided to suit tenants. Some are for light manufacturing, some for offices, but all are of brick and hollow tile, with fire-proof floors. They are fire-proof themselves. In some instances not a particle of any inflammable material in the structure itself. Generally of plain architecture, they afford a maximum of rentable space at a minimum of cost and are easily disposed of to manufacturers of clothing, women's wear and similar goods. Many publishers occupy buildings of this sort, and divide them to suit the requirements of their business.

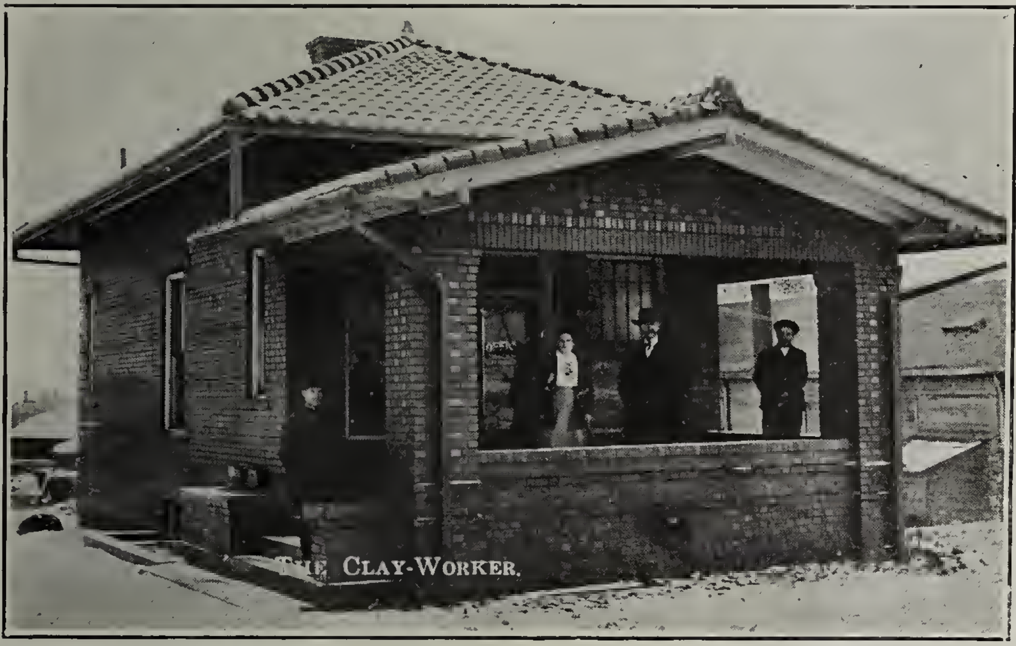
A number of large apartment houses are planned for the uptown section of the city, and Brooklyn is adding this type of building all the time. These all require a great many brick, both common and other sorts, and a good deal of architectural terra cotta is also used. The tendency about New York is to increase the use of brick, and all types of brick.

BURTON.

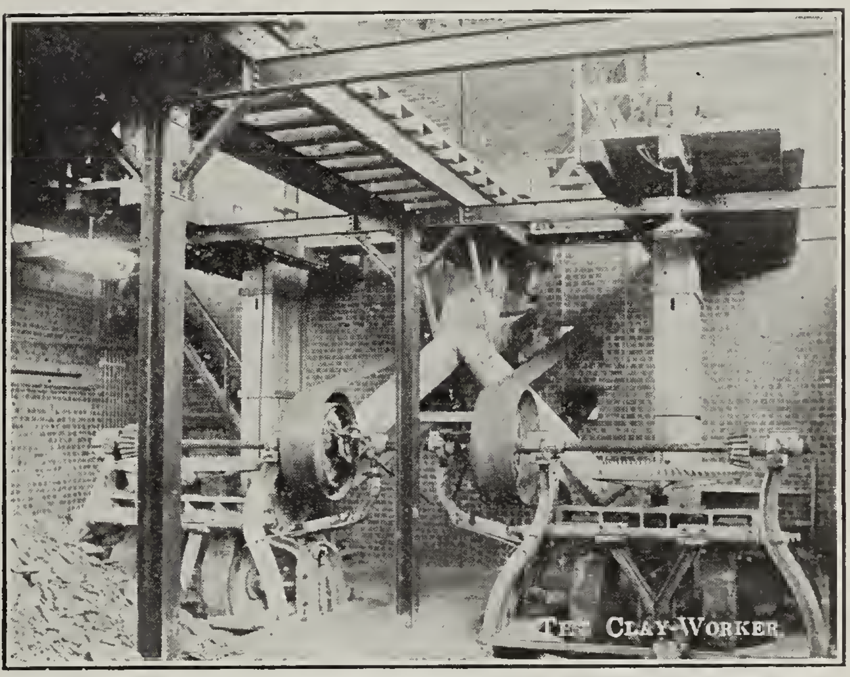
Written for The Clay-Worker.

## PACIFIC COAST NEWS.

RESIGNATION IS the word which expresses the most general attitude of business men on the Pacific Coast at present. Conditions are not lively in any line of industry except a few seasonable occupations, such as the canning of fruits and vegetables and agricultural pursuits. Business people have steeled themselves to grin and bear the temporary lull and console themselves with the fact that in other quarters like situations prevail. The general feeling is that if the war in Europe should end there would be a speedy revival of business. There is practically no sympathy out this way for intervention on the part of the United States. The Panama-Pacific International Exposition continues to attract increasing crowds of visitors and San Francisco is kept pretty busy living up to her reputation for hospitality. In spite of commercial depression there is more than the usual amount of good feeling manifested in all circles.



Office of the Alliance Clay Products Company.



Shale Storage and Dry Pan Room, Alliance Clay Products Company.

Building operations in the past several weeks have not been as heavy as they normally should be, but as no great record was anticipated the disappointment is not as keen as otherwise would be the case. Viewing the totals for building permits for the past three years the decreases are marked in the larger cities, but in the smaller communities there is often shown increases. Take the example of the city of Berkeley across the bay, for instance. The building records for Berkeley for May show a larger investment in buildings and improvements than that of any month in the history of the city, according to Robert Grieg, the City Building Inspector. The total of the amount of permits issued was $331,650. The nearest approach to this record was made in May a year ago, when the figure was $303,950. In Los Angeles the recent building permit totals hover around the million-dollar mark, whereas last year they were about half a million larger. San Francisco permits aggregate somewhat less than a million a month at present, or about half what they were a year ago. Oakland for the last two years has seldom had a monthly record exceeding half a million. Much new public building is in contemplation and no doubt when world affairs are more settled there will be a considerable rush of delayed new work and improvements.

In no public department of the state is there greater promise of building than in connection with the California University. Professor John Galen Howard, architect of the university, is to prepare plans at once for new buildings to cost about a million dollars. The university library is to be enlarged at a cost of $400,000; a new agricultural hall is to be erected at a cost of $350,000, and a new chemistry building at a cost of about $250,000. In San Francisco ground has already been broken for the new hospital of the Affiliated Colleges of the University of California. This structure will cost a million dollars and be constructed of brick and terra cotta. No contracts for the building materials have been let yet, but figuring will commence this month. It is still undecided whether the Rainer brewery will be built of brick or other materials. There have been certain labor regulations put in force of late which constitute a serious handicap to concrete construction and it is not unlikely that brick will be favored in several large buildings where concrete was at first considered.

Though there is no little amount of new sewer improvements being made throughout the coast territory, the extent of this class of construction is less than the needs of the public. Sewer pipe manufacturers are complaining of dull business and municipalities show much reluctance to go into debt for sanitary improvements. San Francisco has shown a most progressive spirit in this respect, however. Since 1906 the city has expended $6,150,000 on her new sewer system, which is now nearly complete. The total length of masonry sewers here is 35 miles, and the length of pipe sewers 18 miles. The two main drainage districts are separated by the Twin Peaks ridge. Five main outfalls lead into the bay. Provision is made for five inches rainfall in 24 hours, and 70 gallons per resident in 24 hours. In the level districts there are separate storm and domestic systems, and there are two sewerage pumping stations.

San Fransisco is still experimenting with vitrified paving brick, and in June the Board of Public Works called for bids on paving sections of several streets. Due to the lenient traffic regulations of the city very heavy loads are permitted on trucks with narrow-tired wheels and this necessitates a much more durable paving brick than would be necessary if there were wise restrictions in regard to truck tires and truck loads.

Prices on common brick are firm, yet no special activity in the market. Brick plants are operating steadily, many of them at full capacity for the present. Fire brick manufacturers report a steady, but not heavy, demand for fire clay products.

The Steiger Terra Cotta and Pottery Company have been delivering materials on numerous jobs of minor importance and are supplying 13,000 white matt glaze terra cotta for the new Capital National Bank at Sacramento. This building is to be of classical design, with elaborate ornamentation in figure work, one of the most imposing bank buildings on the Coast.

N. Clark & Son are figuring on some important work, but have no new announcements to make for the present. The new show room at their San Francisco headquarters on Natoma street is about completed and is a marvel in polychrome terra cotta construction.

Eugene Corrigan, San Francisco representative of the Stockton Fire and Enamel Brick Company, says the Stockton plant is running at capacity and that business is holding up very well considering the times.

The McNear Brick Company has been doing considerable few weeks shipments have not been quite as heavy as they business with the Hawaiian Islands this season, but the last were. In May this firm shipped 300,000 brick to the Islands. Mr. Dennis, of the company, looks for a business improvement in the near future.

Gladding, McBean & Co. are having a fairly good run on buff brick this month. They report no improvement in the market for their general products.

E. W. Dickey, the prominent sewer pipe manufacturer of Kansas City is expected in the city shortly on business in connection with the Oakland Paving Brick Company and the Livermore Fire Brick Company. The affairs of these two concerns have been in somewhat of a tangle for a long time and now it is rumored that a new plan of organization and operation, backed by new eastern capital, is to be tried. Both plants are operating on a limited scale.

The Denison Block Company, of Sacramento, is continuing to have an encouraging demand for their new product, known as the Denison interlocking tile. In northern California the product is being used with success. Two recent structures, on which this tile has been used, are the new high school at Fair Oaks and the new hotel and natatorium at Calistoga Springs. These tile are admirably adapted for domestic buildings, and architects are coming to specify them with considerable frequency.

The Gilroy Pressed Brick Company has communicated with the San Francisco Board of Supervisors, asking information in regard to the city's plans for paving with brick. By the first of the year the company claims it will be able to deliver vitrified brick for street paving at $30 a thousand, which is less than the city is now paying for the Seattle product.

The California Paving Brick Company, Oakland, has been permitted to issue 600,000 shares of its capital stock to the California Pottery Company in exchange for clay and shale deposits in Calavaras county and an option to purchase the plant of the California Pressed Brick Company in Niles Canyon, together with fifty-four acres of clay deposits, also to sell 100,000 shares of its capital stock at 50 cents a share, to net the company not less than 87½ per cent.

The Phoenix Paving Company, of Astoria, Ore., has filed articles of incorporation. The incorporators are W. H. Worswick, Joseph Penso, E. E. Gray and Norman Ross. Capital stock, $50,000. Shares, $100 each. SUNSET.

San Francisco, July 3.

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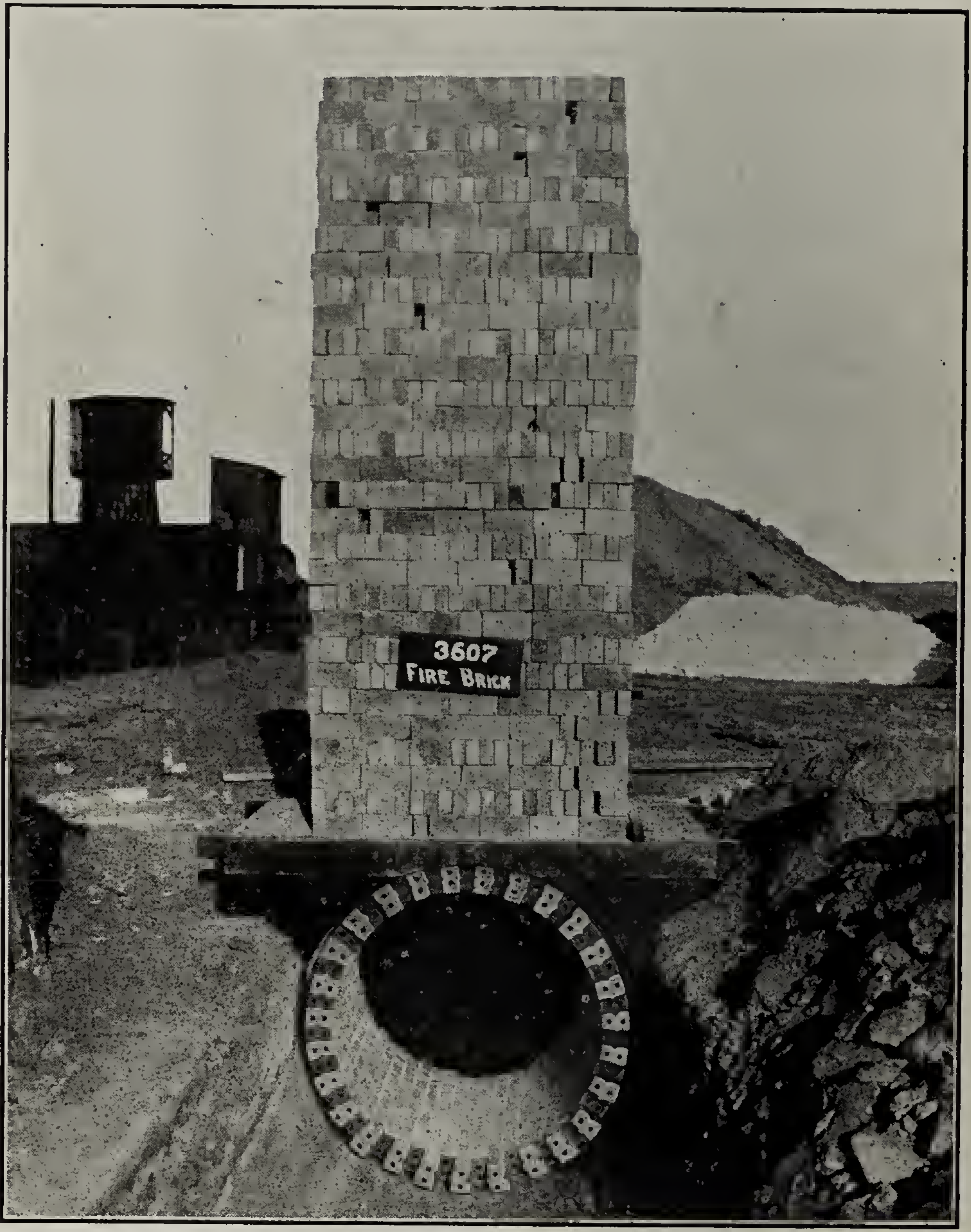
Submarines have proven bad medicine in warfare, and incidentally they are making busy times for the shipyards the world over.

## RADIAL BRICK SEWER AT SANTA MONICA.

The plans for the improvement, recently completed, of Colorado avenue, between Ocean avenue and Fourth street, Santa Monica, Cal., included the construction of several storm drains, in which were largely used a new type of sewer brick.

The district drained by these storm sewers comprises about 151 acres, lying southeast of Wilshire boulevard and southwest of Seventh street. The low point of this district lies at the southeast side of Colorado avenue, opposite Second street, which does not extend across Colorado avenue. At this point, the catch basin in place has been rebuilt to the new grade of Colorado avenue, and the storm sewers from Ocean avenue, Second street and Third street lead into it.



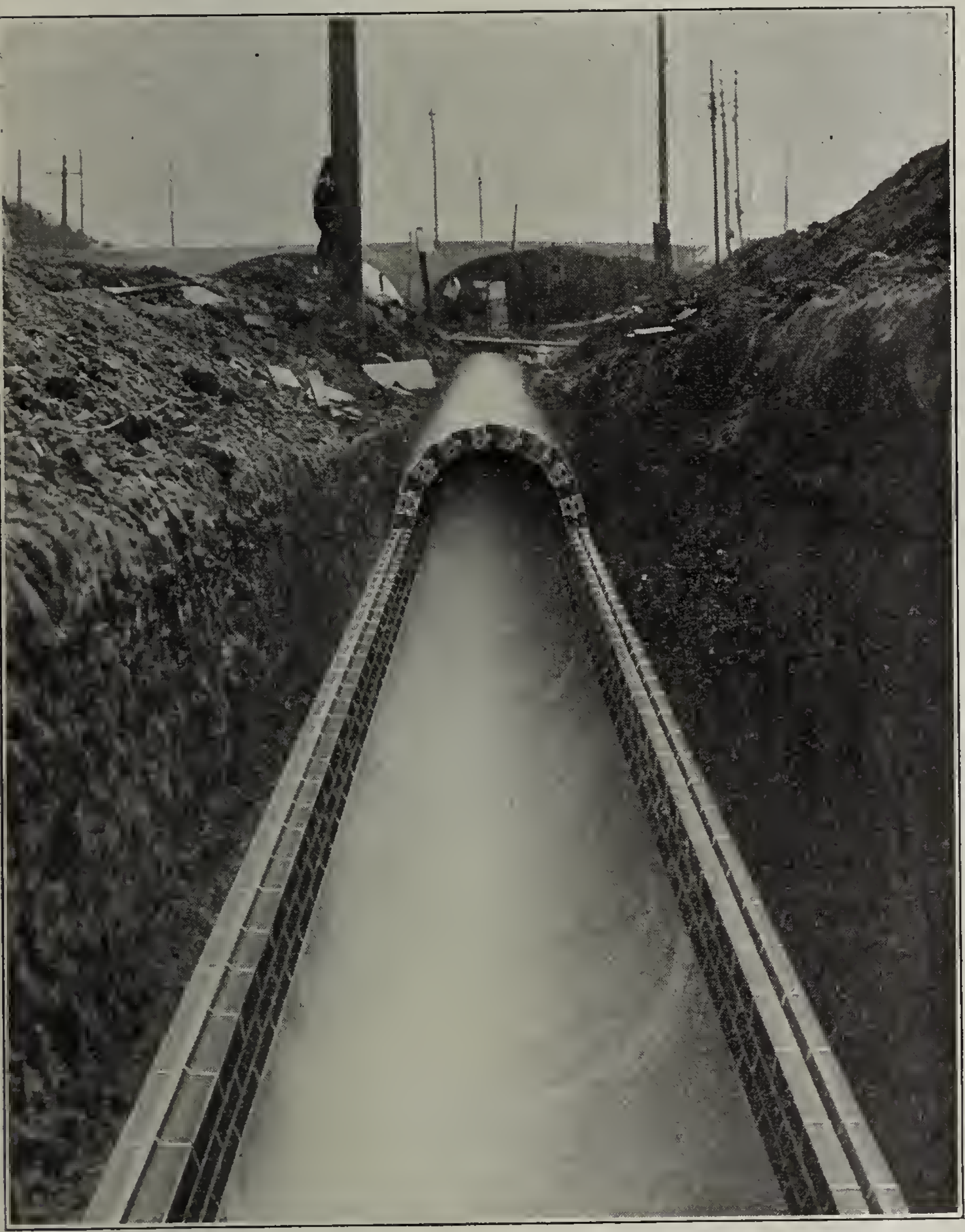
Section of Radial Brick Sewer, Supporting 27,000 Pounds.

The two former drains are circular and of 24 inches diameter; the sewer carring the Third street water is circular, of 30 inches diameter, and constructed of the new type of sewer brick, known as the Frost radial interlocking brick. The water coming down Fourth street, Fifth street, Sixth street and Colorado avenue is caught at the intersection of Fourth street and Colorado avenue and is carried in a 36-inch circular culvert, also constructed of radial brick, and thence southerly along Fourth street to a catch basin in place near the Pacific electric right of way, where it is taken by an old culvert and diverted into an arroyo. One of the illustrations shows a portion of the radial brick construction looking towards the point of discharge into the arroyo.

The Frost radial interlocking brick is slightly wedge-shaped and so designed that it forms a perfect arch with a very thin mortar joint. Each brick has tongue and groove, so that they are firmly locked radially in the arch, and are bonded together lengthwise, the brick being laid "shoved up," which forces the cement mortar into the longitudinal holes in the brick, thus forming rigid dowels. These brick show an exceptionally small percentage of absorption and by reason of the longitudinal openings are thoroughly burned throughout.

On the Colorado avenue work it was decided to use this type of construction in the 30-inch storm drain leading from Third street to the catch basin at Second street, and in the storm sewer running down Fourth street from Colorado avenue. This brick was also used in the 24-inch circular culverts connecting the intake with the main drains at Third street and Fourth street.

A single ring of No. 1 brick, 5¼ pounds, 3½ inches thick, was used in the 24-inch and 30-inch sewers, and a single ring of No. 5 brick, 6¼ pounds, 4 inches thick, was used in the 36-inch sewer. The 30-inch sewer was laid on a 1.75 per cent. grade and is 347 feet long. The 36-inch sewer is laid on a 2 per cent. grade and is 398 feet long. The connections total 155 feet, making a total length of this type of construction of approximately 900 feet, under conditions which gave a fair test of the adaptability of this brick and its usefulness in the construction of large diameter sewers.



Radial Brick Storm Drain Under Construction.

The novelty of this type of construction caused the masons some difficulty at first, but later very good progress was made. The average for the entire job on all sizes of sewers was 1,800 brick per day. The highest daily rate was 2,752 brick. The contractor had no difficulty in meeting all specifications and opinions of competent observers express highest satisfaction with the finished sewers.

These sewers were designed and constructed under the supervision of Mr. John A. Morton, city engineer of Santa Monica, to whom we are indebted for the foregoing data. The contract was executed by the J. D. Kneen Contracting Co. of Santa Monica.

The radial interlocking brick was invented by Mr. Chas. H. Frost and is manufactured by the Los Angeles Pressed Brick Company. It is designed to provide a cheaper type of construction for large diameter sewers, in which are now used either common brick or reinforced concrete. The manufacturers believe this new brick will save probably half the cost of material in large storm drains.

One of the illustrations shows a small section of sewer 4 feet in diameter, built for test purposes. The section is sustaining a load of 27,000 pounds. It was built at the company's plant in January, 1914. After the brick work was completed, loose dirt was filled in and the load was placed directly over the sewer. During the period of unprecedented rains of February, 1914, the dirt around the sewer became so soft that there was but little support, and the water ran down into and submerged the sewer, yet no damage occurred and the test section is still standing with the load upon it as shown in the photograph.—Southwest Contractor.

## CLEVELAND'S COMPLETE BUILDING SHOW.

THE INTERNATIONALLY famous Building Trades Exposition, which is held every other year in London, is the inspiration of the Complete Building Show, to be held in Cleveland, Ohio, in February of 1916.

Hundreds of trade shows have been held for clay products, cement products, machinery, appliances, real estate, etc., but it remains for this exposition to combine all these interests into one monster demonstration of safety first in building.

It is a show conducted for "the man about to build" by "the men with the materials to sell." It is not professionally promoted and is not to be conducted for profit. Its direction will be in the hands of an advisory committee composed of the fifty stockholders, all of whom are manufacturers of or dealers in permanent building materials.

Although it is the efforts of the Society Advocating Fire Elimination—a national organization for the promotion of safe building materials—the scope of the show has been made as broad as possible and displays of every building material will be accepted. The presence on its board of directors and advisory committee of clay products and cement manufacturers and dealers, lumber dealers, hardware dealers, appliance dealers and others representing all phases of building and furnishing, will insure adequate representation on all branches.

The secret of the assured success of the exposition is that it will "move." There will be no array of wall panels and inactive machinery. At least three complete houses will be built to demonstrate as many type of construction. These will be completely furnished and decorated both as to interior and exterior, and will be equipped with all the latest labor saving appliances for home.

The exhibits are to be divided into four general classifications:

Building materials and construction.
Equipment and devices.
Interior finish, decoration and furnishing.
Real estate and garden.

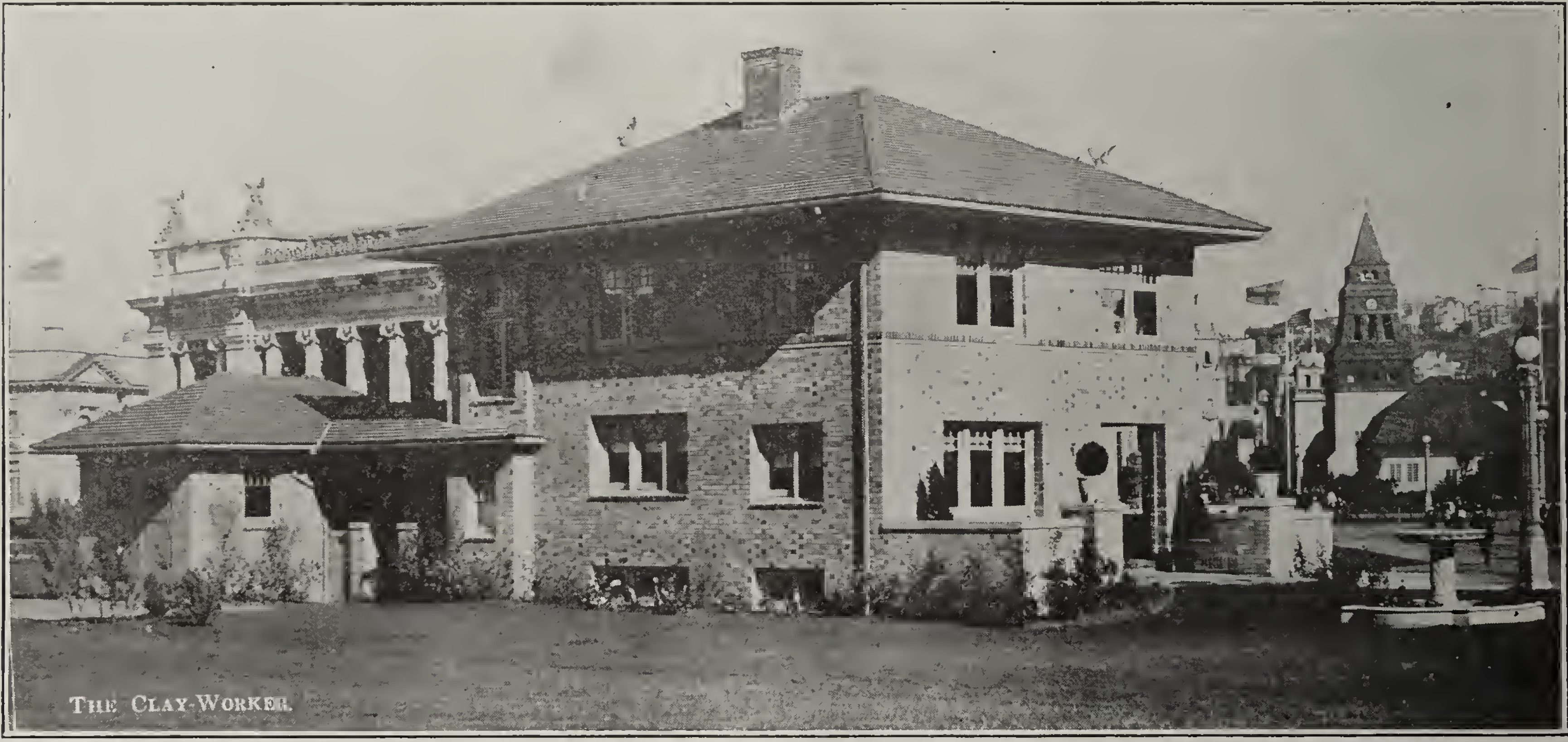
There will be an artistic side to the show in the exhibit of drawings submitted in a competition for a low-priced house of fire resisting construction to be conducted by the show company. This will give opportunity for the exhibition of everything entering into any building from a garage to a skyscraper, from the working drawings to the finished structure.

As a part of the advertising campaign for the show, a fire-resisting house is to be built in Cleveland, to be given away in connection with the show.

# THE MESSAGE OF BRICK.

*EDITORIAL NOTE: A message, an urgent message by long distance telephone, reached The Clay-Worker sanctum, saying: "We have some new photos of the model home at the Frisco Exposition. Can you use them?" It was the voice of Herman Matz, the brick enthusiast, who, by his indomitable energy, has made an actuality of a dream; a vision of a beautiful brick house which will convince all who visit the great Panama-Pacific Exposition that in brick architecture builders have at once the most beautiful and the most permanent structural material. It is a message of importance to the readers of The Clay-Worker and we are pleased to submit a reproduction of the photograph and the following interesting article from "The Architect," of San Francisco:*

THERE IS ALWAYS something fateful about a message. We may know it is coming; we may see the messenger from afar, but until the seal is broken and cheering news be found we cannot shake off that portentious feeling boding of ill. Advantage was taken of this fact by the man who invented the dispatch of a brick at the first head bobbing up in opposition. Even if it missed him it gave the rebel that portentious feeling which must account in part for the respect so generally shown to brick ever since that first eventful throw. It was so many ages ago that even the Chaldeans lost the record. But it is not of punitive things we would speak, to-wit: The bats, but rather of promises in perpetuity of the perfect shelter of a home whose walls from ground to gable and throughout the sacred perimeter proclaim the symmetry and beauteous truth of brick.



The Beautiful Brick Home of the Panama-Pacific Clay Products Association, at the Panama-Pacific Exposition.

If you have never thought that bricks have a language the same as flowers of spring and leaves of autumn, just lay aside these illustrated pages and go to that spot under the Presidio Heights where Massachusetts has reared her golden dome, eloquent of liberty; face the north where rise the mountains of Marin, eloquent of massive strengtth beyond the purple ebb and flow of ocean, eloquent of mystery; and there in the emerald foreground of peaceful sward your eyes will rest upon The Brick Home, eloquent of sacred pleasures of hearth and fireside.

The greatest proof of inspiration in the message of the Panama-Pacific International Exposition to the world is found in the responses from the remotest lands whose best productions have been sent to escape the ravages of insane war and to bring to peaceful lands messages eloquent of the beneficence of peace.

Right fitting also it is to note that this inspiration wrought upon the imaginations of some of our countrymen way back in Illinois to drop an ideal home into the midst of pretentious state edifices. Through the irony of fate it fell upon a plot assigned to, but relinquished by a war-torn state. The men who conceived the idea of The Brick Home were not slow to incorporate their enterprise under the name of Panama-Pacific Clay Products Association. In its Illinois charter the object of the association is stated to "Promote the use of clay products by publicity and, as a part of the initial campaign, to build a model, modern, low-cost, fire-resistant residence at the Panama-Pacific International Exposition."

It is perhaps too limited to speak of the message of brick in this instance. Look at the roof whose shingles are of clay. Even the fountain plays in its terra cotta way. The garden furniture, wall coping, partitions, walks, porches and terrace, kitchen, bath, lavatories, hearth and mantel—all are expressions of the art of the clayworker.

The president of the Panama-Pacific Clay Products Association, Mr. Herman L. Matz, of Chicago, himself, carried The Message of Brick to the clayworkers of California. He told how even organized labor, through its Bricklayers, Masons and Plasterers International Union of America, stood ready to contribute its share by uttering a sermon in masonry if we of the Coast would but write the words in clay eloquent. He told of how the brickmakers and sellers of the East would raise moneys to publish the result to all the world of homeseekers, lovers and builders, so that by combined efforts the bible of brick would have added unto it a new chapter of revelations. He captured his audience. Opened wide the factory doors of N. Clark & Sons, Common Brick Manufacturing Association, California Brick Co., Diamond Brick Co., Redwood Manufacturing Association, Simplex Window Co., Gladding, McBean & Co., Los Angeles Pressed Brick Co., Pacific Porcelain Ware Co., United Materials Co., and Steiger Terra Cotta and Pottery Works.

And now there stands the Model Brick Home according to the gospel of the Panama-Pacific Clay Products Association.

But you say, "The exterior is all right and the structure looks like a home, but to make a real home requires more than form. Is this a real dwelling? Does it contain a soul?"

Opportune is that question. Enter and receive a welcome from Miss Louise Brigham, artist, writer and expert in homemaking, who resides here. She will convince you that you have at last found a real home. It is complettely furnished with her inventions of box and Imada furniture; the furniture on exhibition in the Palace of Education that has been awarded the Medal of Honor by the Jury of Awards. If you wish to know more of it and how you may acquire one like it, Miss Brigham will tell you.

One of the Artistic Details of the Brick Home.

### RICKETSON REASONING.

Under the above head, the Ricketson Mineral Paint Works, Milwaukee, Wis., has issued an interesting leaflet, giving briefly convincing evidence of the superiority of Ricketson's mortar colors. They have been used now for more than a quarter of a century, have always proven satisfactory, and are recommended by architects, builders and contractors throughout the land who have used them satisfactorily. The pamphlet tells how to mix their "Red Brick Brand" colors with best effect. A copy of this leaflet will be mailed to any reader of The Clay-Worker on request, and those desiring additional information on the question of coloring brick, mortar, cement, etc., are requested to address the Ricketson Mineral Paint Works, Milwaukee, Wis., whose ad appears on page 101.

## N. B. M. A. DAY AT THE PANAMA-PACIFIC EXPOSITION

### Midyear Meeting To Be Held at San Francisco Late in August, 1915.

In RESPONSE TO an urgent request of the Panama-Pacific International Exposition officials for a meeting of the National Brick Manufacturers' Association at San Francisco during the great exposition there, it has been agreed that a midsummer meeting will be held, not a convention, but just a social gathering of those who can make it convenient to visit the exposition the last week in August. Many of the clayworkers of the land will want to see this great show, and doubtless a large majority of them can plan to be there the last week in August just as conveniently as at any other time. The gathering of the clayworking clans will add immensely to the pleasure of the occasion, so our readers are requested to take due notice and govern themselves accordingly. In honor of the event, the Panama-Pacific International Exposition officials have announced that August 26 has been officially designated as "National Brick Manufacturers' Association Day," and will prepare a program for the occasion that will make it one of great interest.

The function will, no doubt, center about the model brick home erected under the direction of the Panama-Pacific Clay Products Association. It is expected that every clayworker who visits the exposition will make the brick home his headquarters while there. They will find an attendant in charge, who will extend every courtesy circumstances will permit. The pleasure of a visit to the great exposition will be enhanced immensely by the meeting of friends and acquaintances in the industry. All who can are urged to be there August 26th and participate in the celebration of Brick Manufacturers' Day.

### PERTINENT FACTS ABOUT THE EDISON FIRE.

Not the least of Thomas A. Edison's inventions is his discovery of a method of turning a $7,000,000 fire loss into a profitable advertisement for Portland cement. When about a dozen buildings of the mammoth Edison plant at West Orange, N. J., were burned last December, the newspapers heralded the "burning of fire-proof buildings."

The discussion of the fire, instead of dying out, is more alive today than ever.

Immediately after the fire a number of interests tried to gain capital for materials other than cement by showing that where cement failed other materials withstood the fire. This led Mr. Edison to send out for publication in newspapers throughout the country a signed letter taking a knock at the other materials and restating his faith in re-enforced concrete as a fire resistive building material.

Unbiased consideration of the fire and its effects shows that while both cement and burned clay products failed under excessive heat, both stood the test wherever it is reasonable to expect they could do so. The fire, engineers say, may be turned to the credit of both cement and brick and leaves no ground for criticism of either.—Exchange.

Make a hobby of that "Build With Brick" slogan, and ride it till you are known far and wide, for it will help both you and the cause of brick.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

WISCONSIN BRICK men seem to be just as busy as last year, despite the fact that building operations at some points are not quite as active as they were in 1914. There was a slight falling off in Milwaukee during the month of June, but wholesalers in various lines of building material say that there is plenty of building being carried on in the smaller cities and towns and in the country districts about the state. There were 405 permits issued during the past month by the Milwaukee building inspector, for structures to cost $838,841, as compared with 437 permits and a total investment of $887,889 during the corresponding period of 1914. Jobbers in the building material field say there is an unusually large number of really big structures going up at various points about Wisconsin this year. As brick is being used in the majority of these buildings, the demand has shown no falling off up to this time. Most of the brick plants about the state seem to be operating at their normal capacity.

The demand for paving brick is especially strong this season, as so many cities about the state are using brick for extensive paving work. Marshfield, Merrill and Stevens Point are three of the larger cities where brick seems to be the most popular paving material this year. Considerable work is being done in all three of these cities. Brick pavement will be laid in Milwaukee on Twenty-sixth avenue, from the south line of Lapham street to the south line of Greenfield avenue. The brick pavements laid in Milwaukee last year along Thirty-fifth street and on portions of State street are giving the best satisfaction and are expected to result in further contracts in this line. As usual, the well-known Purington and Metropolitan lines of paving brick are being used extensively in the work which is being carried on in Milwaukee this year. Ricketson & Schwarz, well-known brick and general building material supply concern, handles these two lines of brick.

Milwaukee brick men are awaiting with interest the announcement of the awarding of the contract for the erection of the big assembly plant which the Ford Motor Car Company is preparing to build in Milwaukee at a cost of $250,000. The structure will be erected at Kenilworth place and Prospect avenue and will be of reinforced concrete, brick and steel, fireproof, five stories high and 160x320 feet in dimensions. Architect R. T. Oberst will erect a six-apartment building on Twenty-second street, between Grand avenue and Wells street. It will be of solid brick construction, three stories high and 52x64 feet in dimensions. A brick building, to cost $4,000, will be erected at Sixteenth and Sycamore streets by the Boyle Monument Company. Architect C. W. Valentine has prepared plans for an expensive residence to be erected for M. D. Plimpton on Lake Drive. It will be of brick veneer.

It is understood that the plant of the Wisconsin Tile & Brick Company, recently destroyed by fire, will be rebuilt at its former location on the Chicago & Northwestern railroad at Granville, just northeast of Milwaukee.

The Manitowoc Clay Company, incorporated, at Manitowoc, Wis., some time ago, with a capital stock of $200,000, to succeed the Manitowoc Clay Products Company, is making excellent progress with the erection of the new buildings and dry kilns which are being put up to increase the brick capacity and to house the new tile department. H. H. Titsworth, manager of the Chicago Clay Products Company of Chicago, is supervising the erection of the new buildings. It is understood that the business of the Manitowoc concern will be conducted on an extensive scale.

The new owners of the Hollendale brick plant at Hollendale, Wis., are meeting with much success and have greatly increased the output of the plant in both the brick and tile departments. It is said that the clay beds at Hollendale are among the best in Wisconsin and that the product of the kilns is standing all the severe tests which have been imposed.

The members of the Wisconsin Clay Manufacturers' Association are in hopes that the regents of the University of Wisconsin will see fit to establish the proposed course in ceramics to the university curriculum, so that it will be ready for the opening of the new school year next fall. Some months ago the state association petitioned the regents to establish the new course and later asked the legislature to appropriate $500 to extend facilities for instruction in this subject. The association has had the project in hand for several years and it is hoped that the course will soon be arranged for.

A. BADGER.

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Written for The Clay-Worker.

## PACIFIC NORTHWEST CLAY NOTES.

THE CLAYWORKING industries in the Pacific Northwest are just busy, and when this is said, about all that is favorable towards the clayworking concerns has been stated. Most of the brickyards are doing something, since it would be a shame to let the summer months pass by without being busy and doing something. The yards need not be busy as a matter of fact, for there is only a very small demand for brick and clay products in general. The building conditions in the larger cities of the Northwest show some slight increase and decrease according to the local conditions, and when one studies the reports closely we find that frame construction is chief material of construction. Of the 685 permits issued in Seattle in May, 292 were for frame constructions, while 361 were for alterations, and only three permits for semi-fireproof constructions. Of the 373 permits issued by Portland in the same period there were 199 for alterations and repairs and 144 for frame constructions, with four permits for fireproof building, four for mill construction and five for ordinary constructions. The building trade is not picking up very fast, and the following comparison, as compiled by the "Pacific Builder and Engineer," is given of the five large cities in the Pacific Northwest.

| | 1914. | 1915. |
|---|---|---|
| Seattle | $4,720,690 | $2,643,065 |
| Portland | 3,346,475 | 2,185,015 |
| Vancouver, B. C. | 1,820,984 | 1,022,071 |
| Spokane | 462,657 | 475,071 |
| Tacoma | 707,487 | 406,686 |

The Harper-Hill Brick Company, of Seattle, is making extensive improvements at its brick plant at Harper, under the direction of Manager W. C. Morse. The company has added another Fate Premier machine to its equipment for making hollow ware and partition tile and also installed a clay dryer.

Mr. James Keenan, superintendent of the Taylor plant of the Denny-Renton Clay and Coal Company, has taken up the duties of assistant manager of the company, and has moved to Seattle from Taylor. The Renton plant of this company is busy making paving blocks.

The plant of the Lake Union Brick Company has been leased by Engelbrecht & Baumgartner, who are remodeling the plant into a face brick proposition. The Youngren producer gas continuous kiln is being changed over to a chamber oil burning kiln, and the results so far obtained have been very good.

Mr. J. B. Miller, of the Clayburn Company, B. C., reports business fair in the fire brick line. He has just finished up a large contract for the special fire clay products for the Pacific Steel Company at Seattle, and also a contract for a million sewer brick for Vancouver, B. C.

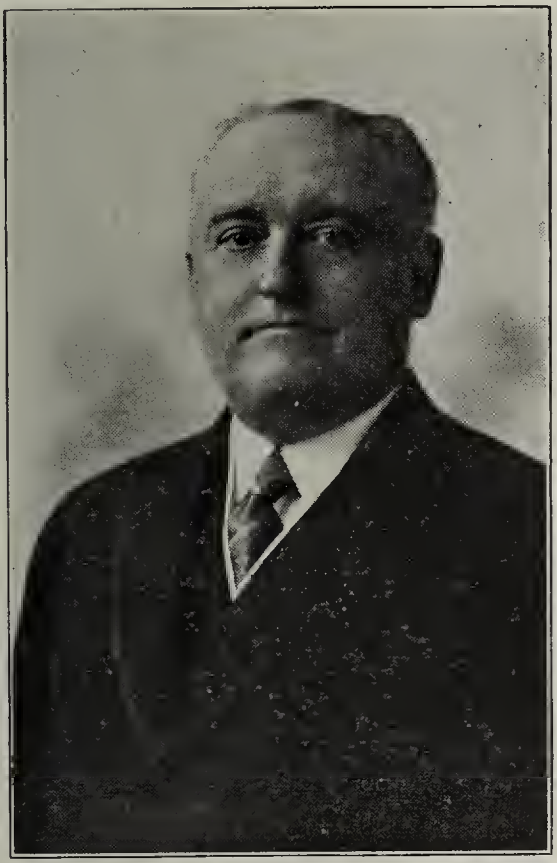
The Coast Clay Company, of South Bellingham, is making a large run on drain tile, there being a large demand for such tile in its section. The company secured several good orders for its dry-pressed shale brick. Mr. W. P. Brayton, the manager, stated that the demand for brick is only light.

The report published in the Spokane daily papers that the Perth Amboy Terra Cotta Company, of New York, was going to erect a large terra cotta and sewer pipe plant at Plummer Junction, Idaho, is wrong. President Powell of the New York company states that this firm is not contemplating such a move, nor has it tested any clays in that section.

SIWASH.

## E. V. JOHNSON GOES INTO BUSINESS FOR HIMSELF.

E. V. Johnson, who for many years has been a conspicuous figure in fire-proofing interests, announces that he has severed his connection with the National Fire Proofing Company, of which he was vice-president and western manager, and will in the future operate independently, with headquarters in Chicago. Mr. Johnson's extended experience and exceptional ability is a guaranty of a large measure of success in any undertaking in which he may be associated.



E. V. Johnson, Chicago, Ill.

## DONATIONS TO CERAMIC LABORATORY OF TORONTO'S NEW TECHNICAL SCHOOL.

The Toronto Technical School has recently received some very gratifying gifts from clay manufacturers and clay machinery firms of Canada. The Sun Brick Company, of which Sir Henry Pellatt is president, and Mr. Angus German is managing director, is donating a Martin Upright Six brick stock machine and will also erect a kiln under the direction of their superintendent, Mr. A. F. Greaves-Walker.

The president of the Canadian National Clay Products Association, Mr. J. E. Frid, presented the school with a repress, while the H. C. Baird, Son & Co., of Parkhill, Ont., made a very generous offer of machinery which will be installed in the very near future and will be available for demonstrations at the beginning of this fall term in the ceramic course.

In writing to the secretary of the C. N. C. P. A., the H. C. Baird, Son & Co. had the following to say in respect to their donation:

"We have your favor of the 3rd, and in reply we will supply you with a No. 2 Kells machine, with clay feeder attached, in place of the crusher, also an 8x20-inch end delivery pug mill. This mill will be driven direct from the pulley shaft of the machine, so that you will only require one drive belt from your line shaft to the main drive pulley on the machine, which is 54x12. We will put in the necessary cut-off tables and dies that you ask for.

"The total length of this outfit would be about 16 feet and the width about 4 feet, and the height about 4½ feet, and could be operated at slow speed with 7 or 8 horsepower."

## HOLLOW BUILDING TILE MANUFACTURERS MEET.

The semi-annual meeting of the Hollow Building Tile Manufacturers' Association of America was held at Hotel Severin, Indianapolis, Tuesday, July 13. There was a fair attendance, considering the fact that it was an impromptu affair, and work of much importance to the members was accomplished. Charles T. Harris, of Cleveland, secretary of the association, and President J. A. Maahs, of Pittsburgh, general manager of the Pennsylvania Fireproofing Company, were the first arrivals and the last to depart. They handled the convention in a most acceptable manner.

There were morning and afternoon sessions, the noon intermission being occupied by a luncheon, much enjoyed by the delegates. Three interesting papers were read and discussed; the first, explaining how business can be enlarged through association work, was by Harry Newman Tolles, bureau lecturer of the Association of Commerce, Chicago. The second paper, by E. J. Mehren, New York City, was on the subject, "Problems and Publications," while the third, by Edwin G. Zorn, of Chicago, treated on the subject, "The Jack Pot and Future Publicity." Mr. Zorn has been doing a great deal of effective work for the association, and showed some unusual photographs of hollow tile construction.

One of the last acts of the convention was to compliment the city of Indianapolis on her splendid facilities for holding conventions. All the delegates were in the best of humor, enjoyed every minute of their short stay and were enthusiastic in their associational work.

## BUSY DAYS FOR J. D. FATE & COMPANY.

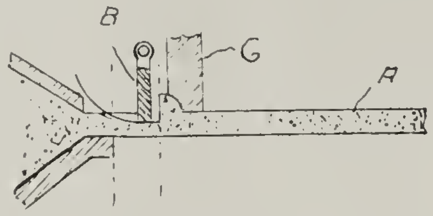
Everyone is happy around the factory of the J. D. Fate Company at Plymouth, Ohio. The plant is running full force and shipments are being made daily. There are enough orders on hand to make them all bright and cheerful. Both the clay machinery and locomotive departments have all wheels turning. There is an unusual demand at this time for their six-ton gasoline locomotives. These locomotives are heavy enough to shift freight cars. They are built for any gage track. Recently the company shipped two of their six-ton locomotives, one to the Alliance Brick Co., of Alliance, Ohio, and the other to the Dover Fire Brick Co., Cleveland.

**The Clayworking Industry of Belgium**—The German government has studied the conditions in Belgium carefully and published a large volume concerning the land, the people and the economical conditions. The clayworking industry is given a large description and treats clay deposits and manufacturing alike. The beds of plastic clays are very numerous, and the clayworking industry is therefore a large one. This does not apply to the higher ceramic products, as kaolin and white burning clays are not found in Belgium. The largest item in the clayworking industry is the manufacturing of fire clay products. The total yearly production is more than 200,000 tons, of which about one-third is exported. In the manufacturing of brick, tile and roofing tiles, the manufacturing is very large, also, and the city of Boom is the largest manufacturing center in this industry. There were manufactured in that vicinity 590,000,000 brick, while the balance of the country only made 195,000,000 brick. The Belgium export on brick and roofing tiles amounted to 288,000 tons, valued at $2,153,000.—Keramische Rundschau No. 7, 1915.

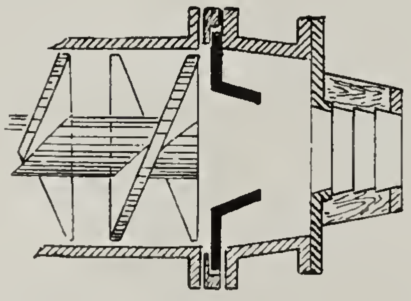
# FOREIGN SCRAPINGS

**Common Brick for Paving Purposes in the War Zone**—In a letter under date of January 27, 1915, a brickmaker serving the German army writes that their heavy batteries are set up in a brickyard, where two field kilns are located, with burnt brick. These brick were made soft mud on a small hand yard. As the country roads are very poor in this district, orders have been given to use these common brick for paving brick purposes, and good results, in spite of the heavy traffic, have been obtained.—Deut. Topf & Z. Z. No. 12-13, 1915.

**Methods to Make Lugs on Roofing Tiles**—In making flat roofing tiles with auger machines, it is hard to make the lugs on such tiles. These lugs are used for hanging the roofing tiles on the roof laths. The present invention, which is shown in the cut, makes these lugs as the bar passes to the cutting table, and the small lever B cuts into the clay bar A, and will raise the clay so that it will form a knob or lug against the stop C. As soon as the lug is made, the whole arrangement is released, and brought down again on the clay column when the proper length of the tile is reached.—Deut. Topf & Z. Z. No. 8-9, 1915.



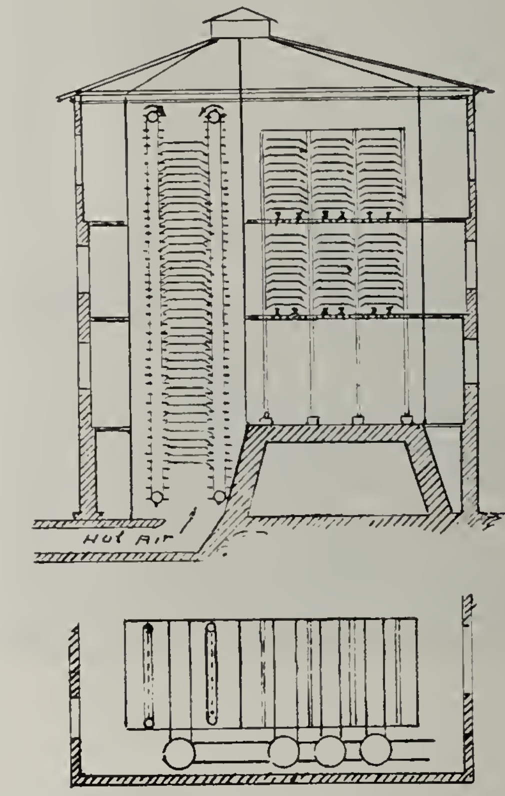
**Lamination Cure**—Inasmuch as lamination is caused by the auger arrangement, it is necessary to break up the clay as it leaves the auger, in order to prevent lamination. The attachment herewith shown has two small knife arrangements which will cut the clay and thereby destroy the lamination which was caused by the augers.—Tonind. Z. No. 24, 1915.



**Vitrification of Paving Brick**—Good shale containing iron is the best material for making paving brick. Clays containing lime, and also soft plastic clays, are not suitable for paving brickmaking. One of the first requirements of paving brick is that the vitrification point and the melting point have a large range. In some clays this requirement can be increased by the admixture of ground quartz or kaolin sand. Some iron ore containing large percentage of clay can also be used. The best results are, however, obtained by the use of magnesite. Experiments have shown that from 2 to 3 per cent. of magnesite is sufficient to make complete vitrification. A great advantage of the use of magnesite is that the brick does not need as high a heat to vitrify, and therefore the brick are better and less kiln-marked than the straight clay mixture.—Deut. Topf & Z. Z. No. 18-19, 1915.

**Leadless Glaze Used in Denmark**—The following receipt of a leadless glaze in most potteries in Denmark is made as follows: Calcined soda 100 parts, boracic acid 90 parts, kaolin 12½ parts, whiting 40 parts, feldspar 75 parts and quartz 28 parts. This mixture constitutes the frit and must be mixed and burned together. After fritting, grind finely and use 48 parts of ground frit with 11 parts of kaolin and 5 parts of feldspar, and the glaze is ready for use. Mr. Fisher-Moller gave a very interesting talk in connection with the leadless glazes before the Danish Potters' Association, which held its annual meeting in Copenhagen last November.—Lehrindustrien No. 1, 1915.

**Dryer Over Continuous Kiln**—The great mistake of most dryers is that they do not dry the clay products bone-dry, and the results are that the kilns must be water-smoked slowly, in order to dry the clayware. In order to overcome most of this trouble, Richard Hein has obtained a patent on an arrangement by which hot air is blown through the elevator shaft which contains the clay products, and in this method all clay products are bone-dry before they reach the kiln. Two endless chains are used for the moving of the pallets, and the arrangement is such that these chains can be moved over two I-beams in the top of the building to any place along the kiln, so that the whole arrangement does not interfere with the setting of the clay products.—Deut. Topf & Z. Z. No. 15, 1915.



**Cost of Roofing Tiles**—As tar paper roofing has not been used much in Germany, it is interesting to note that while such paper roofing is cheaper than clay roofing tiles, the cost for extra installation only amounts to 4.75 per cent., according to data carefully compiled by Professor Osterroht, of Koenigsberg. He also states that the up-keep expenses of a tile roof are nothing. They stand the weather better, are not damaged by wind and storm, are warm in winter and cool in summer.—Deut. Topf & Z. Z. No. 4-5, 1915.

**Oil for Flower-Pot Molding**—The sticking of the clay to steel or brass molds for flower-pot machines is a common trouble in clay plants. Parafine oil is used in many cases to advantage, and also a mixture of six parts of coal oil and four parts of linseed oil. If the oiling of the molds does not overcome the trouble, it will be better to use plaster molds than steel molds. The plaster molds should be soaked in a solution of thick soft-soap water. —Deut. Topf & Z. Z. No. 10-11, 1915.

Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

AFTER MIDSUMMER DAY passes there is a little feeling of uncertainty in the business world, caused by the things which beset the crops. Every year it appears to be much the same, regardless of whether the crops are threatened with cold or heat, not enough rain or too much. Hence, for a little period of six weeks or so there is likely to be a little lull in the building business, particularly with reference to projected work. It has less bearing upon work already started, since that character of work usually goes ahead.

It is quite true that conditions are not regarded the best in commercial circles. Varying causes bring this about, including something from the war abroad, something from depressed retail conditions because of unseasonable weather, and something from general uncertainty. It has been indicated all along in the lack of large buildings planned or started. Aside from public structures such as court houses, schools, hospitals and a few semi-public structures, such as churches, there is comparatively little work of any size proposed. Most of the private work under way or contemplated is of the moderate size. However, in spite of the situation there is a somewhat wider call for brick construction, and it would seem that the shrinkage is more in other materials. It is certain that there is not as much reinforced concrete construction going on now as was the case last year and earlier. Possibly litigation over patent rights covering reinforced concrete construction may have something to do with this condition. It appears that the outcome of some litigation has been to cloud titles to such construction until an intending builder may add to his other uncertainties that he may also be hooking up with the business end of a lawsuit. So that there is many a builder who would seem to be willing to hazard the chances for a collapse of the material, run the risk of a hot fire putting it out of business, but when it comes to coming within the line of fire of a real suit for infringement of patent, and a side dish of a demand for an accounting, he prudently proclaims neutrality, and uses brick. As brick "ain't mad at nobody" but will protest from summer's heat and winter's cold as well as from fire and conflagration, and does not carry a threat of an injunction with its use in any form, it is a considerably better friend for the intending builder than some of the other materials.

The Twin City Tile and Marble Company, of Minneapolis, has opened an elaborate booth showing various tile wares in the Builders' Exchange quarters in Minneapolis. A number of concerns allied with the clay industry have displays there.

The Swanson Brick and Tile Company, of Minneapolis, has issued a booklet on the use of hollow tile construction for residences, garages and other buildings. Drawings are shown for ten and twelve-inch walls, and for face brick and for stucco exterior.

The annual picnic of the Builders' Exchanges of St. Paul and Minneapolis was held this year at Spring Park, Lake Minnetonka, and had a large attendance. Both exchanges have a number of brick and tile men among their membership, as well as a number of contractors specializing in brick construction. Despite some thundershowers a very pleasant time was had.

The Northern Pacific Railway has let contracts for new depots at Sartell, Minn., and at Wadena, Minn. The road has specified materials native to the state. In each case brick from the Con Creek plant will be used.

E. Kaul & Son, Faribault, Minn., have resumed making brick at their plant after being down for two years.

The Johnson & Johnson Construction Company, Boston Block, Minneapolis, has started work for the erection of a modern one-story brick building for a garage at the corner of Fourth avenue South and Sixth street for A. W. Duncan. It will cost about $12,000.

Kramer & Stevens, of St. Charles, Minn., were awarded the general contract to erect a modern brick school house at Odessa, Minn., for the board of education.

Carlson & Hasslan, of Ortonville, Minn., have the general contract for a brick school building at Milan, Minn.

Kinney & Macumber, architects, Minneapolis, are preparing plans for a modern brick school building for the board of education of Austin, Minn., to cost $40,000.

James Leck & Co. have the general contract to erect a brick warehouse for the Lansing Company, on North Third street, between Fifth and Sixth avenues, Minneapolis. Cost about $60,000.

Minnesota College, a Scandinavian institution of southeast Minneapolis, is having plans prepared for a modern college building, to cost about $75,000. Chapman & Magney, of Minneapolis, are the architects.

The George J. Grant Construction Company, of St. Paul, has the contract for extensive alterations and an addition to the brick residence at Summit and Lexington avenues, St. Paul, for A. A. McDonnell, of Chippewa Falls, Wis.

Dr. L. A. Bratholdt, of Minneapolis, will erect a modern brick residence in Homewood addition, to cost $15,000.

The East Side Construction Company, of Minneapolis, has work under way for the erection of a three-story brick apartment building, at 500-512 Delaware street, southeast, to cost $50,000. There will be forty-three apartments in the structure.

The Lake Amusement Company, of Minneapolis, is erecting a theater building in St. Paul, at Snelling and Asbury streets, and a store and apartment building adjoining it, to cost about $30,000. Both will be brick construction.

The Boyd Construction Company, of St. Paul, received the general contract to erect the addition to St. Luke's Hospital, St. Paul, to cost about $75,000.

McManis & Tarnoski, of St. Paul, have received the general contract to erect a brick school building for the board of education of Anoka, Minn. M. Klarquist & Son, Minneapolis, received the contract to erect the brick plant for the Consumers' Artificial Ice Company, at Twenty-sixth street and Nicollet avenue, to cost $30,000. T. WIN.

## DO IT NOW.

If with pleasure you are viewing any work a man is doing,
And he lies with snowy lilies o'er his brow;
For no matter how you shout it, he won't really care about it;
He won't know how many teardrops you have shed;
If you think some praise is due him, now's the time to slip it to him,
For he cannot read his tombstone when he's dead.
More than fame and more than money is the comment kind and sunny
And the hearty, warm approval of a friend;
For it gives to life a savor and it makes you stronger, braver,
And it gives you heart and spirit to the end.
If he earns your praise, bestow it; if you like him, let him know it;
Let the words of true encouragement be said.
Do not wait till life is over and he's underneath the clover,
For he cannot read his tombstone when he's dead.

—Exchange.

The United States Geological Survey has been drawing some prizes and medals at the Panama-Pacific Exposition for its exhibits, as has also the Bureau of Mines.

## CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

### Looking for a Sand Dryer.

Editor The Clay-Worker:

Would you kindly furnish us with a list of concerns making or selling a sand dryer, suitable for our factory?

Thanking you for your attention, we are,

Yours very truly,
FRONTIER BRICK WORKS.

Niagara Falls, N. Y.

### Wanted—A Waterproof for Oil Tank.

Editor The Clay-Worker:

Can you give us any information as to the proper methods to be used in waterproofing a tank made of brick and cement for the purpose of holding fuel oil? It will be practically all under ground and is now cemented inside and out; but this alone does not stop it leaking.

Yours truly,
WILSON BRICK CO.

Wilson, Conn.

### A Tribute to Mr. Aylesworth.

Dear Friend Randall:

It was very much of a shock to me to hear of the death of my friend Warren Aylesworth, of Canton, Ohio. Such bereavements, coming upon one thus suddenly, leave one in an absolute state of bewilderment. It is almost impossible to express the feeling of loss, and great sympathy, and of regret that fills one's heart to overflowing.

This event certainly leaves a great gap in the hollow square of friendship, wherein the touch of elbows has done so much to help me on my way and make life worth the living.

Belleville, Ill., June 15. WARREN W. ITTNER.

### Fire Brick for Chicago.

Editor The Clay-Worker:

On page 758 of June issue of your paper, I note item on the testing of fire brick. The city of Chicago is calling for bids on a new steam generating plant for the Central Park avenue pumping station, consisting of five 500-horsepower water tube boilers. The fire brick to set these boilers are to be furnished under the following specifications, which may be interesting to your readers:

"Two grades of fire brick shall be recognized in this work, the higher grade to be known as No. 1 fire brick, and the next grade to be known as No. 2 fire brick, of makes approved by the city of Chicago.

No. 1 Fire Brick: Brick shall comply with the following dimensions:

| | Length | Width | Thickness |
|---|---|---|---|
| Maximum ....... | 9 inches | 4½ inches | 2½ inches |
| Minimum ....... | 8¾ inches | 4¼ inches | 2¼ inches |

Bricks shall be whole, with square, sharp edges, plain faces and parallel sides.

**Test of No. 1 Fire Brick**—From each 1,000 brick, the city inspector may select two brick for fire test. One brick shall be placed on end, loaded 50 pounds per square inch of cross section, and shall successfully stand a temperature of 2400 degrees F. for one hour without showing any deformation, checking, spalling or a contraction greater than one-half inch in length. In making test, heat shall be brought up to 2400 degrees F. in a period of four hours, and the temperature shall be maintained for one hour. The other brick shall be broken, and pieces must stand a temperature of 3200 degrees F. without softening.

Brick shall be marked with manufacturers' name and shall be whole and free from cracks or flaws.

**Test of No. 2 Fire Brick**—Brick to be same dimensions as No. 1 fire brick. From each 1,000 brick, the city inspector may select two brick for fire test. One brick shall be placed on end, loaded 50 pounds per square inch of cross section, and shall successfully stand a temperature of 2,000 degrees F. for one hour without showing any deformation, checking, spalling or a contraction greater than one-half inch in length. In making test, heat shall be brought up to 2,000 degrees F. in a period of four hours, and this temperature shall be maintained for one hour. The other brick shall be broken, and pieces must stand a temperature of 3,000 degrees F. without softening.

**Ground Fire Clay**—The fire clay shall analyze not less than 35 per cent. alumina, to 50 to 60 per cent. silica.

DEALER.

### A Letter from an Old-Time Clayworker.

Editor The Clay-Worker:

Your slogan, "Build with Brick," is indeed a splendid one. Living in a day, as we are, of push and pull, they who push win, particularly when the pulling is done together, persistently. Something of the sort, too, is much needed among the clayworkers here, as well as the general public. Here we have what is called a live city of over 200,000 people, without an up-to-date clay plant. I do not claim to be a patriarch, but I have lived long enough to nearly have forgotten the antiquated methods of brickmaking, such as carried on here. Old soft mud machines, sun dried summer plants, not a face brick of any kind attempted and not one of these yet opened up for the year's output much before July, need no words from any one to convey the progression of our local manufacturers of clay brick.

We have a sand-lime brick plant making as good a brick as is made of this class of goods, which is not saying much, in the opinion of the writer, who goes in for burned clay brick, etc., as the best building material, and personally would add to your slogan, "Build with Burned Clay Brick."

We need some live individual to step in here with a slogan in his mind, if not before his eye, erect an up-to-date plant and make high-grade goods instead of having to import them. There is no better field than the immediate neighborhood, where there is material and a market at the door.

A neighboring town of small dimensions, some fifty miles south, is moving by installing a six-kiln, sanitary pipe plant, which is now nearing completion, and will shortly begin operations. This plant will be properly and practically managed, with equally practical burning, which is the most essential part of the business to have practically done, for obvious reasons. If the finishing touch is not well done, it makes little difference how well previous work is done, or what the quality of clay is used, if it is not burned satisfactorily. The profit and loss account is sure to tell its own tale, and in the experience of the writer this finishing department, viz., burning, is the least understood of any, as a matter of fact. The writer, who is an all-around, practical, experienced clay products man of many years' extensive and varied experience in the old country, qualified to judge, finds really no first-class pipes this side of the Atlantic, and the reason is not far to seek. This should not be, with machines equal to anything in the country, clay excellent in many cases and everything else fairly satisfactory, excepting kilns which are antiquated and not receiving the attention which the most important part of the manufacture should receive. Like other things, there are kilns and kilns. On this side, I find there are only kilns. In the old country, every class of goods has its own special design for the specialty it is for; no one there would dream of burning salt glaze goods in kilns in use fifty years ago. No, indeed; experience has taught them newer and better designs. The writer's experience in the States is, that plants are designed and planned by machinery engineers who have had these plans copied from some cracked-up plant that was going to do great things, and did until the money was gone, then something else was done, as is the case in scores of places. I know several myself. I would just as soon go to a steam hammer blacksmith with an aching tooth expecting him to give me relief, as consult a machinery mechanic on a question of burning and salt glazing, which is a question, solved only by few, but the professors are many; many of them "laboratory" burners of course. These doctrines are all right in so far as they go, but to become a practical salt glaze burner needs years of hard work and experience, and good, sound judgment, acquired by that experience, to become a master of that art; for art it is, and there is a very great art in it, which cannot be learned by reading technical terms from the laboratory. I read and read, and I have worked and worked, and know how experience and practical judgment are obtained. Combined, theory and practice are sure to make proficient any student of both; that cannot be denied, as it is essential to get at the root of a thing to thoroughly understand it.

Another local firm, with a plant some eighty odd miles west of this city, are at present experimenting with producer gas burning, so far with indifferent results. This is no new method, having been in use in the old country successfully for a quarter of a century. The writer was the patentee of the first successful attempt at this very economical system, by far the most economical system hitherto in use, and still holds its claim as the pioneer of all kilns which has been proved by the extensive use it is now receiving in England. The invalid patents of the U. S. A., which are simply copies of my out-of-date patents in England years prior to the States issue, and their failures, in no way discount the success of gas firing. I have been working for a considerable time on an entirely new method of burning, which is going to completely revolutionize this burning question and reduce to a mechanical science, which hitherto has been impossible with open coal firing or gas. AN OLD-TIME CLAYWORKER.

### Greetings from Colombia.

Editor The Clay-Worker:

My last number of the Clay-Worker is from 1896, December. I have lived without him for more than nineteen years, but it is, for me, impossible to do more, I can't go on without it. I have been 41 years in my brick works, perhaps, I should be no more and I desire to die with the last number of your Clay-Worker by my side.

Please to find enclosed $2.00, value of the subscription of one year, according with Vol. XXVI, No. 6, 1896.

I am very respectfully yours,
RICARDO CALVO R.
Bogota, Colombia, June 8, 1915.

### A New Rough Texture Brick.

Editor The Clay-Worker:

We are forwarding you, under separate cover, a few samples of a new brick that we are just putting on the market, and which will be known as our "Brocades." Knowing that you are interested in anything new in the way of brick, we take the liberty of forwarding these samples to you. We believe we have overcome some of the objectionable features of a great many rough texture brick in this material. One is that we produce the same texture over the entire face of the brick, at the same time producing an effect in the wall that gets away from the flat appearance of the ordinary matt face brick.

We have had these brick on the market now only a short time, but it is proving to be a very popular brick, and the results in a building are more than satisfactory. We have applied for the patents on this material, the machine for manufacturing, the method of manufacturing, as well as the brick.

Yours very truly,
KANSAS BUFF BRICK & MFG. CO.,
B. W. Ballou, Secretary and Gen. Mgr.
Buffville, Kans.

## OBITUARY.

### The Sudden Death of William Simpson.

Mr. William Simpson, general sales manager of the Frost Manufacturing Co., Galesburg, Ill., died June 16, in Chicago, after a short illness. Mr. Simpson was born in Toronto, Canada, July 1, 1872, and has been employed by the Frost Manufacturing Co. for the past eighteen years. He was a son of P. L. Simpson, a veteran brick machinery man, and in his early days was connected with his father in the trade. He was very popular among his associates, and was reputed one of the very best salesmen in his line in the country. "Bill," as he was familiarly called, was a friend to everybody, and much of his success can be attributed to his genial disposition as well as a thorough knowledge of his business. He was an enthusiastic Mason, being an officer in Candeda Lodge of Chicago. He leaves a daughter six years old. He will be sorely missed by all of his friends and associates, and there are hosts of them. He was for years a regular attendant at the national conventions, and was easily one of the most popular "missionaries," as the machinery salesmen have been termed.

The Late William Simpson.

**German Export to the United States**—That the war did not stop all exports from Germany is shown by the figures just published by the General Counsul, district of Coburg, which includes pottery, toys, metal ware and other articles. The total export for the last quarter of 1914 was 9,246,863 marks ($2,219,247), while in the last quarter of 1913, it was only 6,071,302 marks ($1,457,112), therefore an increase of 3,175,561 marks ($762,135) in spite of the war conditions and the difficulty of exportation.—Keramische Rundschau No. 6, 1915.

## HANG UP THE SIGN.

ALONG THAT GREAT Lincoln Highway, the construction of which is the center of interest among the good roads people all over the country, we hope the brick folks will hang up those "Pave With Brick" and "Build With Brick" signs in plenty and so conspicuously that those who run, even in automobiles, may read. There will perhaps be more cross-country travel on this highway than anywhere else in the country and it is a way, also, along which good brick homes should be built, homes that the people can take pride in, and plenty of "Build With Brick" signs will help encourage this and at the same time help make more business for the brick industry.

Quite a number of interesting things to the clayworkers are being developed in connection with the Lincoln Highway. Some of the best sections of it will be paved with brick. For example, there will be a strip paved from Goshen, Indiana, to Benton township line, a distance of five miles, at a cost of a little more than $72,000, which is the second brick section of the highway to be built in Lancaster county.

### What the East Liverpool Potters Will Do.

At East Liverpool, Ohio, which is a big center of the ceramic industry, plans have been perfected to carry in effect the greatest display of this line of clay products. They include the erection, at some favorable spot at the approach to the city, of a gigantic pyramid of china of all kinds from the products of the East Liverpool factories.

# Brick Construction is Cheapest

*One Owner Figured the TOTAL COST and Found BRICK CONSTRUCTION to be a Better Investment than Frame or Stucco.*

Like the Old Horse that never will get used to the Automobile, a Cleveland Owner ''shied'' at the ''FIRST COST'' fallacy, until his Architect confronted him with alternate bids for various forms of construction. His home is built and now he's for BRICK CONSTRUCTION—first, last and always. He's satisfied.

Five Contractors bid on the job of erecting his Home. Each Contractor figured five different proposals, and here is the average of the five bids—

| Clapboard | Shingle | 12-inch Brick Walls | Stucco and Hollow Block | Brick Veneer on Wood |
|---|---|---|---|---|
| $6,759.95 | $6,868.80 | $7,483.16 | $7,187.65 | $7,226.44 |

The Builder accepted the low bid for BRICK and paid $7,483.16. That was $723.21 more than the same contractor wanted for frame construction. That small difference bought for the home builder a fireproof, moistureproof, frostproof, verminproof house—a Home with Indestructible walls, beautiful in appearance, and permanent.

He will save the $723.21 in Painting, Repairs, Insurance, Fuel, etc., in a few years and then have a house still in its prime and one that will ''sell.''
Do YOU think he made a mistake?

*BUILD WITH BRICK*

(Firm Name)

(City) (State)

Use this in your local paper the first week in August.

# WOOD BURNS

And Causes Most of Our Fire Losses

Therefore

IT IS NOT A SAFE MATERIAL TO USE.

BRICK have been through the fire in the making and hence are not affected by the heat of an ordinary conflagration.

Brick are fireproof and safeguard the lives of your loved ones.

Why risk the lives of your family when you can build a fireproof house of brick which will be cheaper in the end?

Figure on the ultimate cost.

There are no painting or repair bills when you

**BUILD WITH BRICK**

(Firm Name)

(City) (State)

Use this in your local paper the second week in August.

There are perhaps many other stunts of particular interest to the clayworkers that will be pulled off along the great highway, but there is one particular stunt The Clay-Worker wants to see featured all along the line, and that is the hanging and conspicuous display of "Build With Brick" signs. They ought to be staring people in the face in every county of every state from one end of the Lincoln Highway to the other, and this can be accomplished without any heavy burden of expense to any individual brick man, by each man seeing to it that in his own territory those signs are on the job. They will help get business for those who make displays, help produce direct advertising returns, and they will help the brick industry as a whole all over the country. It is one roadway that should have the "Build With Brick" sign hung on it frequently and effectively.

## AUTHENTIC GUIDE BOOKS.

For the benefit of the many tourists going to the Panama-Pacific Exposition and for other vacation trips through the west country, the United States Geological Survey has issued a guide book of the overland route from the Missouri river to the Pacific coast. These guide books are decidedly interesting and they have the advantage of being authentic. The first effort in this line will be followed by others covering the Northern Pacific route and the Sante Fe route. The books are provided with maps and freely illustrated and the one ready for distribution, that covering the overland route, can be had from the Superintendent of Documents, Government Printing Office, Washington, D. C., for $1. Those desiring this book should ask for Bulletin 612.

**$ $ $ $ $ $**

# 250,000,000

**$ $ $ $ $ $**

## THINK OF IT

That was the total fire loss of this country for last year.
$2.51 per capita.

The fire loss of Europe is but little more than one-third of that amount per capita.

## WHAT IS THE REASON?

They build with brick.
We build with combustible materials.

Reduce this enormous fire tax by building your home and buildings with fireproof materials.

There are many reasons why brick is best.

ASK US.

(Firm Name)

(City) (State)

the third week in August.
Use this in your local paper

# Brick Construction Best and Cheapest

## Investigation Disproves Popular Belief as to Cost of Building

That there is a belief in the minds of a great many people that brick construction costs a great deal more than frame construction there can be no doubt.

Experience and investigation, however, have shown this belief to be a fallacy, and that brick is really the best material for the economical builder to use.

Why are the Modern Business Buildings faced with brick. Stop for one minute and consider.

Build your house of brick and save excessive fuel bills, paint bills, repair bills, insurance bills, in addition to having the exterior of your home clothed in the most artistic material manufactured.

It is the outside walls that establish the character of your home, that make it temporary or permanent, cold or warm, a sapping, wearying loss, or a lasting prize.

*BUILD WITH BRICK*

(Firm Name)

(City) (State)

Use this in your local paper the fourth week in August.

Written for The Clay-Worker.

## THE CHICAGO SITUATION.

THE BIG NEWS OF THE MONTH in Chicago is the settling of the building trades strike and ending of the lockout put into force by the building material men when the union carpenters absolutely refused, against the advice of some of their own officials, to arbitrate the questions at issue between themselves and the employing contractors.

A tremendous boom in building operations is expected for the remainder of the year as a result of the new peace pact. The best part of the settlement of the trouble is that it is believed to be on a basis which will insure peace in the world of construction industry for a period of three years. Inasmuch as the last three years have been marred by labor troubles of one kind and another, three years of good times will be welcomed by union men, contractors, architects, material manufacturers and dealers, real estate men and investors.

Construction operations estimated to represent expenditures in the neighborhood of $130,000,000 have been tied up for weeks by the disputes just settled and the reaction upon Chicago business generally has been decidedly unfortunate.

The new Union Passenger Station on the West Side will be the largest individual job upon which men soon will be put to work. This undertaking involves an outlay of $65,000,000. Soon afterward work on the new Field Museum on the lake front will be started. Building artisans will not get to these monumental jobs, however, so soon as they will to the hundreds of apartment dwellings and store buildings over all the city which have been delayed by the strike. The new addition to the Boston Store, the W. W. Kimball Company Building, the Lyon & Healy Building, and a hundred other noteworthy improvements in and about the downtown district will be under way within a few days.

The carpenters were successful in their demand for 70 cents an hour—an increase of 5 cents—and for a closed shop. The employers secured recognition of arbitration instead of strike as a means of settling labor disputes, and in securing an agreement running until May 31, 1918.

The building material men were the powerful force in ending the strike as they have been in previous years, although the leaders of the material men's committee give to Mayor Thompson large measure of praise for the part he took throughout the trouble in getting the two sides together and insisting upon an end to the struggle that was proving so hurtful to the city.

William Schlake, president of the Illinois Brick Company; and L. D. Binyon, of the S. S. Kimbell Brick Company, were prominent in the work done by the material men in bringing about an agreement between the strikers and the contractors. Thomas Carsy, another leader in the common brick field, Others on the material men's committee were Edward Hines, J. W. Embree, John Claney, E. A. Thomas, James Fryer, George Wilse and E. W. Dierssen.

The carpenters' strike was the hardest problem the committee had to deal with, and the material men, aided by the mayor, used the "lock-in" method employed by Mayor Thompson to reduce the street car dispute to terms of arbitration. It proved successful after an all-night conference, and the material men, almost without rest, turned their batteries upon the dispute between the electrical workers and the contractors with equal good fortune.

Officials of the painters' union, seeing how matters stand, are now taking steps looking toward the termination of a strike of 10,000 painters, and the lathers and sheet-metal workers (the latter now being locked out) are expected to follow suit.

Even the actual existence of the strike has not served to curb the laying of plans and the taking out of permits for needed construction work. Preparations were made just as though there was a certainty that the trouble would have an early termination, although to many it seemed as though it would drag on for many months longer. The fact that the brickmakers' strike spoiled the beginning of what promised to be an excellent season, and that no sooner was this settled and the wheels started war came along and bottled the money market good and tight, made all last year the worst of many from the standpoint of building in Chicago. Consequently the demand for buildings had become an industrial tide strong enough to sweep away the barriers of strike or lockout.

George B. Engel, for many years connected with the face brick business of this city, died recently at Los Molinos, Cal., where he has lived for a number of years. His death was the result of injuries sustained last fall. SCRIP.

## AMONG PHILADELPHIA BRICK MANUFACTURERS.

FROM THE STANDPOINT of the brick manufacturers of this city and vicinity, June proved conducive of much in the way of an improvement in business conditions generally. Collective and individual reports from the building brick manufacturers show that to date the actual volume of business transacted compares most favorably with that carried on during this same period of last year, and the trade is a unit in their behalf that this year's total will greatly surpass the total of business done in 1914.

All in all, conditions have advanced to a much more satisfactory state than has been experienced in the ranks of the trade here for some time past, and a strong feeling of business confidence has been restored. Activities are in vogue among the builders and building promoters, and a vast number of brick residences and larger structures are being planned for, which tends to give the future a roseate appearance. Collections from various sources have been easier, which in itself presents a much-to-be-desired condition. With the weather conditions continuing satisfactory, so as to enable work on the building operations to be carried on consistently, it is predicted that the local brick works will be operating to their fullest capacity long before the advent of August.

One of the most enjoyable of the annual outings of the Philadelphia Rotary Club, in which the local brick industry is represented by John C. McAvoy, secretary and general manager of the McAvoy Vitrified Brick Company; Cyrus Borgner, president of the fire brick firm of the Cyrus Borgner Company, and W. Harry Gaul, representative of A. S. Reid & Co., was held on June 21, when the members of the local and Camden (N. J.) Rotary Club made a joint journey to Wildwood, N. J.

The McAvoy Vitrified Brick Company, 1345 Arch street, this city, has been awarded a contract by the Bureau of Highways for Philadelphia, for 500,000 vitrified paving block. The award was made through Director Herman Loeb, of the Department of Supplies, at a contract price of $19.70 per thousand.

Cyrus A. Byers, well known in the ranks of the local trade, died on June 21, in the Hebrew Hospital, at Baltimore, Md. He had been a resident of Baltimore for the past five years, during which time he served as manager for a Baltimore fire brick manufacturing company. He is survived by one son, Cyrus A. Byers, Jr., of 202 South Thirty-ninth street, West Philadelphia. The burial was made in Philadelphia.

Philadelphia brick manufacturers are favorably affected by the passage of a new law, which provides for the exemption of all machinery and tools used in manufacturing in any mill or manufactory in the determination of taxable real estate in this city. The measure, which was signed recently by Governor Martin G. Brumbaugh, thus making it effective, was introduced in the state legislature by Senator W. S.

Vare, of this city. The bill further provides that the arrangement as to the exemptions shall not apply to the valuation of capital stock of corporations for the purpose of state taxation.

A. QUAKER.

### TRACTION WHEEL LOCOMOTIVE CRANE.

A small traction wheel locomotive crane with clam shell bucket for loading motor trucks and wagons is now being built by the Davenport Locomotive Works, Davenport, Iowa.

It is driven by gasoline, kerosene or steam engine or electric motor.

The weight is so light that it will travel on standard wheels over ordinary good hard roads without the use of plank, and for work over very soft ground caterpillar wheels are provided.

Besides being provided with the ordinary rotating, propelling and hoisting mechanism usually found on cranes it is equipped with a device by which the operator controls the steering mechanism and travel brakes from the operators platform.

Although primarily designed for use unloading gondola cars on team tracks and loading trucks in coal and building material yards they are found to be very useful to contractors unloading material for country roads as they travel from place to place under their own power and can be used on the average country switch track.

A Light Weight Locomotive Crane.

They are also used about lumber yards and various plants which require a locomotive crane and do not have truck facilities for a railroad crane.

An electric lift magnet is used for handling scrap iron.

### SEMI-ANNUAL GATHERING OF NEW JERSEY CLAY MEN.

The regular semi-annual meeting of the New Jersey Clayworkers' Association was held on June 21, in the School of Industrial Art, at Trenton. The gathering was largely attended, and from all reports a most successful one. Problems affecting the interests of the potteries and other industries, in which clay is utilized for manufacturing purposes, were discussed. The annual meeting of the association will be held at New Brunswick in December, at which an election of officers will be held. The present officers of the organization are: Charles A. Bloomfield, of Metuchen, president; John Maddock, of Trenton, vice-president, and C. W. Parmelee, of New Brunswick, secretary and treasurer. A report issued showed that the association, organized in June, 1914, has a membership of more than one hundred, representing an investment of $40,000,000 in the industry in that state and having an output capacity of $20,000,000 annually, giving employment to 15,000 employes, not including the office forces. Several addresses were given by experts on clay, during the afternoon and evening sessions.

## AMERICAN FACE BRICK ASSOCIATION HOLDS INTERESTING MIDSUMMER MEETING AT DETROIT.

Again the famous Statler Hotel at Michigan's metropolis has entertained the claycraft; or, to be more specific, a few of the faithful, enthusiastic men in the face brick industry, some twenty or more, gathered there July 15 and 16, and, despite the first touch of real summer weather, enjoyed a series of conferences, committee reports and informal discussions on matters of much interest to that branch of the industry. The veterans in the work, J. M. Adams, of Columbus, Ohio; Frank W. Butterworth, of Danville, Ill.; S. C. Martin, of Pittsburgh; J. Parker B. Fiske, of New York; W. D. Richardson, Columbus, Ohio; Joe Moudling, Chicago, and Secretary Hollowell, of Pittsburgh, were among the early arrivals welcomed by President H. W. Holmes and the local face brick dealers. They and the lay members and visitors gave earnest attention to the work outlined in the program. The final session was held at Belle Isle, Friday morning, where a noon lunch was served the delegates, after which routine business was completed and goodbyes were said.

### SCIENTISTS MEET IN ANNUAL CONVENTION AND ADOPT STANDARD SPECIFICATIONS FOR BUILDING BRICK.

ONE OF THE most successful conventions in the history of the American Society for Testing Materials occurred in Atlantic City, June 26. The meetings were held in the Traymore Hotel, which afforded excellent facilities for the convention work, which is always strenuous with this organization. Most of the work is done in committees, and every committee has sufficient work to keep the members of same at it twelve to fourteen hours a day. All who were in attendance seemed to have a delightful time. The atmosphere of Atlantic City is redolent of good cheer and jollity, making it an ideal place for a week's sojourn, whether on business or pleasure bent.

The Committee on ceramics, Gypsum, and Lime, etc., which has in charge the matter of standard specifications for building brick, drain tile, sewer pipe, paving brick, lime, gypsum and gypsum products, had a busy time of it, and made its official report Friday afternoon. Prof. A. V. Bleininger, chairman of Committee C-3 on Standard Specification for Brick, made a complete report, which was adopted by the society. It puts building brick in the catalogue of standardized materials where it belongs. A full report can be had on application to Prof. Albert V. Bleininger, Bureau of Standards, Pittsburg, who is now secretary of the committee. In the election of officers for the ensuing year, Professor Bleininger having declined re-election as chairman, Prof. Edward Orton, of Columbus, was honored with that office, and Professor Bleininger was elected secretary, so that these two strenuous scientists are again to do team work in the interest of ceramics, as they have in years gone by. It was decided to enlarge the committee and several names have been suggested from among the workers in the ceramic field, so that further work in the interest of the ceramic industry will be carried on effectively. Professor Orton read an instructive paper on the subject of "The Legal Interpretation of the Word Vitrified as Applied to Ceramic Products," which is given in full in this issue.

The membership roster of the convention showed a total attendance of 467, with ninety-eight ladies in attendance. There was but one social function, a smoker, which was held Thursday evening, but the hours between sessions were happy hours, which every participant fondly hopes to repeat a year hence.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION.*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

| | |
|---|---|
| One copy, one year (in advance) | $ 2.00 |
| One copy, one year (if not paid in advance) | 2.50 |
| Six copies, " " | 10.00 |
| Ten copies, " " | 15.00 |

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXIV. JULY, 1915. No. 1.

## CURRENT COMMENT.

Remember, August 26 is N. B. M. A. day at the Panama-Pacific International Exposition.

* * *

Big building projects are a bit slow just now, but the home building business is doing fine.

* * *

The best thing to do with common brick is to put quality into them and then tack on a better price.

* * *

The raw material entering into brickmaking has value and it should be counted for something in figuring up costs.

* * *

There is not much excuse for collections being slow if money is as plentiful in this country as the financial statistics indicate.

* * *

Remember that you are engaged in the selling of your product as an essential part of the business along with manufacturing.

* * *

A year of warfare in Europe has disturbed ordinary business the world around, while the cost to the warring nations is beyond conception.

* * *

And don't forget that brick porches and porch piers are the order of the day, and that they are more satisfactory than either the wooden or the concrete porch.

* * *

It is a good thing to have contracts ahead for most of your output, provided the contracts carry a profit price with them, but one should fight shy of giving up the profits to get contracts.

* * *

Let us get down to real brass tacks while we are about it and put brick into basement and foundation walls as well as above these. It can be done, and is being done by some of the hustlers here and there.

* * *

Do not waste money advertising recklessly, but invest money in intelligent and persistent advertising.

* * *

The auto has reformed the back yard as well as encouraged road improvement, and the average home looks better in consequence.

* * *

That stream of gold that went abroad early last year has about all come back again, and there is following in its wake quite a stream of European government bonds.

* * *

Good evidence of the improvement in brick kilns and burning methods is found in the fact that the percentage of soft burned brick is very small today; much smaller than a few years back.

* * *

Let those who are doing good work in promoting a more extensive use of brick speak up and tell about it that others may be encouraged to greater effort. There is room for all to work at this.

* * *

The mission of The Clay-Worker is not to make a fight on other building material, but to defend brick and other burned clay products, and insist upon their recognition for what they represent—the best building material on earth.

* * *

Uncle Sam has failed to make both ends meet financially at the end of the fiscal year, his accounts showing a deficit of several million dollars. Some more of us have had some of the same trouble and will have a harder time getting over it than Uncle Sam.

* * *

The composition shingle is crowding the wooden article out of quite a lot of its old field, and meantime clay tile is not making the showing it should in this business. It looks like we need a wider distribution of the manufacturing plants, more boosting, or something, for it is acknowledged as the king of all roofing, and with this kind of a reputation there ought to be more of it used.

## THE ACCIDENTAL DISCOVERY OF FULLER'S EARTH.

It was an effort to make brick that really led to the discovery of Fuller's earth in Florida and led to the development of an important industry in that state, for Florida today furnishes more than 75 per cent. of the total quantity of Fuller's earth produced in this country. The incident happened back in 1893, when effort was made to burn brick on the property of the Owl Cigar Co., near Quincy, Fla. The effort to burn brick from the clay-like earth was unsuccessful, but one of the employes at the work called attention to the fact that there was a close resemblance of the substance they were working with to the German Fuller's earth. This led to inquiries and to having samples tested, which finally resulted in the development of the Fuller's earth industry in Florida.

## THE SCHOOL HOUSE.

During the summer vacation, between the school year periods, is when most of the planning and work of school house construction is carried on. It is therefore a season in which the brick man should be right on the job, for the school house is one house of every community that should be built of brick. There has been excuse for the frame structures in the past, just as there was excuse for the round log houses that preceded them, but they have had their time, and in the school buildings of today permanency and safety against fire should govern. We have reached the period where brick construction is economical, where the argument of excessive cost cannot be urged against it, for the first cost is now but little more than frame and the final cost considerably less. And, by adding just a little more to the first cost, real fire-proofing can be accomplished. The right idea in a school building is to make it fire-proof and the thing to do fire-proofing with is burned clay. Let us look to the school houses, see that all of them are built with brick, and as many as possible made absolutely fireproof. Safety first for our school houses.

## CONSTRUCTIVE PATRIOTISM.

When in the course of human events that annual day rolls around on which we celebrate the setting up of the great free government of ours, we cut loose and rip things up the back in true jingo style. We have a delirium of noise and a nightmare of fireworks, a general waving of the national flag and an outpouring of oratory from the big guns at speech-making. It serves to remind us, lest we forget. Also, it furnishes an outlet for emotions that possess us when we contemplate the greatness and the wonders of our country. But to round it all out right, we should have some sober afterthought of what it is that properly constitutes patriotism. Many there are who like to give some ocular evidence of their patriotism, but they are lacking in definite understanding of just what constitutes patriotism, and how it can be made manifest. There clings to our annual celebration too much that is suggestive of going to battle and giving up one's life amid the thunder of guns as the only proper and heroic act of patriotism. This is well and proper in its place, and when occasion requires. Moreover, the men of this country have thoroughly demonstrated both their willingness and their ability in this line. Yet, after all, it is industry in peaceful pursuits and home building that has made the real greatness of this country, and today a good active form of patriotism may be found in urging more and better homes. It is the homes that make a nation—not the few big palaces here and there with all their wonders, but the homes of the multitude, and to encourage the right order of home building is to assist in the development of constructive patriotism. Build With Brick.

## THE SOME-DAY ROADWAY.

There is no question that can remain in the minds of those who have carefully analyzed the subject but what some day the really good roadways of this country will be paved with brick. When in contemplation of this fact, we are reminded of a very effective and striking flour advertisement that has been made familiar to the public generally for several years, the substance of which is "Eventually—Why Not Now?" This suggests a somewhat similar question that may well be kept insistently before those having in charge the work of good roads making in different sections of the country. The question is "Some day it will be brick paving—why not now?"

There is plenty of argument to back this question up with, plenty of facts and figures to show that while it costs more primarily to make the brick paved roadway, it is really the most economical in the end. Therefore, why should big sums of money be spent making roadways that will call for big sums of money continuously to keep them in repair and in good order? The brick roadway will not only cost less in the end because it calls for practically no repairs, but it will add enough additional value to the country through which it passes to more than make up for the additional first cost of the roadway. The brick paved roadway is the coming roadway. This fact will be recognized and made use of some day. The question is why not now?

This question should be just as persistently and everlastingly put before those in charge of building roadways as the sign, "Build With Brick," is dangled before the home builders of the country. Both are timely and in order, both carrying a whole sermon within themselves, and The Clay-Worker believes that the persistent presenting of this question in one form or another will result in more brick paved roadways in their original construction and be beneficial in the end, both to the paving brick industry and to the builders of good roads.

## JUST TO SAVE TIME AND LABOR.

Thoughts of time saving, of thrift and efficiency is leading to a curtailing of what was regarded as cultured courtesy in the old countries now. For example, a consular report says that German firms are now eliminating greetings and concluding phrases from their correspondence. Instead, they are pasting slips on their correspondence saying that "Following the example of other firms, I also omit from the business letters the unnecessary terms of politeness as well as assurances of self-evident esteem, and I request that you reciprocate in your correspondence with me." This looks like a case of old countries following in the footsteps of Uncle Sam, for this is an idea that has been in practice more or less in this country for some time.

## TRUCKS AND GOOD ROADS.

The motor truck for hauling brick is getting to be a stronger factor every month in the clayworking industry. Those who once turn to them keep them and generally add more. There is never a going back to horses and mules when a truck once enters the field. About the only drawback is the limitations to good roads over which to run them. In some sections of the country, especially this year, with so much rainfall, bad roads and soft ground have interfered somewhat. As the roads leading into the cities and towns are improved, the extent, the usefulness and the efficiency of the truck will increase wonderfully. The two naturally go hand in hand, good roads and motor trucks. We need them both in the business and they are both coming along rapidly. They are good things that every man should lend a hand to push along, because they cut the cost of hauling and make it practical to get quick action on delivery over a much wider territory than heretofore.

## IMPORTANCE OF MAINTAINING STANDARD SIZE BRICK.

In the standardization of brick the first thing set forth in definite, specific form was sizes, the measurements that should constitute standard sizes. Every brick man in the country is familiar enough with what these sizes are, and the thing it is desired to urge here, and urge earnestly, is that the trade persistently make those sizes mean something. Occasionally we come across a man who is making his brick somewhat larger than the standard size. More often, however, it is the other way—we find a too general disposition to scant the sizes. The following of this tendency is getting too general, and the place it leads to is confusion. To the average uninformed buyer a thousand brick is a thousand brick, regardless of where they come from, and if some man quotes him a little lower price per thousand than some other man he will think he is getting a bargain and will not likely stop to measure the brick carefully to see if they are the same size or will lay up the same amount of wall with the same amount of mortar. The man with the smaller and lighter brick knows this, and also knows it is why he is able to quote a lower price. He has a saving in material, in burning and in freight. But it is a deceitful process of saving that leads to confusion, and if persisted in will eventually lead to standard sizes meaning practically nothing.

The lumber folks have had their troubles with this very same thing in different form—thickness and width of lumber. They have never benefited from it in the end, but are always having trouble as a result, having to readjust their standards and to contend with efforts of state legislators to correct them. There is neither reason nor logical excuse for things of this kind and we certainly hope the brick fraternity will steer clear of them.

There is naturally some slight variation in brick sizes because of differences in the shrinkage of clay in drying and burning, but every brick manufacturer can regulate and control this within very narrow limits if he will just do so. It is not this, but an evident disposition on the part of some to cut the cost and cut the price by skimping the size that we want to protect earnestly against. No permanent good can come from it, but lots of harm and confusion can result as to brick sizes. Let us make those standard brick sizes really mean something and adhere to them with the same fidelity that we adhere to our standard weights and measures, for this way, and this way only, lies safety to the trade and a maintaining of the proper value of standards.

## TRADE LITERATURE.

**Brick and Their Use.**—Under the foregoing title, the Salt Lake Press Brick Co., Salt Lake City, Utah, has issued a beautifully illustrated book of thirty-odd pages which, circulated among architects, contractors and prospective builders, ought to give a big boost to the brick buisness in that section. It tells in a very effective way the merits of brick as building material, touching briefly on the durability, artistic effect, fire-proof qualities and last, but not least, the cost of brick construction, all of which are covered fairly, impartially and so clearly that the book will be read with interest by everyone receiving it, if interested in the least in the building proposition. The illustrations are original, and include views of an old-time, primitive brickmaking plant, followed by photographs of the plant of the Salt Lake Press Brick Company, which is one of the most notable and best equipped brickmaking establishments in the United States. Other interesting illustrations are of numerous structures, homes, schools, churches, commercial buildings and public edifices built of Salt Lake brick, a number of very attractive brick homes are pictured. All in all, it is a very effective publication, evidently gotten up regardless of cost. Whatever J. P. Cahoon, manager of the Salt Lake Press Brick Company, does, he does well and thoroughly; no mean compliment. We presume copies will be mailed on request, especially to members of the N. B. M. A., most of whom Mr. Cahoon counts as his personal friends.

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has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy Engineering Company.**

[See page 104.]

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used in connection with our SPECIAL CLAY PLOW is adapted for taking clay or shale from the surface of the field. Actual tests and testimonials from brick, tile, cement and pottery manufacturers in nearly every state in the Union verify our claim that with their use about one-half of the cost of doing this work can be saved.

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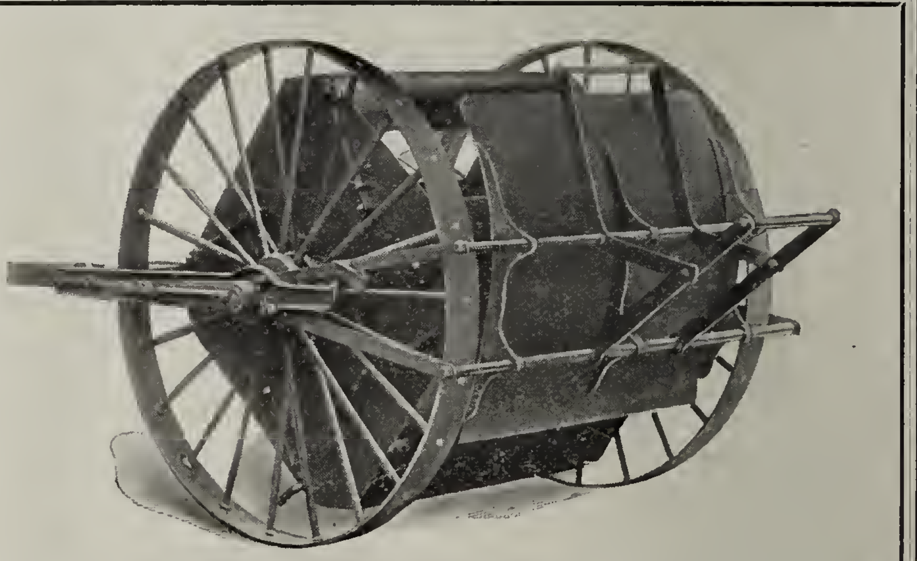

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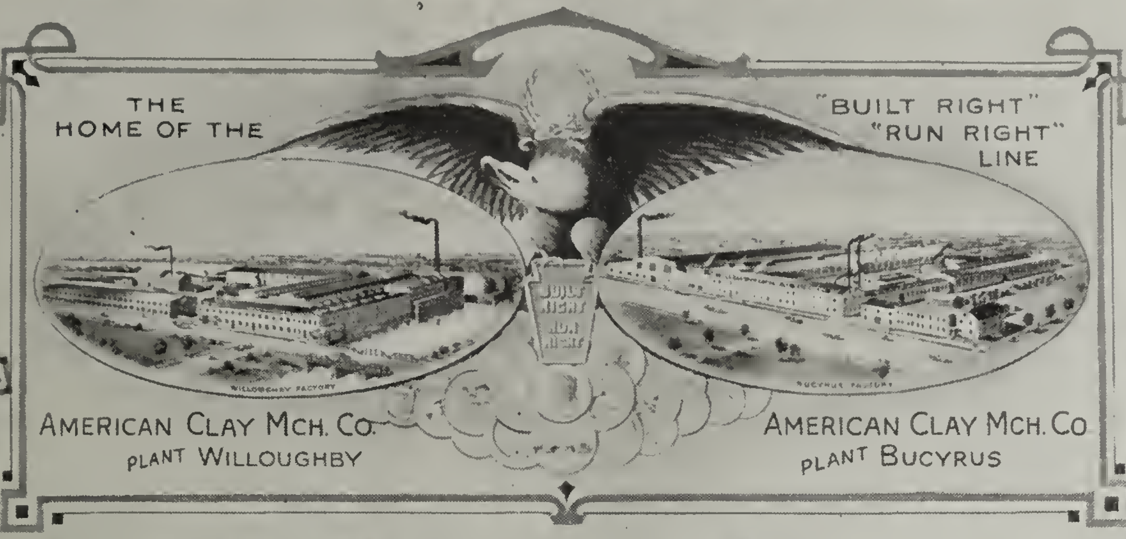

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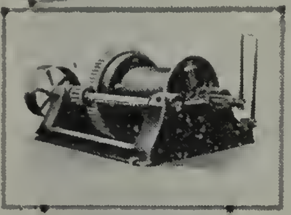
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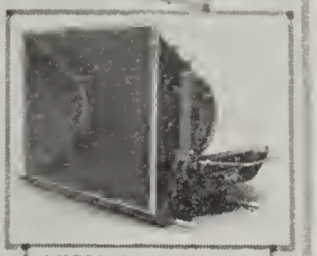
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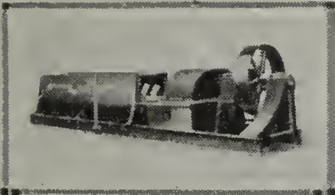
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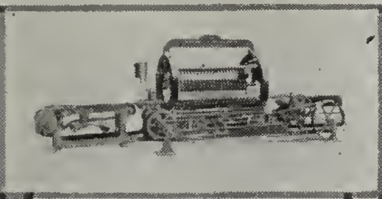
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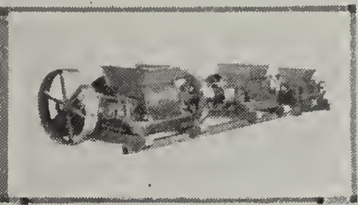
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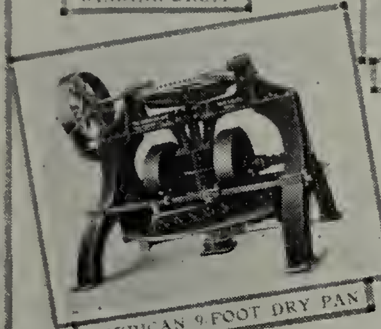
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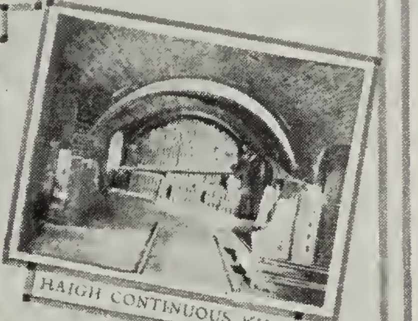
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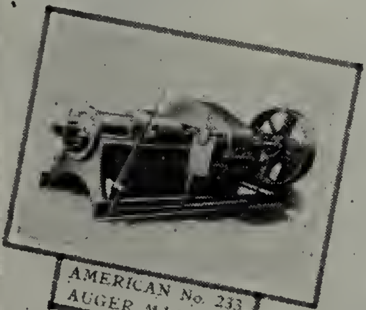
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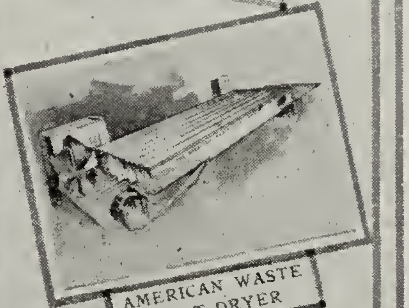
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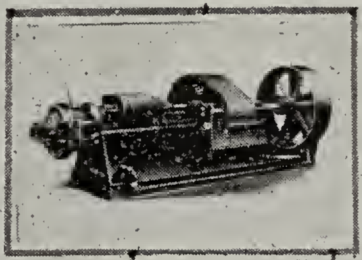
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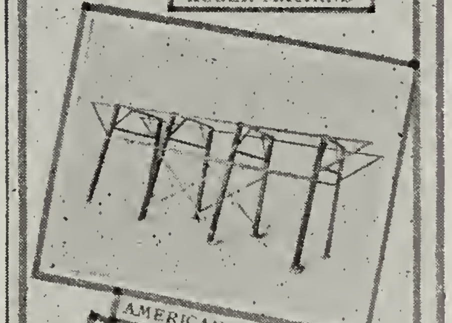
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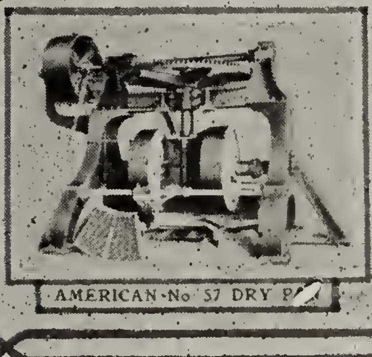
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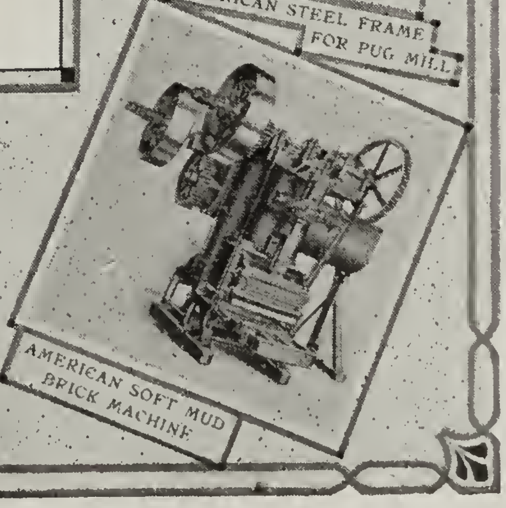
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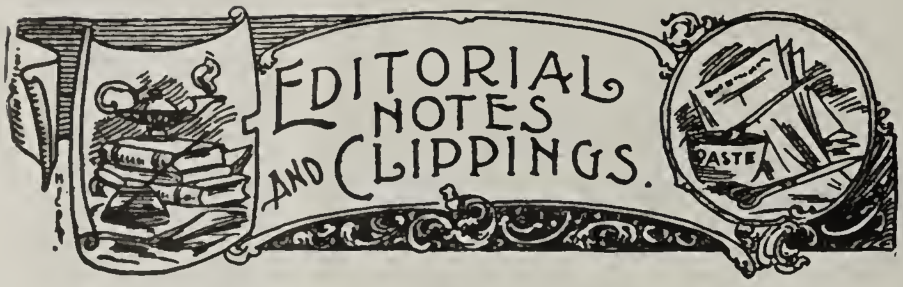


# EDITORIAL NOTES AND CLIPPINGS.

W. J. Longston will erect a brickmaking plant at Coquille, Ore., of 25,000 daily capacity.

The Vitreous Clay Company, of Atlanta, Ga., has been organized to manufacture brick and sewer pipe.

The brick mold factory of J. B. Crowell & Son, Walkill, N. Y., was entirely destroyed by fire July 1. They will rebuild at once.

The receivership of the South River (N. J.) Brick Company, which has been held by Harry Dodd, has been dissolved by order of the court.

The Speeceville (Pa.) Brick Company has purchased an additional tract of clay land adjoining their plant, which will enable them to enlarge their output.

The First Avenue Brick & Tile Company, Evansville, Ind., has started work on a big, new continuous kiln, which will enable them to increase their output.

William Treviranus, a member of the firm of Treviranus & Gardner, brick manufacturers, Hackensack, N. J., died July 10, at a New York hospital, following a short illness.

E. J. Ostling, G. B. Wright, W. E. Bowers and Mr. Davis, of Montgomery, Ala., are organizing a company for the erection of a brickmaking plant, of 125,000 daily capacity, at Tuscaloosa, Ala.

Wm. Brand, foreman of one of the yards of the Cliffwood Brick Company, Keyport, N. J., fell from the top of a kiln which he was inspecting, and sustained injuries from which he died shortly afterward.

The Raleigh Brick & Tile Co., of Berkley, W. Va., has recently taken over some additional property on which a modern brickmaking plant will be erected. A. D. Preston, of Berkley, is at the head of the concern.

A gold medal has been awarded the Salmen Brick & Lumber Company, of Slidell, La., by the Panama-Pacific International Exposition. The exhibit of the Salmen company is a part of the Louisiana State exhibit.

We have received the announcement of the marriage of Miss Elizabeth Nickell, daughter of L. U. Nickell, of Fulton, Mo., to Charles W. Roadman, which occurred June 22. Mr. and Mrs. Roadman will live in Fargo, N. D.

The Cuban Silica Brick Company has been incorporated under the laws of Delaware, with a capital stock of $350,000, to engage in the manufacture bricks, tile, etc., by George A. Dunlop, Warren E. Harlan and Asgood Smith, of Havana, Cuba.

The Frost Mfg. Co., Galesburg, Ill., has sustained quite a severe loss in the death of Wm. Simpson, general sales manager, whose headquarters were in Chicago. They announce that Mr. William A. Day has been appointed to fill the vacancy.

J. W. C. West, secretary and treasurer of the Eureka Brick Company, Norfolk, Va., and Mr. Doyle, manager of the same company, have been out on a tour of inspection, and spent a week in Chicago the latter part of June, visiting the various large plants in that section.

The Los Angeles Pressed Brick Company, Los Angeles, Cal., has been awarded a gold medal by the Panama-Pacific International Exposition. This company has a fine exhibit at the exposition, illustrations of which have been published in The Clay-Worker.

The brick plant of William F. Stimmel, at Kutztown, Pa., one of the best equipped of the kind in this state, is now being operated to capacity. Business with the firm of Keiser & Miller, who operate the plant under lease, is of a highly satisfactory volume, and an output of 16,500 bricks a day is being maintained. The greater part of the firm's output is being consumed in Reading and Allentown.

Alfred W. Lawshe, treasurer of the Trent Tile Company, of Trenton, N. J., underwent an operation at the Mercer Hospital, that city, on June 11, for the removal of an abscess of the ear, with which he had been suffering for a period of five months. The operation is said to have been highly successful, and his physicians now believe in Mr. Lawshe's permanent recovery from the trouble.

### EDITORIAL NOTES AND CLIPPINGS—Continued.

The brick plant of Curtis Bros., Petersborough, Ontario, Canada, was destroyed by fire recently.

G. P. Dammon is erecting a brick plant at Conroe, Texas. Mr. Dammon has orders on his books for the first million output.

Dennis Lathey and others have under contemplation the establishment of a brick plant of 60,000 daily capacity at Pence Springs, W. Va.

The Central Michigan Clay Products Company, of Williamstown, Mich., has been incorporated with $100,000 capital stock.

The Dallas Fire Brick & Tile Company has been incorporated at Dallas, Texas, with $25,000 capital stock, by J. S. Johnson, D. C. Williamson and R. L. Denison.

The C. K. Davis Manufacturing Co., 65 Buhl Block, Detroit, Mich., is in the market for a complete second-hand equipment to manufacture 30,000 shale paving block per day.

The Michael Kane Brick Company, of Hartford, Conn., has been incorporated with $100,000 capital stock. The incorporators are Michael, Wm. F., T. Robert and Joseph M. Kane.

Active work on the erection of a new plant for the Wilkesbarre & Hazleton Brick Company, at Hazleton, Pa., has been started, and it is hoped to have the plant in operation by the first of September.

Warren Overpack, manager of the Great Falls Sewer Pipe and Fire Proofing Company, Great Falls, Mont., recently spent several days in Chicago buying equipment for his new fire brick plant at Great Falls.

The Manteno (Ill.) plant of the Illinois Brick Company was damaged to the extent of $5,000 by fire recently, which is thought to have been started by a tramp who had been driven from the place earlier in the evening.

The Gallup Coal & Clay Company has been organized. The plant will be located at Gallup, while the office of the company will be in Albuquerque. The directors are E. W. Dobson, W. S. Hopwell and H. O. Miller, all of Albuquerque.

The Farr Brick Company, Cleveland, Ohio, has taken over the entire plant of the Towle Brick Company, at 4341 Bradley Road, Cleveland, thereby increasing the output to 500,000 per day. This will be known as plant "H" in the chain of Farr plants.

The name of the R. B. Small Company, Columbus, Ga., manufacturers of sewer pipe and culvert pipe, has been changed to The Columbus Sewer Pipe Co. This is the plant that was recently purchased by F. L. Dickey, of Kansas City. J. L. Minter will continue as general manager.

Cyrus A. Byers, vice-president and general manager of the Baltimore Retort and Brick Company, Baltimore, Md., died June 24, at the Hebrew Hospital, Baltimore, after an illness of two weeks. Mr. Byers was well known in financial circles and was a member of the various civic clubs. One son survives.

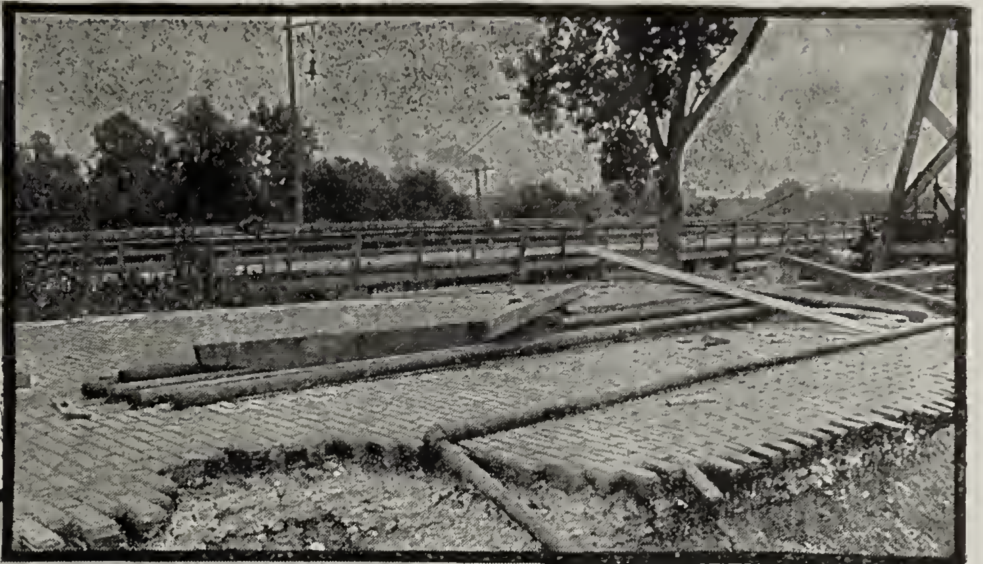
The Empire Floor Tile Company, of Zanesville, Ohio, is establishing a branch plant at Metuchen, N. J., which, when completed, will employ three and four hundred men and be one of the largest floor and wall tile plants in the United States. Charles B. Carmen, of Metuchen, is in charge of the construction of the plant.

At a recent meeting of the directors of the Minnesota Brick & Tile Co., Zumbrota, Minn., it was voted to make extensive improvements in the plant, including the installation of a new dryer, with a view of making the plant one of the best in the state. One of the latest products of this firm reached the Clay-Worker office recently. It is known as "Curly Bark" brick, and is a beautiful specimen of the brickmakers' art.

The plant of the Lincoln Paving Block Company, of Canton, Ohio, which is located at Corning, started under full headway June 9, working on a contract for 10,000 yards of Lincoln block to be used for the Lincoln Highway out of Bucyrus, Ohio. The plant is equipped throughout with modern machinery and appliances, and the management is particularly proud of the record of the first chamber of brick burned in the large Haigh continuous kiln before the kiln

(Continued on page 88.)

Showing destruction of Levee Road caused by flood.



Upper illustration shows another section of same road after the flood,

Levee Road at Middletown, O. Brick pavement filled with Barrett's Paving Pitch in 1892.

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## EDITORIAL NOTES AND CLIPPINGS—Continued.

itself was "seasoned," as it were. G. O. French, of Canton, Ohio, is the president of the company.

A. E. Hilder, an experienced clayworker of Winnipeg, Manitoba, Canada, will erect a large vitrified brickmaking plant at that place.

The Union Coal & Fire Clay Co. is erecting a plant at Dennison, Ohio, for the manufacture of paving and building brick. Benjamin Baldwin is president of the company.

O. S. Harris, of Garrison, Texas, advises us that he is in the market for a stiff mud brick machine of from 10,000 to 12,000 daily capacity, and also a hand cutting table.

Murray Bros., brick manufacturers of Berlin, Conn., recently incorporated, with J. M., A. D. and H. B. Murray as the principal stockholders. The company is capitalized at $50,000.

The Chehalis Brick and Tile Company, of Chehalis, Wash., has a large demand for brick and drain tile, and working the plant full time. The new Oregon kiln is giving good results, and works well.

The General Refractories Co., with main offices in the Trinity building, New York, has opened a branch office at 1739 Continental & Commercial National Bank building, Chicago, with F. R. Winton as manager.

The Belden Face Brick Co. is the name of a new concern recently organized at Port Washington, Ohio, for the manufacture of a fine quality of face brick. Those interested are P. B. Belden, of Canton, Ohio, and others.

Immediately following the big strike in Chicago, Wm. Schlake, president of the Illinois Brick Co., announces the booking of an order for 26,000,000 brick for the building of an immense sewer for one of Chicago's suburbs.

Edgar L. and Darwin L. Gillett have been investigating the Westfield Brick Company at Springfield, Mass., with a view of buying same from the receiver, who has been operating the plant in a small way for some time.

Louis Harti and Ernest Krause are organizing a company at Marshfield, Wis., to manufacture brick. Their clay has been tested with very satisfactory results and they hope to have the plant ready for operation early in the fall.

The Illinois Brick Company, Chicago, Ill., declared the regular semi-annual dividend of 3 per cent., payable July 15, in spite of the strike which prevailed during June and part of July and tied up all the building interests of Chicago.

A complete brickmaking plant will be installed by the State Hospital for Criminal Insane at Fairview, Pa. The plant will be equipped with stiff mud machinery for making brick, tile and hollow ware for use in erecting building for the institution.

Wm. Bristol is at the head of a company which is being organized at Lisbon, Ohio, for the purpose of establishing a brick plant. The company has purchased a large tract of land on which there is a fine deposit of shale, and the work of building the plant will be started in the very near future.

The Cliffwood Brick Company, of Matawan, has been awarded the contract for the rough texture brick to be used in the construction of the new postoffice building at Plainfield, N. J. The work on the new structure has been started and is progressing rapidly and satisfactorily. Shipment of brick has already been made by the Cliffwood Company.

The plant of the Abilene Pressed Brick Company, of Abilene, Texas, which was destroyed by fire last fall, is being rebuilt. C. W. Williams, of San Antonio, Texas, is looking after the construction of the plant and will have charge of the factory after operations are started, which, it is anticipated, will be early in August.

All the brickyards in and around Victoria and Vancouver, B. C., are shut down. There is no building going on of any kind, and the amount of brick on hand and left over from last year amounts to some twenty million. There is not much prospect that much building will be done as long as the war lasts. Several of the Canadian brickyard employes have enlisted for oversea services, and have been sent to the front in France.

Written for The Clay-Worker.

## SEEN IN NEW JERSEY.

ALONG THE HACKENSACK river manufacturers are busy getting their first burnings ready. The season has been somewhat troublesome because of the constant, hard showers. Many brick have been spoiled on the yards before they were dry enough to go into the kilns. All through June, showers were of nearly daily occurrence, and this, of course, added to the troubles of the manufacturer. Yet, they have managed to get their first burnings ready and will shortly begin delivery.

The difficulty along the Hudson has caused some increase in demand from dealers and others for Hackensack brick. The North River yards have been pretty well tied up with a strike for some time and the call for brick has drifted to other places as one result. But with nothing ready and none left from last season, it was impossible to accommodate them, excepting in rare instances.

Prices are uncertain and very irregular. Sales are made apparently at whatever they can get. Some business is done in small lots, even under these conditions, but sellers are so uncertain and buyers find them so ready to cut prices below the regular that it is almost impossible to say what the ruling price is. The movement was upward for a time, then price cutting began and the movement was downward. Now, he would be a good one who could say what it is, either up or down. Meanwhile, sales are made in a small way as required, though few are buying unless they actually need the stock.

How long this situation will last it is impossible to predict, but the outlook now is not promising. Buyers are going here and there for stock and are inducing holders to cut below actual cost price. The effect of this is to demoralize the business and put it on such a basis that no one knows where he stands. A little backbone and insistence upon the full price would be beneficial to sellers and would not hurt the buyers.

In the Raritan district very little change has taken place in the last month. Buyers are endeavoring to cover their wants at low prices, but not all makers are yet ready to reduce their quotations to the range which buyers are offering. The prospect of improved business from New Jersey towns has some influence in holding sellers firm in this section. On the other hand, the present disposition of buyers to act with caution has caused some to offer their stock at any price in order to get it moving.

Building in New Jersey started with a good deal of spirit this season, much better than last. In Newark, building permits are up to normal and some weeks they are above. In Paterson, building is picking up. The past month has been the heaviest for a year. Jersey City makes equally good reports. Smaller communities are all going forward much more rapidly than last season and the prospect indicates further extension of business. Building last year was rather slow almost all over the state, and the war caused investors to act with extreme caution. But with the improvement in general business, which has come with the change in sentiment, the outlook is now more promising and investors are ready to put up their money for further developments.

Around Perth Amboy, brickmakers have begun the season more actively than they did last year and expect to do a good deal more business. The information asked by possible buyers is of such a nature that they believe sales will pick up in the near future. Some are stripping considerable areas of fresh clay and are preparing to develop their making sufficiently to compensate for some of the slow trade last year.

The Hackensack Brick Company, of Hackensack, is doing a good business this spring and a few days ago declared that it has orders in hand which will take all its products for a considerable time in the future. The company's activities have grown more extensive of late and the outlook, they say, warrants the statement that they will have a much bigger trade than last year.

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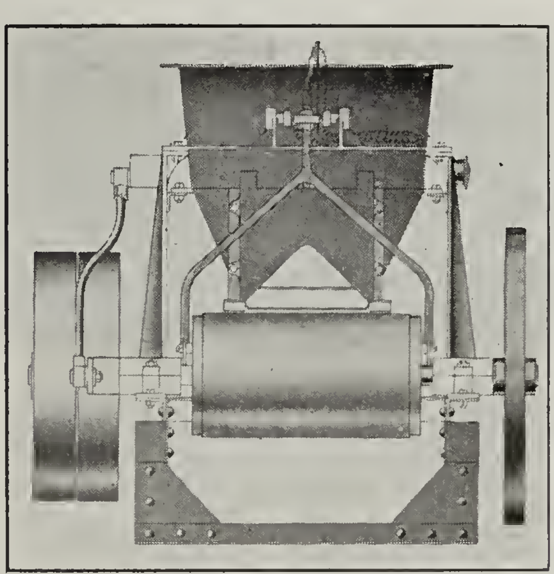

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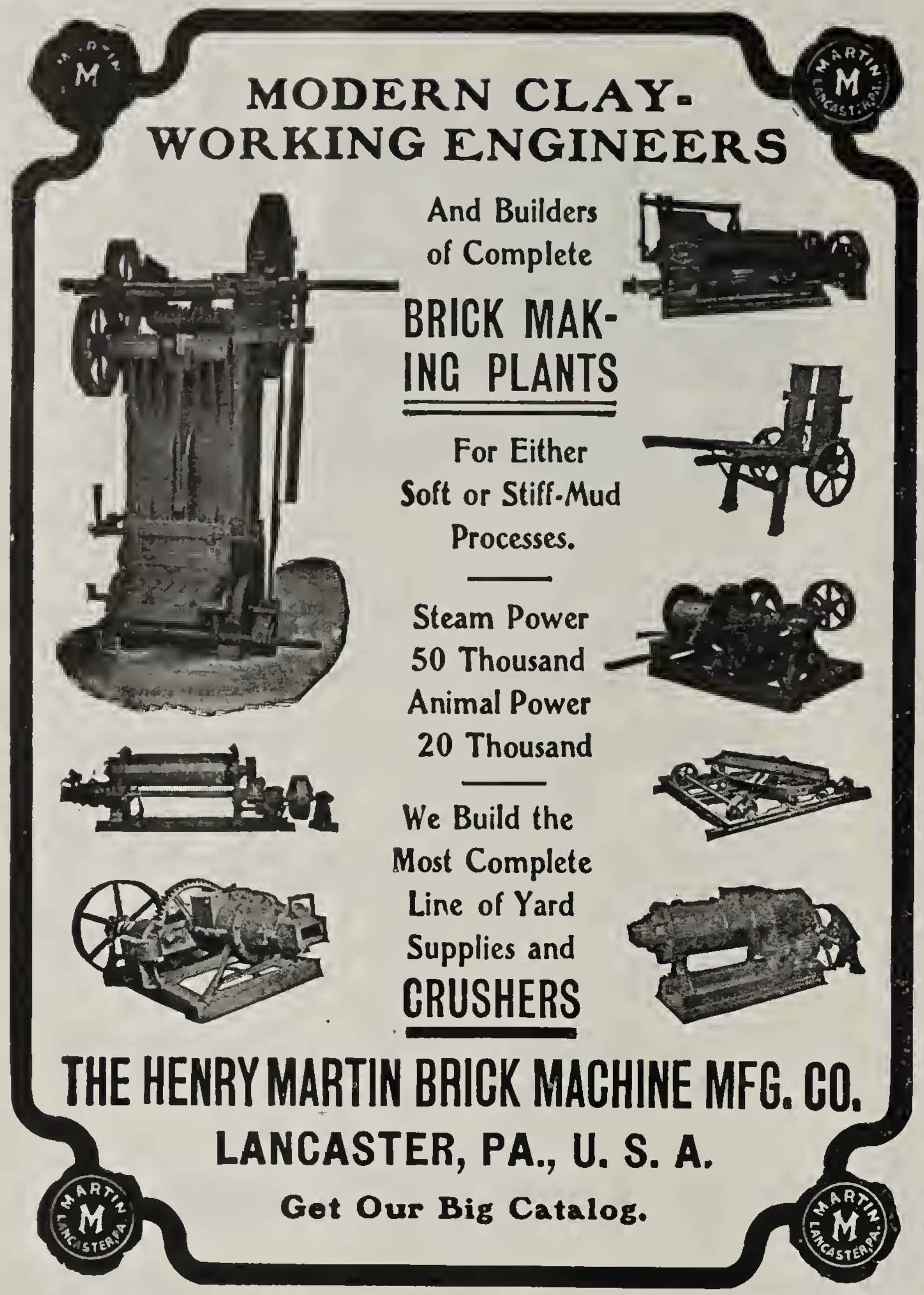

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(Continued from page 37.)

### Hardness as a Guide.

*Hardness.*—The exact measurement of the quality known as hardness is another matter requiring the best endeavors of the well-trained and well-equipped physicist, and is wholly beyond the reach of the people who have to render practical judgments on vitrification. Simple little make-shift methods of determination, which can be applied by untrained workers are highly inexact. The arbitrary scale of mineral hardness, adopted by Moh, is of use to clayworkers only between points 6 and 7, namely, the hardness of feldspar and the hardness of quartz, because in that range practically all glasses and fused artificial silicates fall. The hardness of tempered steel, which of itself varies considerably, is in the same general position in the hardness scale as the glasses. We may therefore classify the hardness of burnt clays as being above steel, or equal to steel, or below it, etc., but here again the standard is very crude and inexact, and the test depends upon the steel used and the force used to apply it, as well as the thing tested.

There is another reason why the hardness of clayware is difficult to measure, namely, the fact that it is in almost every case a heterogeneous body. As stated elsewhere, there are usually grains of the initial minerals, in every stage of solution into an incorporating glass-like or slag-like matrix, and so the steel knife may cut one mineral grain, slip over the next, etc., leaving the operator unable to decide whether he has cut the test piece or not. In fact, cutting a clay product means usually dislodging or breaking pieces loose from their cementing matrix. When the vitrification is just begun, the grains break loose easily, that is, the clay cuts. But as the proportion of silicate mixture grows, and the grains which remain are themselves hardened more and more by heat, the knife leaves less and less impression, until it slides harmlessly over the smooth surface of a perfect glass, or is worn off in a lead-like streak of metal on the vitrified surface.

### Influence of Gas Bubbles on Hardness.

Still further, vitrified clays are invariably bubbly, or full of gas cells, or blebs, for reasons to be discussed later. These gas cells may be microscopic, but if they become large enough to be visible, the thin partitions between adjoining cells easily break down under the pressure of a vigorously applied steel blade. A clay body which is spongy from over-fire will often cut, while a dense body containing usually less glassy matrix and not so many gas cells, will resist the blade. Some clays never become dense enough to resist the knife well at any commercial range of temperature, owing to lack of easy fusing constituents to form the cementing material. Nevertheless, such clays may become spongy through over-fire, whenever the heat becomes excessive for such fused materials as have formed.

The hardness test is therefore always bound to be a very crude indeterminate method of judging vitrification, and very difficult of standardization. It is, however, so simple, and so easy to get roughly comparative data by the use of a knife, that it will always be used by individuals for their own convenience. It does not offer any hope of giving a standard method of measuring vitrification.

### Strength as a Guide.

*Strength.*—The strength of clays shows the same progressive change as the other properties do, but the strength maximum is by no means always coincident with the most perfect vitrification. By strength, we mean the ability of the clay to resist disruption under stress, or friction, or both. The resisting power of a clay is by no means equally good under all the different kinds of stress which may be applied. Some resist crushing well; others show a high modulus under the cross-breaking or beam test; others resist impact well; and others again will resist rubbing and friction. One single clay is not apt to give a high rating in all these tests. It is common, therefore, to test a product by that form of strength test which lies closest to its intended use. The factors, elasticity, hardness, homogeneity, freedom from internal stresses, freedom from structural flaws, as well as mere cohesion, all go to make up the strength of the clay, and every change in burning temperature affects all of these factors, some for better, some for worse. The strength is therefore the resultant of these factors. Better vitrification improves one factor at the expense of another. In general, the best physical strength, at least by some methods of testing, is found before the best vitrification of a clay is reached.

The strength test in any form therefore cannot be recommended as a universal or general mode of testing vitrification.

### Specific Gravity as a Guide.

*Specific Gravity.*—Density, in the sense of the true specific gravity, is a function of the minerals of which a clay is composed. If heavy minerals like iron oxide, calcite, hornblende, etc., are abundant, at the expense of lighter minerals like kaolinite and quartz, the specific gravity will naturally be high, and vice versa. The true specific gravity of a raw and burnt clay varies only by small amounts. It is true that some of the component minerals are subject to small changes in specific gravity under the influence of heat; quartz, for instance, may be converted into chrystoballite, a lighter mineral, etc., but these changes are usually negligible. The true specific gravity is wholly useless as a mode of measuring vitrification, and the apparent specific gravity, while useful to the chemist or clayworker as a mode of following the structure changes of a given clay at relative stages of vitrification, is of no use for establishing an absolute standard.

### Compactness or Soundness of Structure.

*Compactness.*—The degree of solidity or compactness of the mass as a whole, or the ratio between the solid matter and the voids, furnishes the best basis for estimating the progress of vitrification in a clay, or the degree of vitrification attained in any individual piece of clayware. The causes of the changes in compactness in a clay under vitrification are several. They must be dealt with under the following heads:

1. Obliteration of the communicating void system, existing between the initial grains.
2. Obliteration of the laminations and structure marks left in the clay by the process of molding or forming.
3. Formation of new cavities by the evolution, imprisonment and expansion of the gases in the mass.

### Closing Up the Pores of the Clay.

From what has been already set forth, the gradual condensation of the clay mass as the burning progresses would be expected. The solution of the grains in each other enables closer contact than is possible between independent solid masses. In the case of those grains not dissolved, the matrix encompasses it more closely than other solid grains could do.

In the dried clay, before burning, no matter whether the clay be molded by dry pressing or stiff mud, or fluid casting, the mineral grains are not in perfect contact. The voids in dry clays usually are less than in dry sand, because the small grains to some extent fill the space between the larger particles, but still measure close to 30 per cent.

The amount of the water used in forming, influences the voids or communicating pore system also. In general, the voids are supposed to represent the space between the grains when in the closest possible contact, but in some processes of manufacture, the excess water unquestionably takes up room, which is not recovered by the clay particles as they pull together in drying, so that the clay is made more porous thereby. The pores, or communicating voids of a dry clay make the specific gravity of the mass as a whole much lower than the mean true specific gravity of its mineral components.

Now, as the heat advances in burning, this pore system is obliterated. The mass shrinks, pulls together, and the air in the voids tends to escape. This fire shrinkage is a notable amount, often 25 or 30 per cent. of the total volume. The clay must therefore gain in apparent specific gravity, as the same amount of mineral matter is crowded into less and less space.

### Doing Away With the Machine Structure.

The obliteration of structure marks caused by the flow of the clay in forming is usually very much less complete or satisfactory than the closing up of the voids. The laminations

(Continued on page 92.)

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| 10 | 22 | 4.10 | 10 | 14 | 3.38 |
| 30 | 20 | 5.80 | 30 | 12 | 4.12 |
| 20 | 20 | 4.18 | 20 | 12 | 3.65 |
| 10 | 20 | 3.82 | 10 | 12 | 3.11 |
| 30 | 18 | 5.20 | 30 | 10 | 4.08 |
| 20 | 18 | 4.37 | 20 | 10 | 3.55 |
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and cavities are much larger and their walls are too far apart to feel the pull of molecular attraction, and the surface tension of the minute quantities of fused silicate material is too high to enable them to bridge wide cracks. For this reason, large laminations are seldom obliterated, though many minor ones doubtless are. Also, the larger cavities usually form receptacles for the accumulation of gases which are being expelled from the neighboring material, and this gas tends to hold the cavity open or to enlarge it.

Mechanical pressure, caused by the weight of superimposed material, is probably the chief factor in closing up laminations in most claywares. When the mass is just beginning to show viscosity, pressure would undoubtedly tend to compress the walls of cavities which lie at right angles to the line of pressure. But, also, in cavities lying parallel to the line of pressure, it may open them out equally well. Bricks compressed to less than normal thickness, but with correspondingly increased cross-section, are not uncommon.

### Developing of Sponginess by Overfire.

In opposition to these forces, which tend to solidify and increase the compactness of the clayware, is the action of the evolved, contained and imprisoned gases. It matters little whether the gas is imprisoned air which is left in the void spaces and sealed in by advancing vitrification, or whether it is carbonic acid, sulfuric acid, or oxygen, set free by the breakdown of minerals or their interaction. The latter sources, when they are active, usually create much larger volumes of gases than the sealed pores contain, and hence lead to worse distortion of the body, but the physics of the process is the same, no matter what the source of the gas. As the vitrification advances, the mass more and more takes on the properties of a liquid, and the gas exerts more and more pressure as the temperature rises. Each little gas cavity tends to become a spherical bubble, no matter what its initial shape might have been. A microscopic cross-section of any clay which has begun to vitrify shows millions of those little spherical gas-blebs. The further along in the process, the more numerous and larger the bubbles become. Naturally, these gas-blebs tend to swell the mass. It is exactly the same action as yeast in dough.

### The War of Two Forces.

We now see that in a vitrifying clay two forces are at work on its volume, one tending to cause shrinkage and greater compactness, the other tending to cause bloating and a frothy structure. In the early stages of vitrification, the shrinkage force exceeds in vigor the bloating force, and the clay grows denser. After a longer or shorter period of heat treatment, the two forces balance each other for a time, during which the volume remains constant. This period of constant volume may cover a very short temperature range, or quite a long one. Clays which have a long period of substantially constant volume in burning are said to have a wide vitrification range, and are in great demand.

In some clays, the ratios of whose mineral mixture are favorable to practically complete fusion, the swelling goes on extraordinarily fast, when once a certain point or liquidity is reached, and the clay may become a sponge having several times its initial volume. In others, where the amount of mineral matter tending to form the silicate matrix of the clay is small, and the amount of coarse material for this matrix to dissolve is large, the bloating effect progresses as gently and slowly as the shrinkage did earlier in the heat treatment. But whenever and however it occurs, bloating always indicates over-fire and incipient fusion, and marks the passage of the best stage of vitrification. Some clays are still commercially salable for quite a time after the point of minimum volume and maximum compactness have been passed. But in general, they fall in strength very rapidly and in other desirable properties also.

### Gas Blebs vs. Pores.

Between these two types of voids, those left between the original grains, and those caused by the formation of sealed gas cavities, there is one great difference. The former creates a freely communicating capillary system, readily permeable to water, while the latter is non-communicating, and not permeable at all except as the walls of the gas cells may be ruptured in expansion or contraction.

The measurement of the extent to which the communicating capillary system still exists affords the best indication of the degree to which vitrification has progressed. This is tested by measuring the absorption, or amount of water absorbed by this communicating capillary system. Nearly all clay products absorb 20 per cent. or more of their weight of water when burnt only to the early stages of vitrification. As the vitrification proceeds, the compactness increases, and the percentage of absorption decreases. The absorption does not usually come to a complete stop at any stage of the heat treatment, but reaches a minimum and then slowly increases again, due to the frothy or bloating condition of over-fired clay, into which some water always does penetrate. In very fine clay bodies, the perfection of the vitrification may be so great at the best stage that the absorption is virtually *nil*, and recourse is had to the use of ink or colored fluids to see if any signs of absorption at all can be noted. Allowance must be made in such cases for surface adhesion of the coloring liquid.

### Other Criteria of Vitrification.

*Other Properties.*—The dielectric resistance of burnt clay is another mode of studying vitrification. It depends upon the same conditions as the absorption—in large part at least—and requires much more expensive methods of testing. Similarly, the translucence, or transmission of light through the body is to some extent an index of vitrification. The heat conductivity also improves with the compactness and decreases with the spongy structure. Frost resistance is also a function of the dense structure. None of these, or other properties of the burnt clay, have any greater value in setting a standard of vitrification than the absorption test.

Reviewing the ground for a moment, we see that color, texture, hardness, strength and specific gravity are all affected in the heat treatment of clay, and that all may to some extent act as rough gages or modes of measuring the progress of vitrification. We see that color goes through a progressive series of changes, that the texture becomes finer and closer, that the hardness, the strength and the specific gravity all increase, but that exact measures of color, texture, hardness, strength or specific gravity are all impossible or costly, and cannot be correlated exactly with the progress of vitrification. On the other hand, we find that compactness is the one property which most clearly typifies the vitrification process, and that the absorption test makes an excellent and easily applied method of determining it. The absolute degree of compactness of a product is indicated by a single test. By a series of determinations made upon test pieces drawn at different temperatures, the progress of the vitrification process in a burn can be studied equally well by this simple method.

### The Permissible Absorption Limits.

Speaking of vitrification in its physical sense, and accepting the statement that the absorption test is the best measurable index for it, what limits should be set? Obviously, the answer to this question depends chiefly upon what one expects to do with the clay product in question. Vitrification is not an absolute term, and the whole matter comes down to a question of what degree of vitrification is needed.

There are three principal purposes or objects whose attainment is sought in making a vitrification requirement in a clayware. These are (1) frost resistance, or durability to weather; (2) impermeability to prevent absorption of colorants or dirt; and (3) dielectric strength, or insulating value. It is also required sometimes as a guarantee of strength and hardness, but, as already pointed out, it is not an accurate index of these properties, and if they are the properties sought, it is better to specify directly in terms of those properties. Of course, vitrified wares are presumptively both hard and strong wares, and in a non-critical sense, the vitrification requirement may be considered as covering those properties.

### Vitrification to Safeguard Against Frost.

The resistance of different types of claywares to frost and weather varies quite a good deal, owing to the influence of

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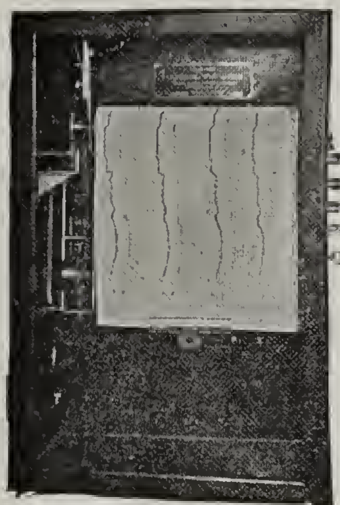

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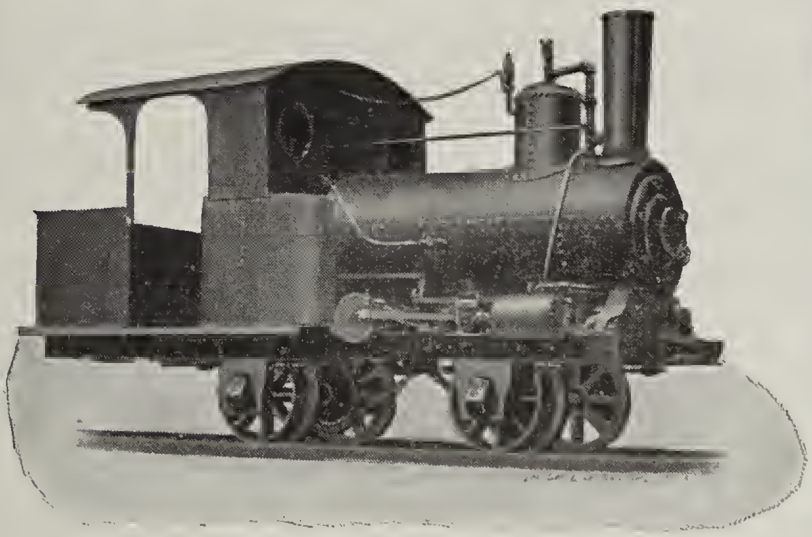

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the process of manufacture. But in general, danger from frost may be said to be past when the absorption falls as low as 5 per cent. Instances of wares whose absorption has been lower than 5 per cent. clearly failing to withstand weather have occurred very seldom in the observation of the writer, and in his opinion are rare. When found, the explanation should be sought in unusual structural conditions, such as severe laminations, large flaws close to the surface, cracks permitting influx of considerable water at one place, or similar defects.

Engineers and others in writing specifications to safeguard clayware from weather failure have usually been much too severe in the limits assigned. Limits of 1 to 2 per cent. are usual, and the limits above 3 per cent. are rare. Yet experience and tests have shown that the point of failure lies much higher and is usually above 6 per cent. for stiff-mud wares and 12 per cent. for soft-mud wares. The argument for a factor of safety which engineers customarily employ in their work applies here to a limited extent only, for in confining wares to a 1-per-cent. or 2-per-cent. limit to secure frost resistance, the factor of strength and resistance to wear has often been sacrificed, or heavily invaded, and in dealing with some clays at least, a certain loss of quality in the latter respect ought not be risked for the very doubtful gain in the former.

### Vitrification to Insure Impermeability.

In cases where impermeability is the quality sought, the absorption must be very severely restricted or reduced to zero. For table wares, the power to absorb dirty or greasy water, either through cracks in the glaze or from areas of the body exposed by chipping, means stains which are ineradicable. Even slight absorption will soon leave its mark in wares which are exposed to washing several times a day, or several times per meal, as in hotels. The same arguments patently apply to sanitary and toilet fixtures for interior use.

In attempting to safeguard wares for such uses, the specifications have usually insisted upon no change in weight after prolonged soaking in water. If this requirement is administered with discretion, and due consideration is given to getting the exterior of the test specimen wholly free from adhering surface water before taking the weight after immersion, this requirement has not proven difficult to meet. But, in order to make it still more searching, it has frequently been specified that ink, or a colored solution, must not leave a stain when applied to the fractured surface of the ware. This makes a condition virtually impossible of fulfilment, for the adhesion of some coloring matter on the surface will always take place, so that a colored spot persists after repeated washing in water. The case of an appropriate solvent, such as oxalic acid, or a stronger one, will usually take away this adhering material promptly if it is on the surface, but much more slowly if the stain has really penetrated the pore system of the body. Hence, where stains applied on the raw fracture are made a part of the absorption test, the use of superficial solvents should also be made a part of the proof of actual penetration, otherwise the test is prohibitive and good wares will be rejectible at the caprice of the inspecting officer. For safeguarding the insulating quality of porcelains for high-tension service, the requirement must be extraordinarily rigid. No precaution which will accomplish the end sought can properly be omitted, and so far as the writer is informed, complaints on unreasonable severity of absorption tests do not come from the makers of this class of ware.

### Vitrification for Insulating Material.

For low-tension wares for common interior wiring for 110 or 220-volt service, the application of the rigid requirements necessary in high-tension work seems unreasonable and unduly restrictive. Any porcelain maker can make absolutely non-absorptive ware. But he probably cannot make all of his ware absolutely non-absorptive, especially to the ink test, without measures which must raise the price of his product very materially. The question is one that cuts the public more than the porcelain maker. Should prices be held far

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higher in order to make ware stand a strict non-absorption test, when the conditions of use make the factor of safety enormously high without it?

The same logic also applies to the specifications for conduits for street cable work, where a good, strong tile with smooth skin is the needed qualification, and the lead-covered cable is itself the best safeguard against dampness.

### Status of Existing Specifications.

In the three types of uses just discussed, commerical practice has already to some extent undertaken the problem of framing specifications. In the case of paving bricks, to some small extent in building bricks, in floor tile, roofing tile, sewer pipe, conduits, chemical stoneware, pottery of various grades, specifications founded on more or less knowledge of the product have become so common as to meet little opposition. Further, studies have been made and are being made constantly, developing our knowledge of the exact requirements upon which it is necessary to insist to safeguard the ultimate consumer and work no injustice upon the producer. It is the function of this society, and particularly of its committees C-3, C-4, C-6, C-8 and C-10, to continue and extend this useful service.

### Dangers of Loose Specifications.

But in the fields already indicated and in many allied branches of clay manufacture, large quantities of material are still sold under specifications which are not very intelligent upon the vitrification requirement. It is very common, indeed, to find in specifications a clause stating that the ware must be "vitrified," or "well vitrified" or "thoroughly vitrified," with no mention of any measurable property by which the vitrification can be proved or disproved. It is to reach cases of this class that this paper has been written.

### A Case in Point.

The following case came up several years ago in the practice of the writer:

A company manufacturing large drain tile, chiefly for county ditch work, and which had behind it a number of years of successful operation, and whose product, laid in many miles of ditches, had given excellent service for years under all sorts of conditions, suddenly found itself dispossessed of contracts in the home county, where the natural market almost wholly lay, by the vitrification requirement. The specifications said the ware must be "vitrified." Virtually their entire product had been sold on this same specification for years past. No engineer, county commissioner, or rival bidder had ever raised the issue as to whether their ware was vitrified.

A new bidder in the field, coming in with a shale pipe of unusually dense and smooth fracture, raised the point. The engineer in charge, a new man in the position, examined by mere visual inspection the competing tiles. The home material was made from a glacial clay, which contained a good deal of rather coarse, gritty mineral which could not be absorbed by the silicate matrix in any reasonable burning treatment, and still showed as spots in the fracture. The fracture was stony and somewhat granular. The absorption was from two to four per cent., the majority under three per cent. The strength was good and the quality of its performance under conditions of use was known to be excellent, after years of trial. And yet, on the ground that the home product was not vitrified, he ruled it out and bought a tile whose fracture was more nearly glassy, but whose weather resistance was no better and whose strength was less, especially in regard to brittleness and inability to endure shocks and strains.

### Need of an Official Interpretation.

The above case is typical of many, and shows the need of an interpretation of the word "vitrified" when used with no explanatory phrases or criteria of measurement. Undoubtedly every kind of clay product, wherever its vitrification is of importance, should be carefully safeguarded by standard specifications. This will be attained in time, and these specifications will fluctuate from relatively high absorption in some types to none at all, not even ink stains in others.

But, until the true conception of vitrification becomes practicaly universal, and the present looseness in the term can be eradicated, a definition of vitrification, or the adjective "vitrified," to apply in all specifications where the term is not otherwise defined, should be adopted by this society, for the guidance of all contestants, in court or out. For such a definition the writer proposes the following:

### Proposed Definition of the Word "Vitrified."

> *Where the word "vitrified" is used in a contract or agreement in describing the properties of a clay product, and is not further defined in the contract, it shal lmean that the product shall have attained in the firing process such a degree of compactness that its mean absorption does not exceed 3 per cent. of its own initial weight of pure water, when subjected to complete immersion in cold water for forty-eight hours, or boiling water for three hours. Not less than three tests shall be made in determining the mean absorption, and no single test may exceed the mean by more than 0.5 per cent. Neither the possession of the visual properties or appearance of a glass, nor any definite degree of physical strength, hardness, color, or specific gravity, shall be implied as an attribute of vitrification.*

Author's Note: The Society ordered this paper referred to Committee C-3, with instructions to confer with all the other committees dealing with clay products, to see whether the definition proposed would meet with general acceptance.

## THE LABOR HATCHET.

A question we have often asked ourselves—and others—and sometimes almost in desperation is, how can we effectively bury the hatchet between capital and labor? How can we end the labor wars and establish an industrial peace that is permanent and fair?

Up at Chicago they thought they had the answer, for there had been established a system of co-operation, with arbitration boards and everything apparently necessary to insure peace. But just as there came a sudden overturning of the peace between nations propaganda in Europe last year, so did it happen in the building trades of Chicago, with the result that at this writing building is suffering from one of the greatest tie-ups in the history of the city because of striking carpenters.

Some day, somehow, we will have to find an answer to this ever-present problem in the industrial world, for it is the greatest stumbling block to progress that besets the way. The labor hatchet must be buried, and buried permanently, but how? That is the eternal question. Many utopian ideas have been advanced, much thought has been given of late to profit-sharing plans, bonus systems, etc., but while these contain beautiful ideas and ideals, they do not seem to constitute the great answer. Scientists tackle the question and err as greatly as demagogues, and we keep burying the hatchet but to have it dug up again. So, like unto the poor, we have with us always this question: How may we permanently bury the labor hatchet?

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Some tile factory equipment. Address, THOMPSON BROS.,
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### FOR SALE—CHEAP.

Tile plant; excellent clay; 3 kilns, 2 sheds, double-decked; all necessary tools. Good reasons for selling.
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One 5-foot grog pan complete, new and never used. Made by C. W. Raymond, Dayton, O. Will made attractive price. B. E. HAMLIN,
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One American Clay Machinery Co.'s special giant auger brick machine, used for making fire proofing. In workable condition. Address
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Fifty-h.v. Westinghouse automatic engine No. 1650; Iron Quaker soft mud brick machine, 20,000 capacity; for $200 F. O. B. car Mayfield, Ky. Address, X. B. WICKERSHAM,
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Vulcan Little Giant, with 1¼ yard dipper. In good condition.
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Successfully operated equipped architectural terra cotta plant; two kilns, large brick building; siding; engine; $30,000, or will take active partner with $10,000.
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Equipment for hand mold brickyard, including pallets, wheelbarrows, grates, carts, gas and gasoline engines. Will trade on concrete block tools, including power mixer and electric tamp in good condition.
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For sale or lease on liberal terms, vitrified brick manufacturing plant located in the South; modern equipment; capacity, 50,000 daily; lowest rates on all southern points. Address,
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**(Continued on next page.)**

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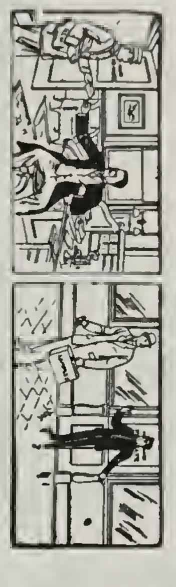

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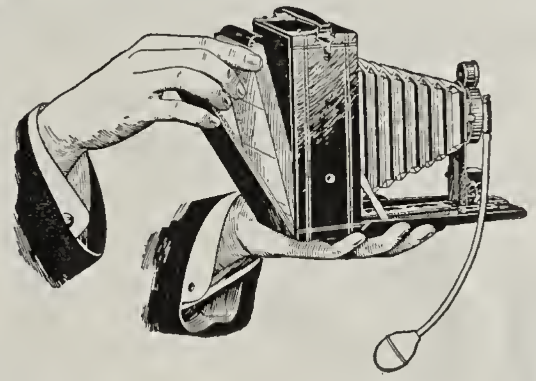

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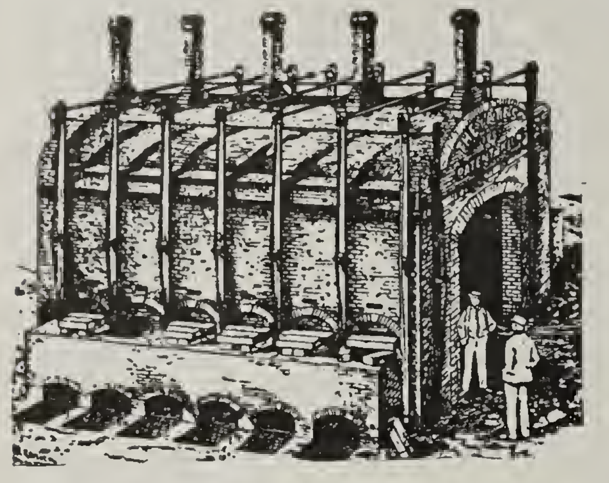

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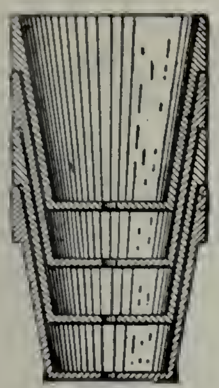

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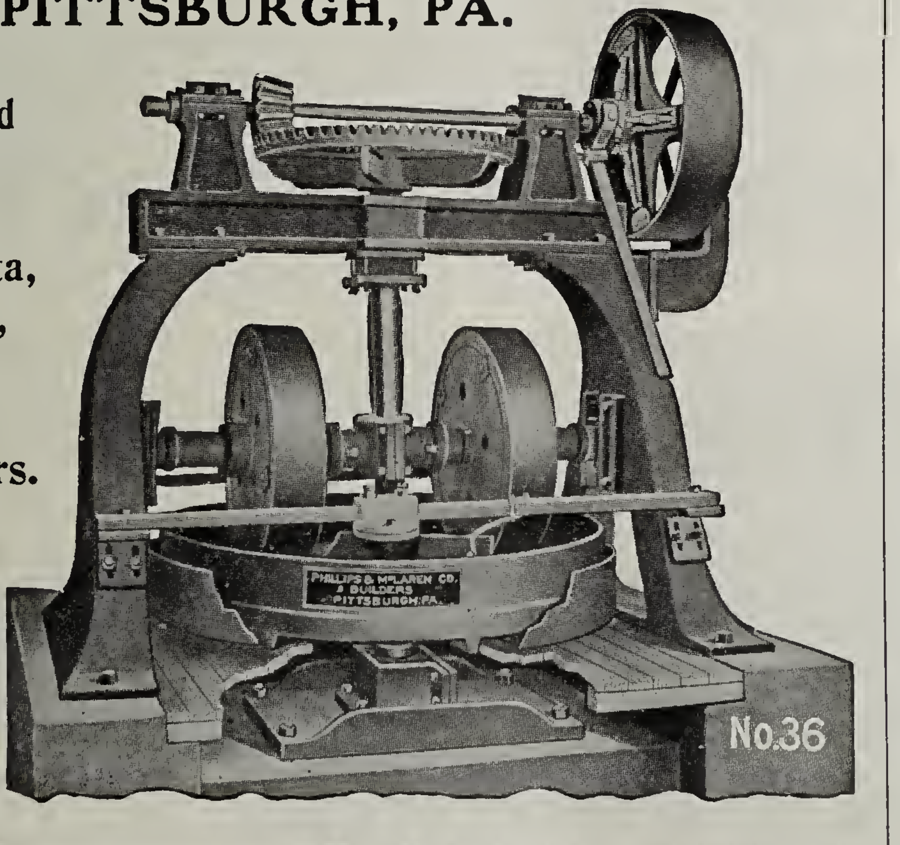

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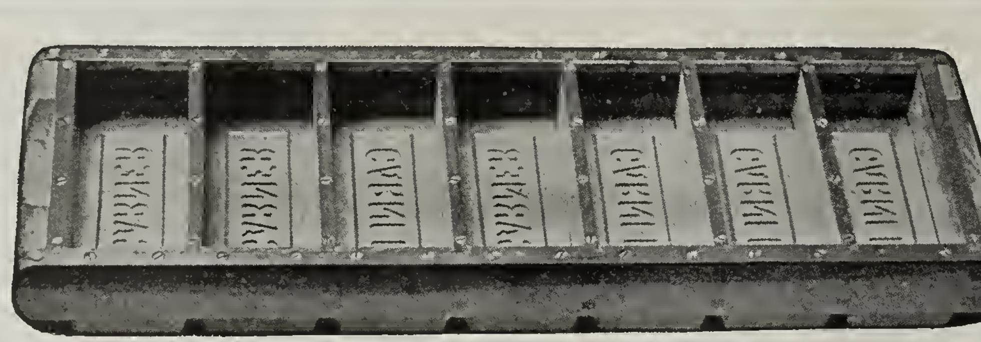

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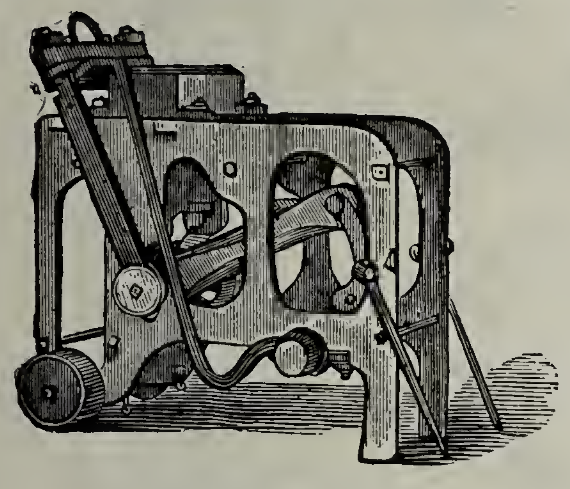

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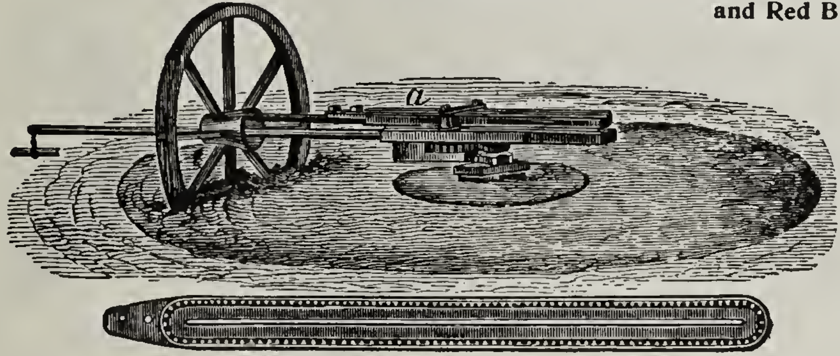

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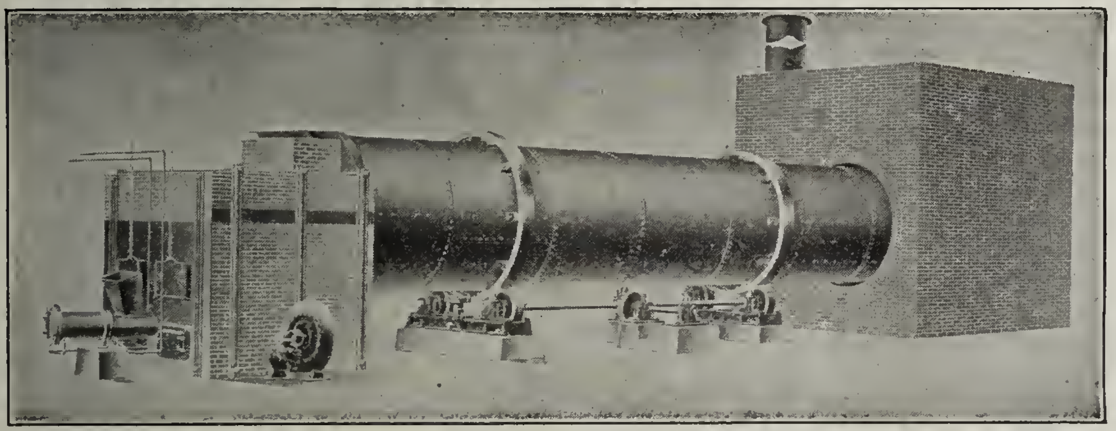

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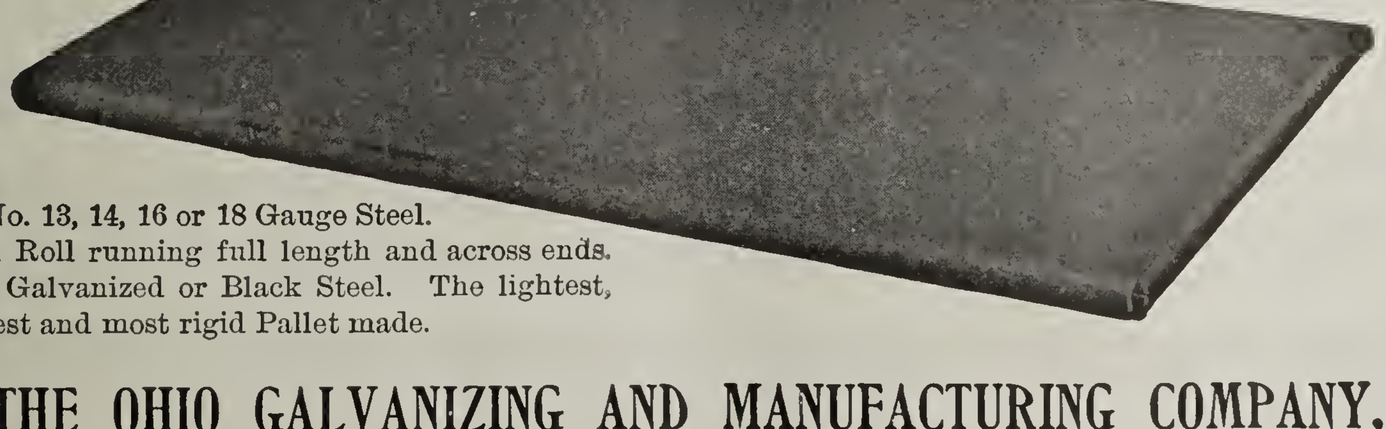

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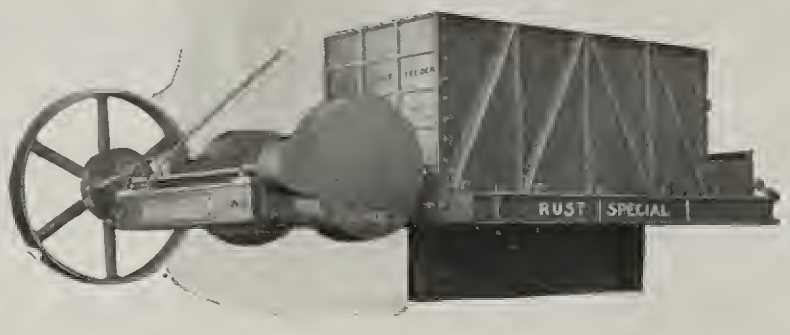

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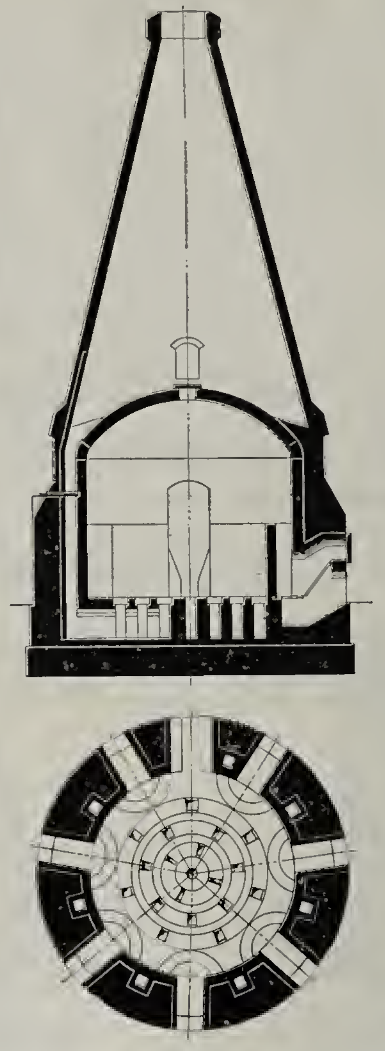

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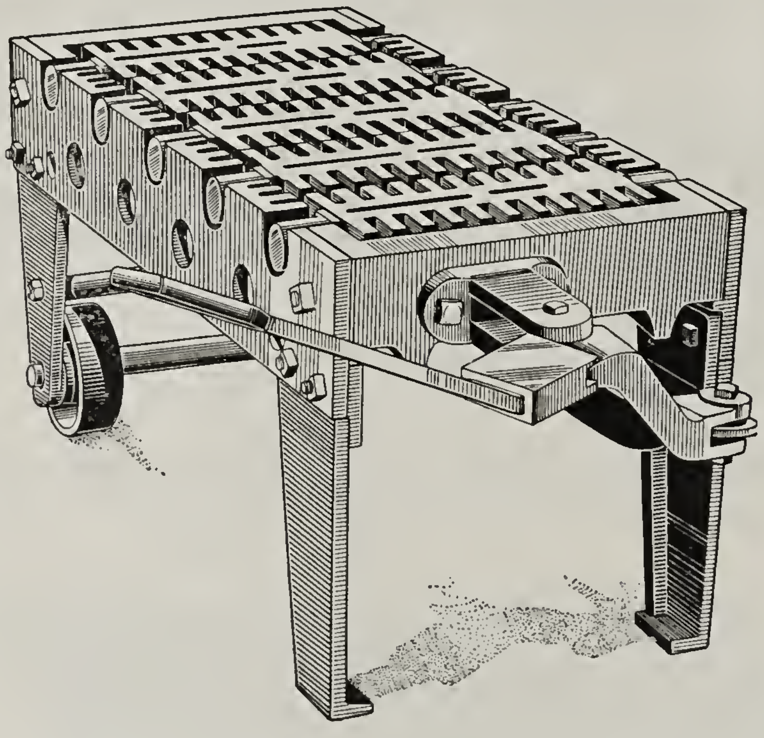

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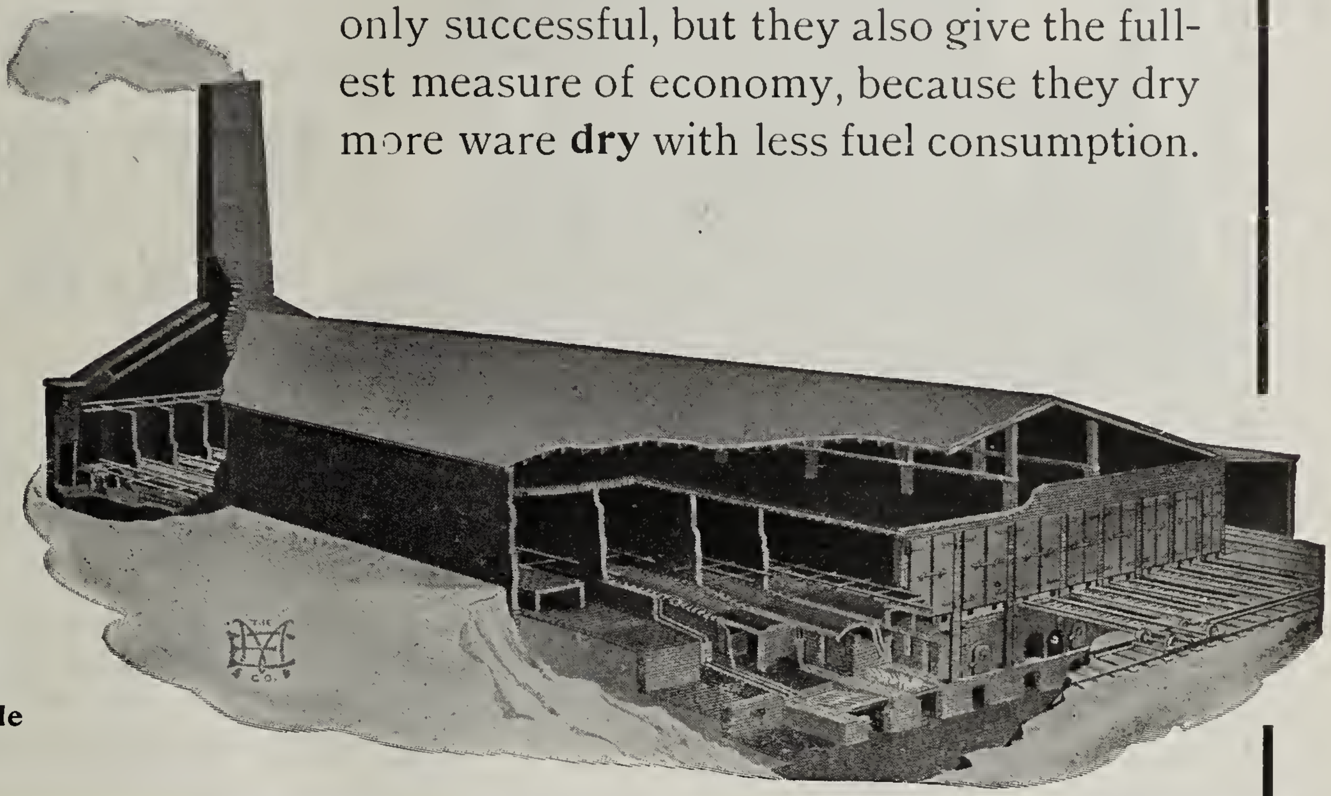

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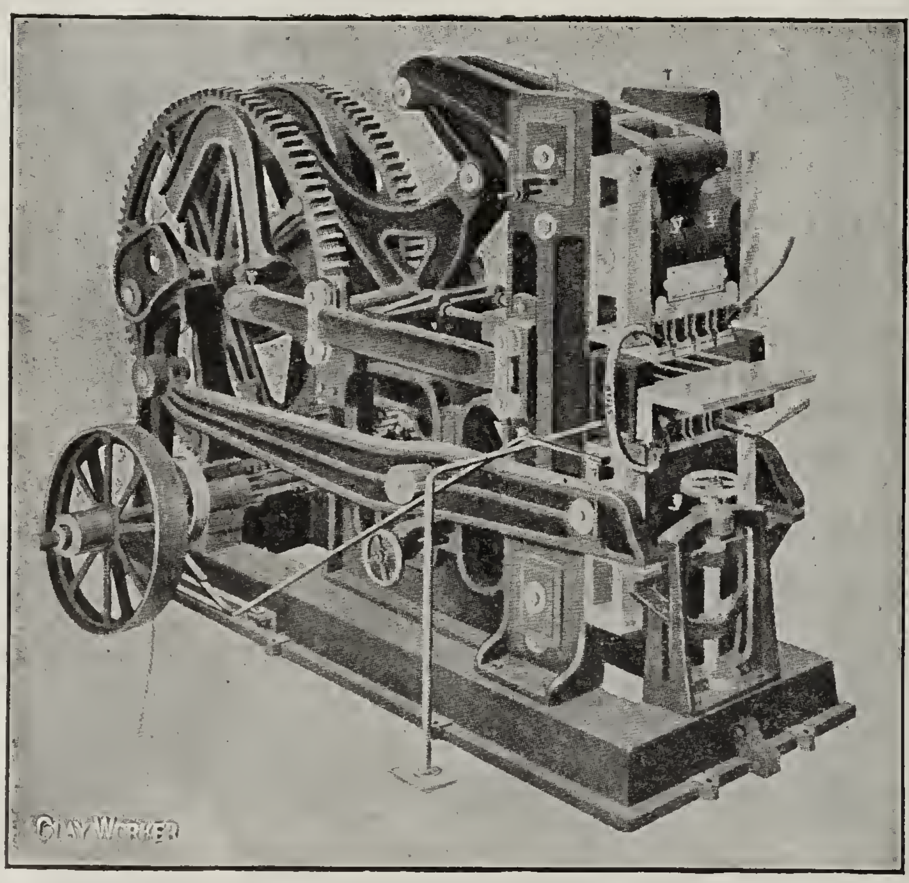

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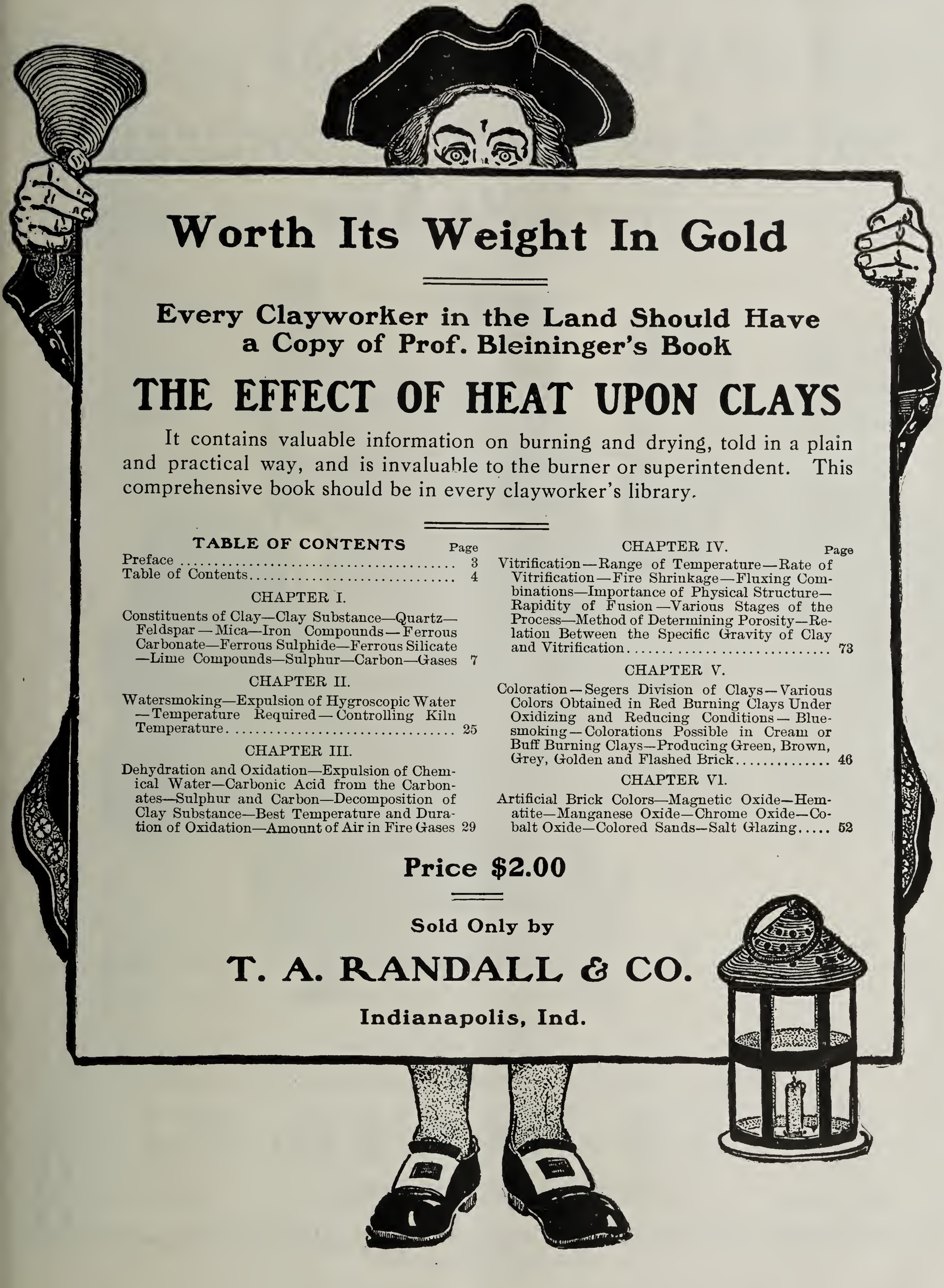

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# THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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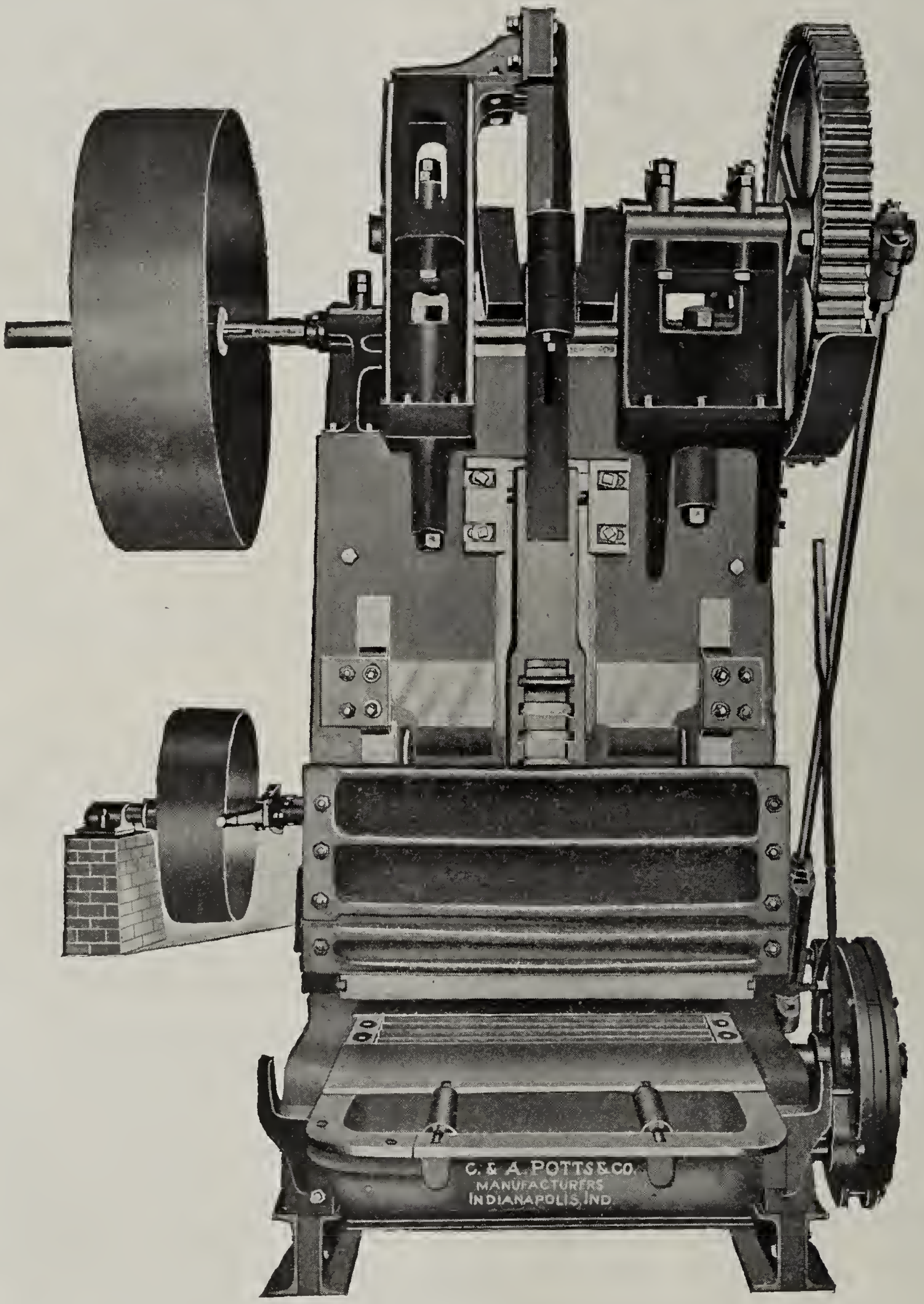

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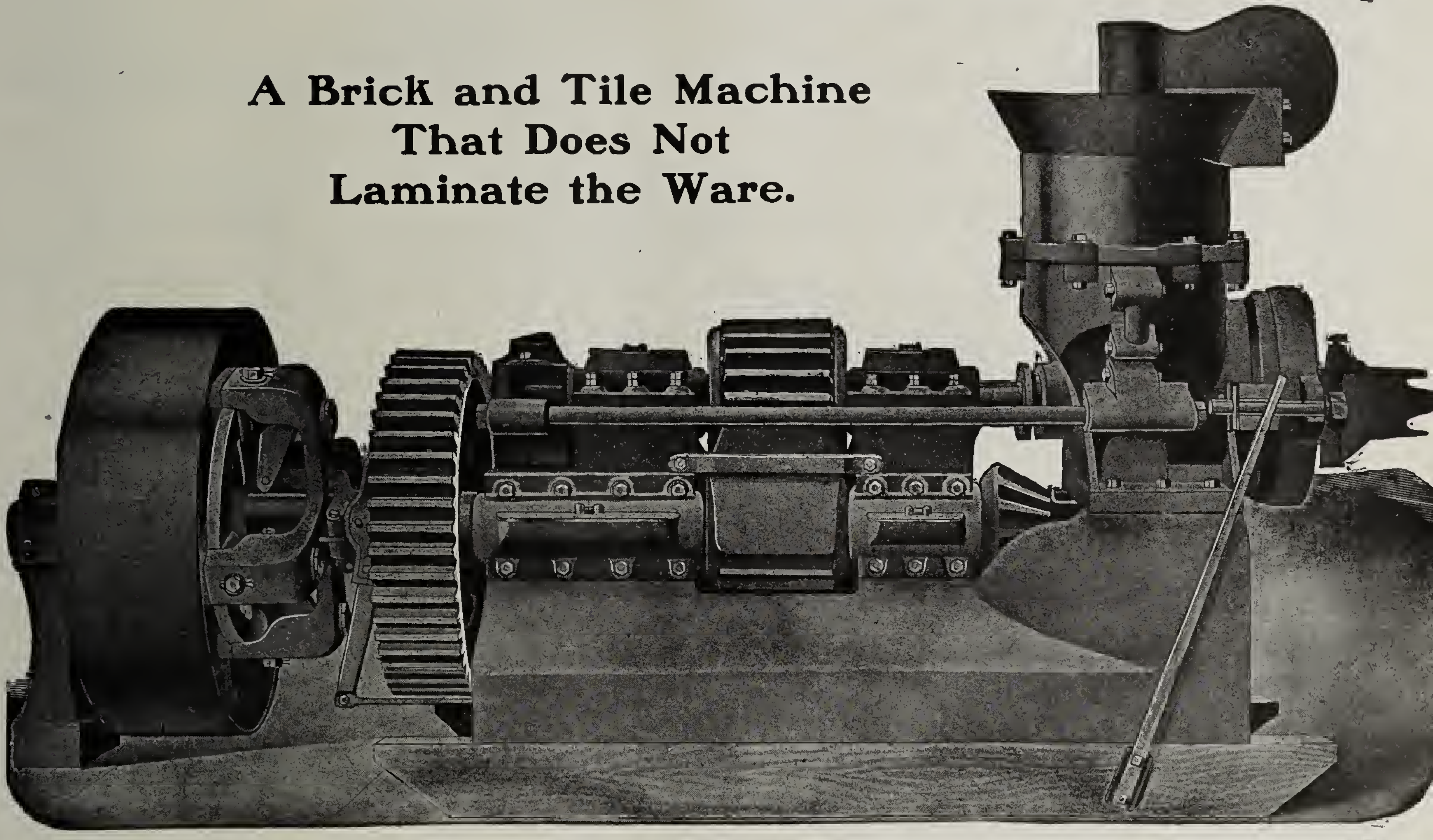

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It is not a question of selling stone, or cement, or brick or tile. It is simply a matter of building SAFE.

There is a place for every good fire-resisting material. We don't try to cram any one kind of stuff down a man's throat; but we try to show him that he can't afford to "build to burn."

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## THE SAFE

## Society Advocating Fire Elimination

R. P. Stoddard, Secretary

356 Leader-News Building CLEVELAND, OHIO

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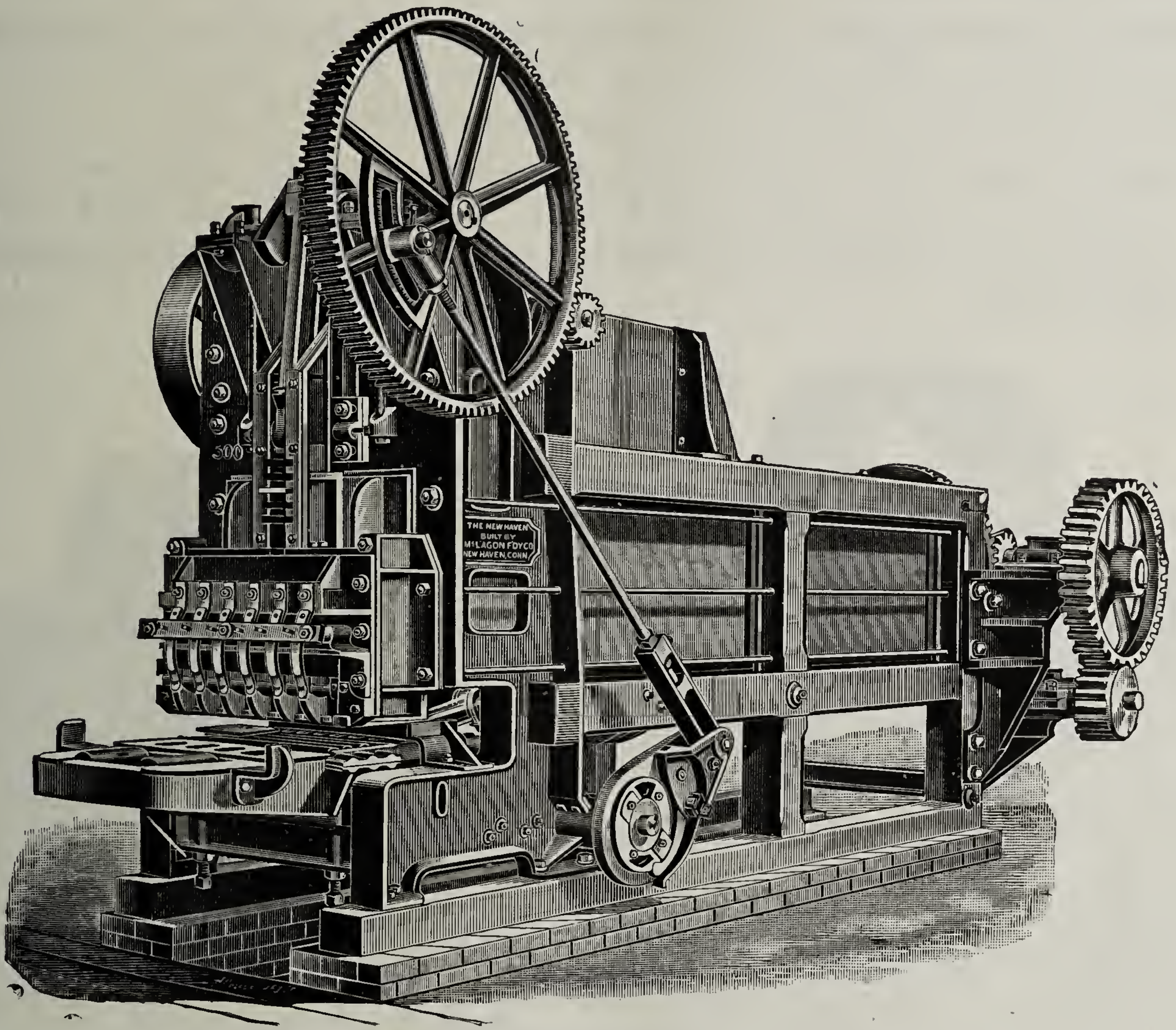
In soft mud brick machines the New Haven is the Standard. Equalled by few and surpassed by none. The New Haven Machine is built to last.



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This machine is built for service and has never failed to make money for the purchaser. As an evidence of this more than three-fourths of all the brick made in New England, the home of the New Haven Machine, are made on New Haven Machines. Write for catalogue.

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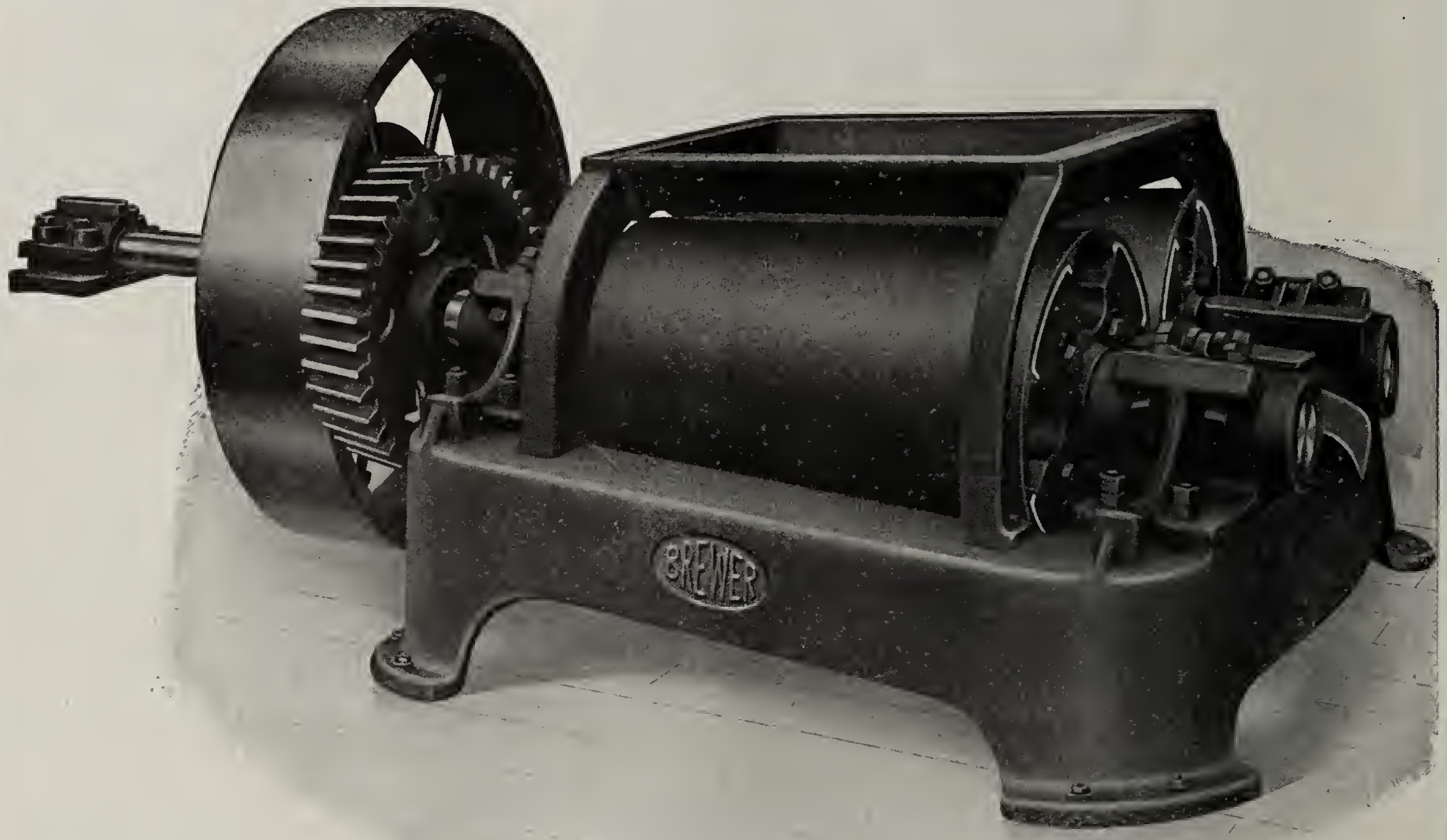

*But Crushers are only a small part of our line—we also build*

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The combined and continuous effort of our Organization in meeting the complex problems of working a great variety of material, from very short sandy clays to the most obstinate clays and shales, is producing most satisfactory results.

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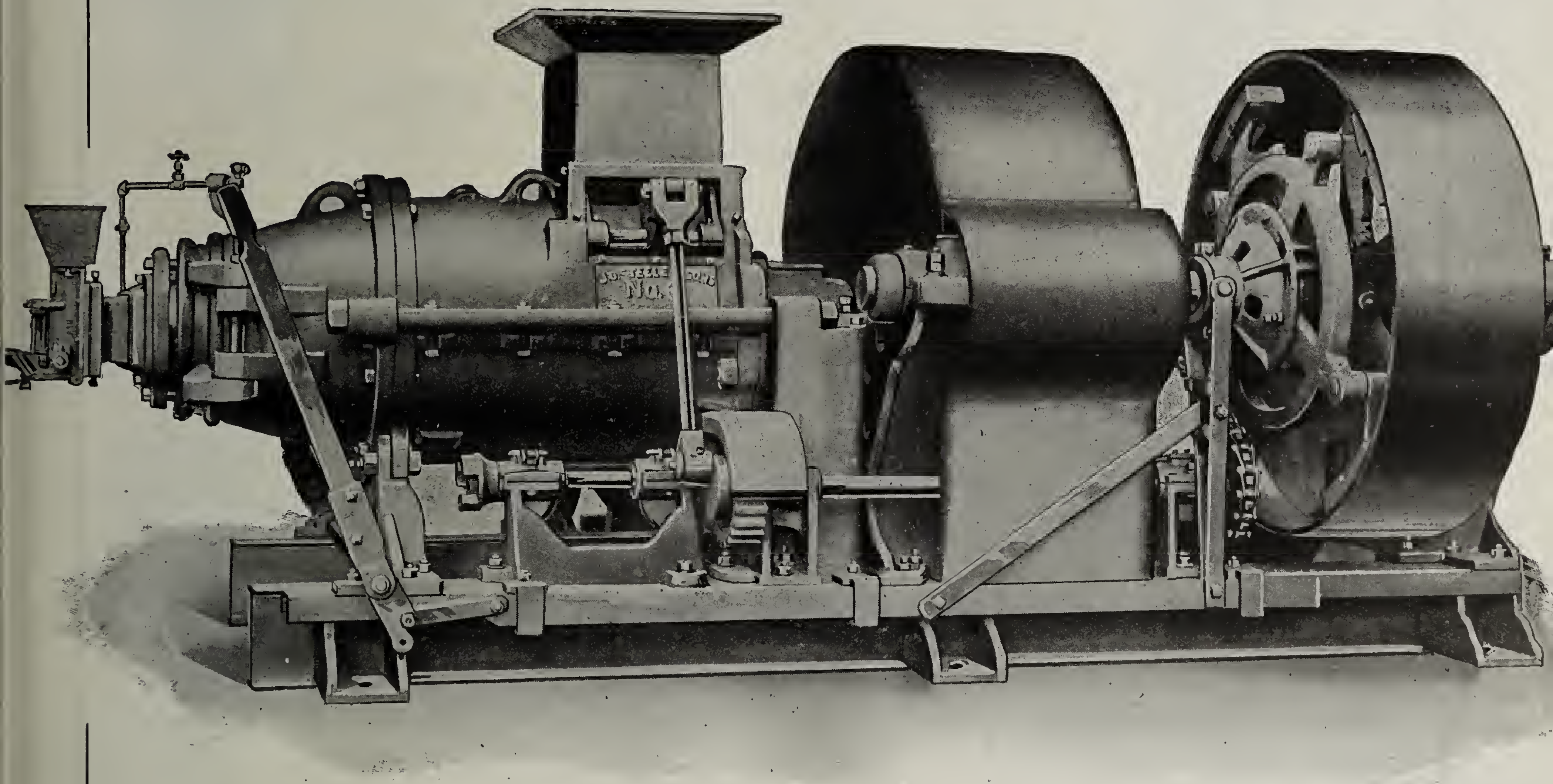

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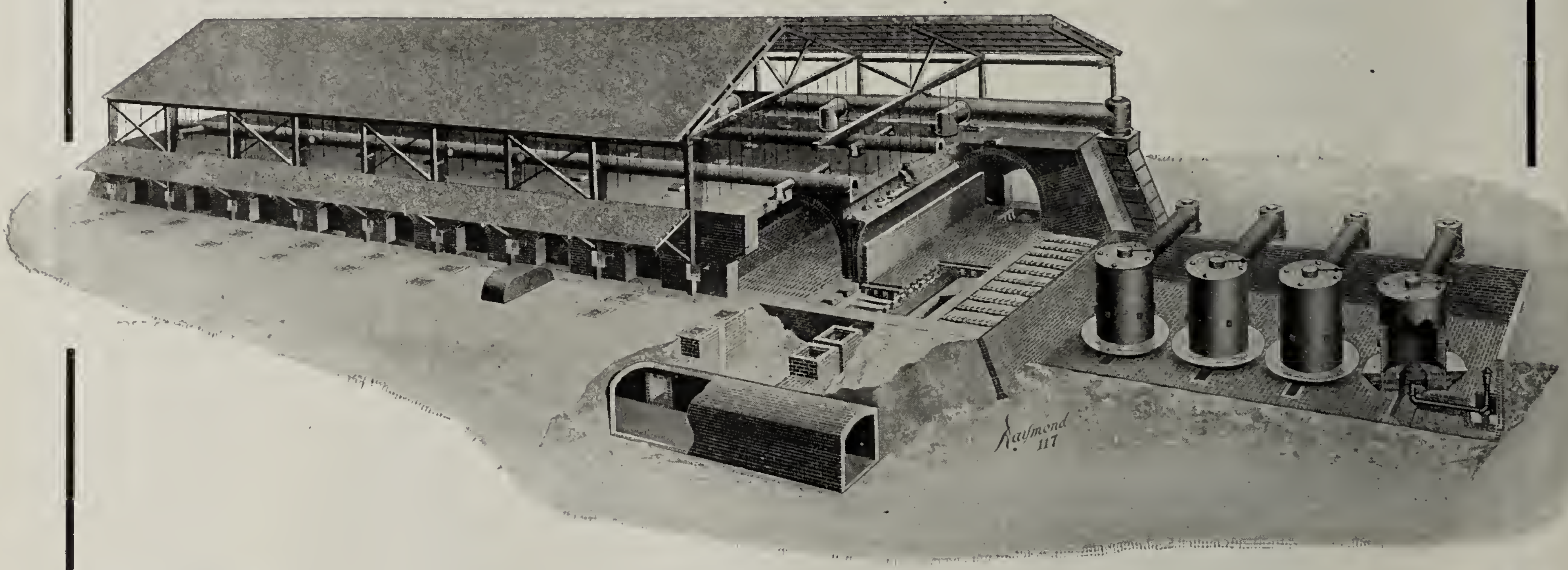

## The Raymond Producer Gas Fired Continuous Kiln

The reason for that is quite easily understood because a kiln does one of two things: either the kiln is a cheap affair that spoils the majority of the product, using an abnormal amount of fuel, or else it is a good kiln turning out the great majority of the ware well burned. But, just a minute! What would you think of a kiln that gives the best results obtainable, spoils less than 2% of your product, gives an extra fine burn, and in the matter of fuel cost cuts a dollar in two pieces, giving you the larger piece for your own! We are doing that thing for many clayworkers owning large, medium and modest sized plants. They all get results, gratifying too, to them and and to us as well. Why can't you be assisted likewise? You will thank us to your dying day for that kiln.

Producer gas solved the Economy Question and we are the only company in the world who can give you the use of it. You'd better cut out the ball game today and write to

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**Dayton Ohio U. S. A.**

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What do you use a dryer for, anyhow? To burn more coal, to fill out space, or to be like your neighbor and have a dryer because he has? No, not if you are in business for the same reason other people are. It is necessary for the ware to be "dry" before entering the kiln (that is, if you want results), so we have built our dryer for that purpose and the purpose of economy of operation. Where can you get a dryer that dries your clay perfectly without scumming, checking or cracking? That uses less than 50% of the amount of coal you are using today, and that assures the best results because nothing but pure warm air touches the ware?

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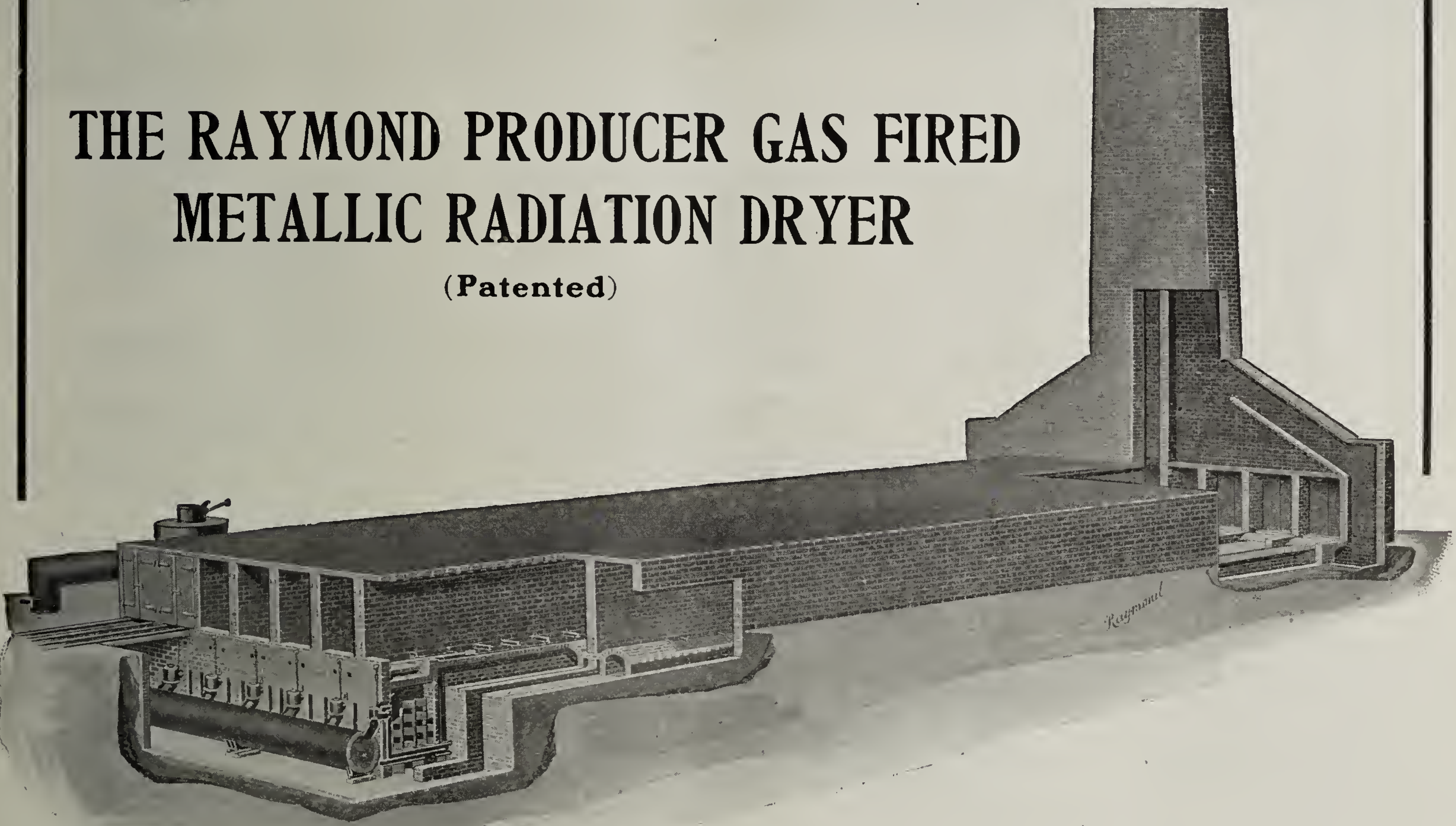
(Patented)



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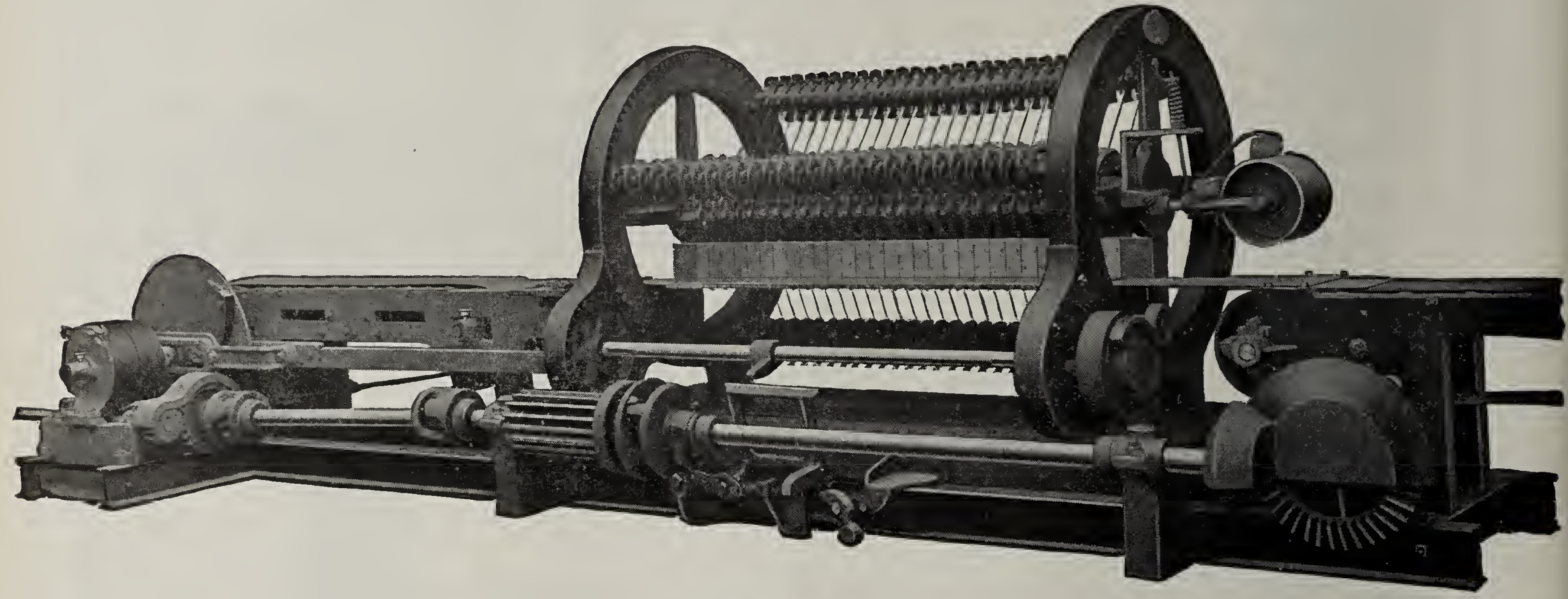

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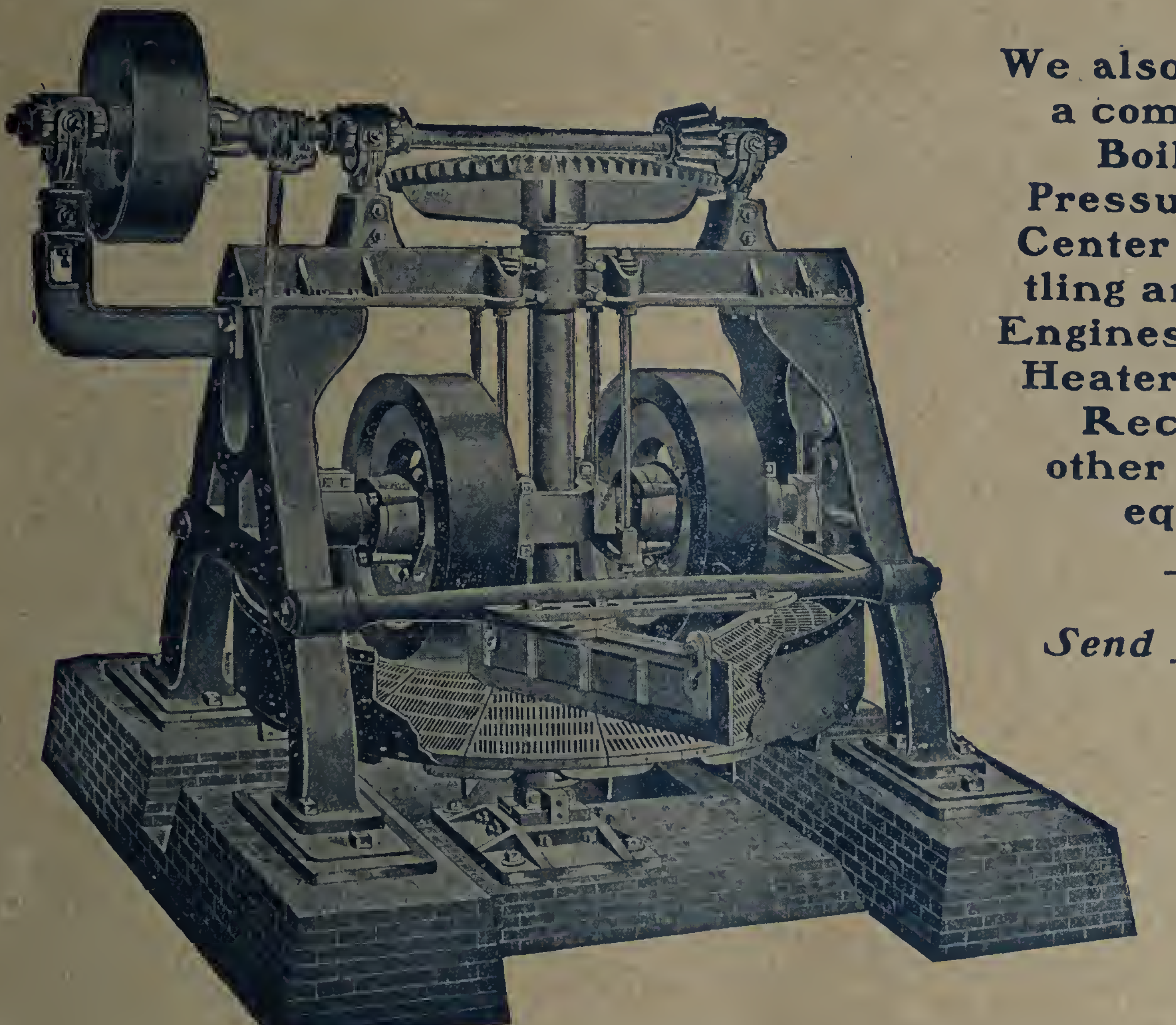

We also manufacture a complete line of Boilers for all Pressures, Side and Center Crank Throttling and Automatic Engines, Feed Water Heaters, Tanks, Air Receivers and other power plant equipment.

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## The Frost Manufacturing Co.

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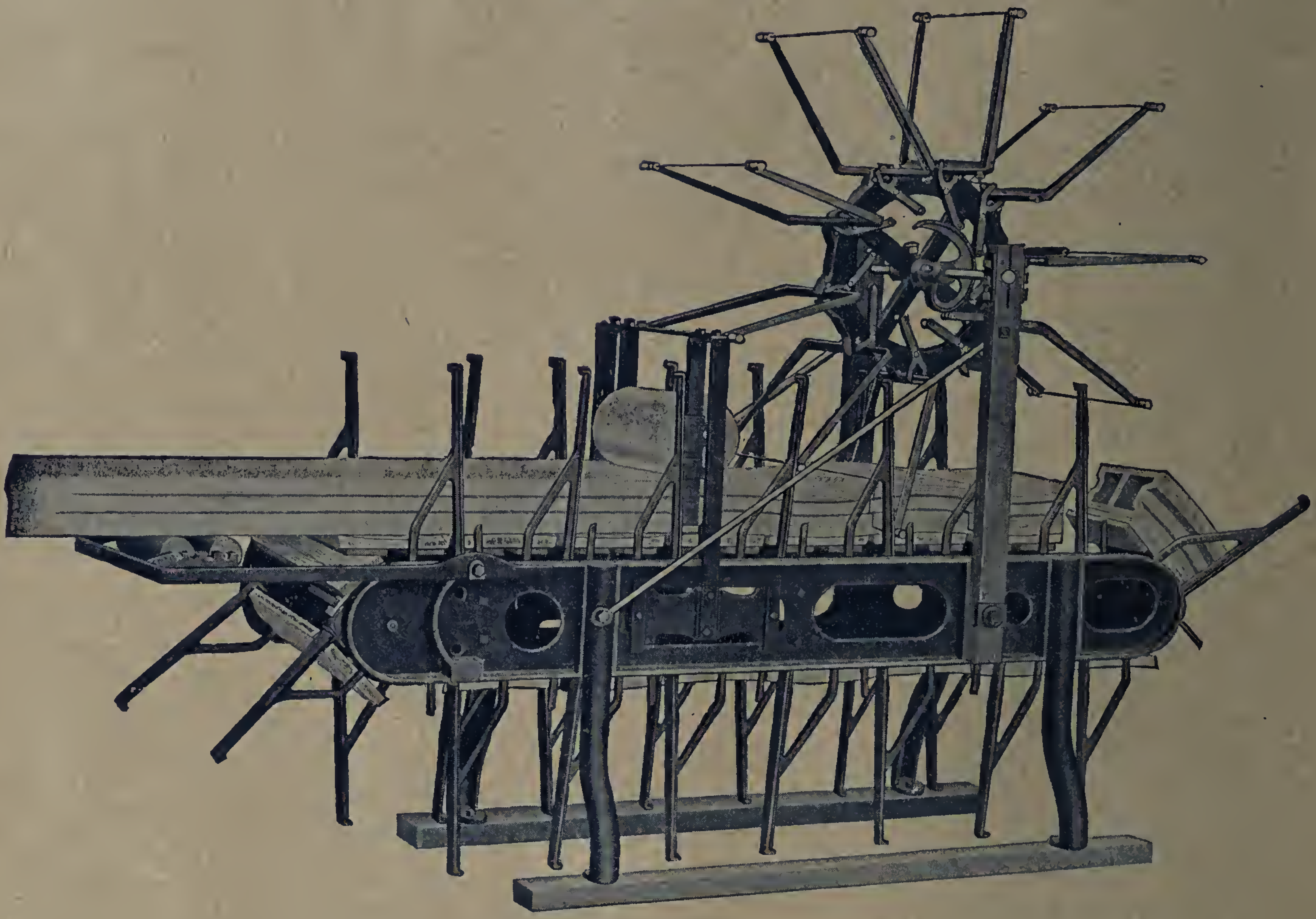


AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

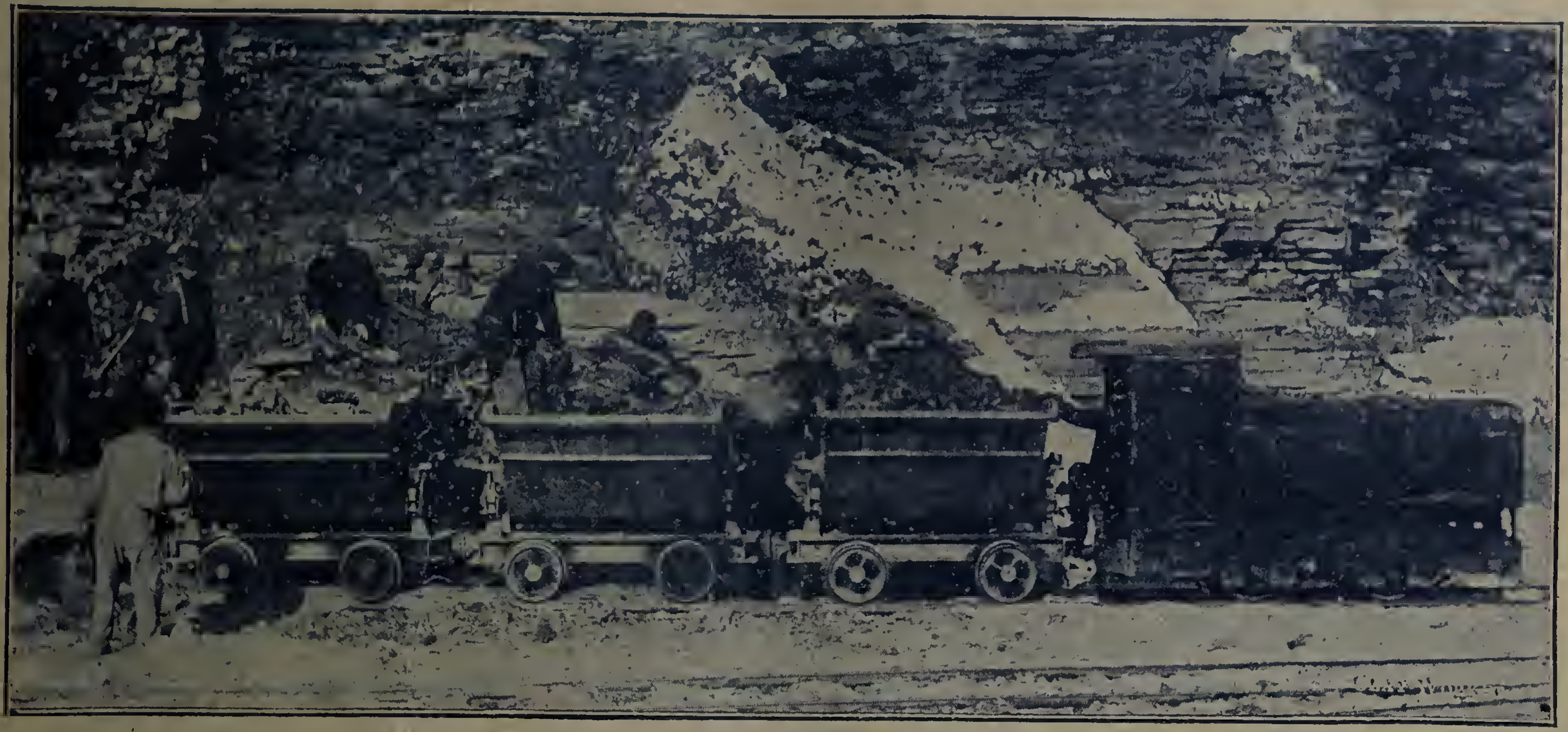
After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

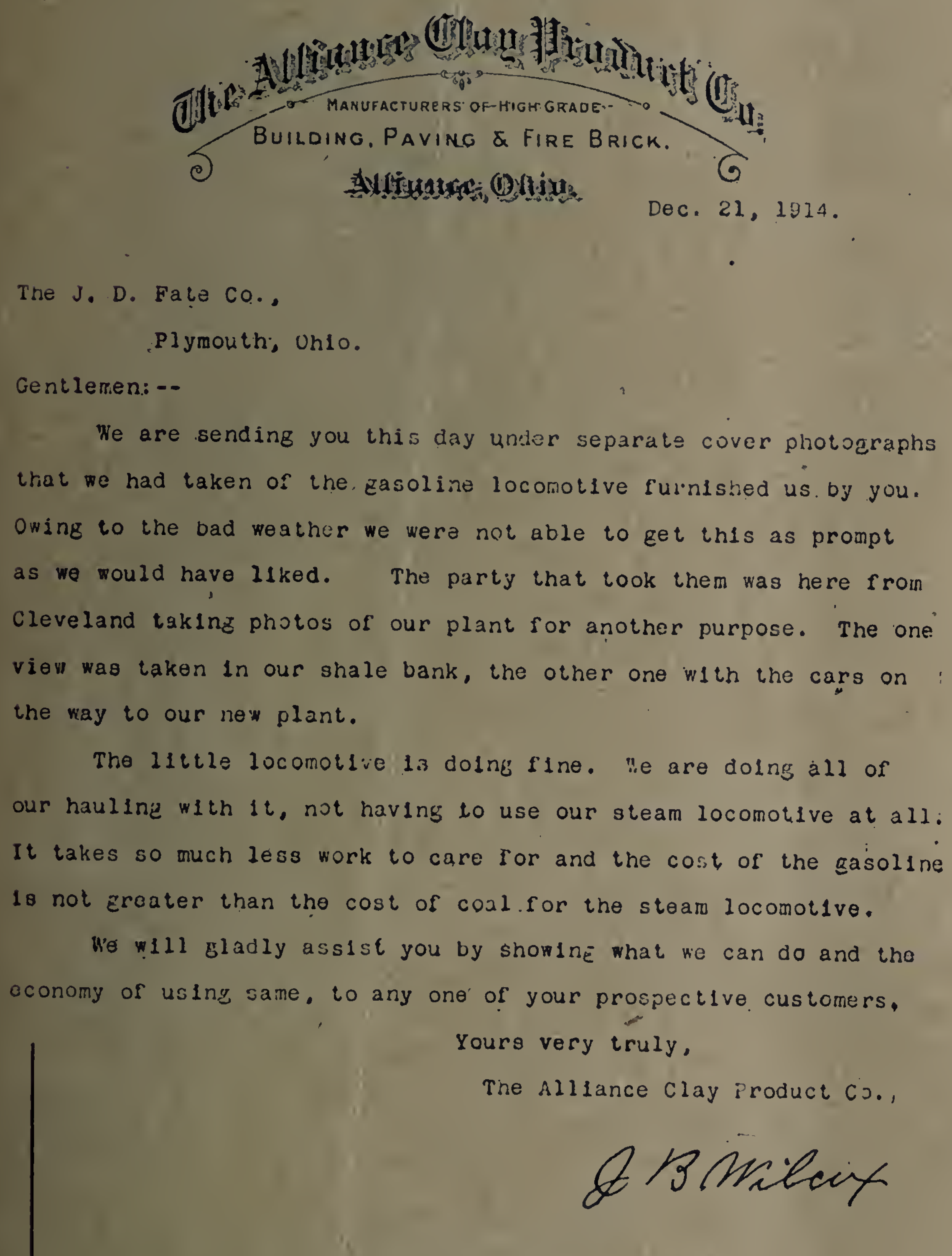
## The J. D. Fate Company

Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O



The Alliance Clay Product Co.
Manufacturers of High Grade
Building, Paving & Fire Brick.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
Plymouth, Ohio.

Gentlemen:--

We are sending you this day under separate cover photographs that we had taken of the gasoline locomotive furnished us by you. Owing to the bad weather we were not able to get this as prompt as we would have liked. The party that took them was here from Cleveland taking photos of our plant for another purpose. The one view was taken in our shale bank, the other one with the cars on the way to our new plant.

The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers,

Yours very truly,

The Alliance Clay Product Co.,

J B Wilcox

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## is the
## IDEAL HAULAGE for CLAY PLANTS.

Efficient, Economical to Operate, Low in Price and Low in Upkeep.

Any Speed—Forward or Backward—Power Equal in Both Directions.

No Licensed Engineer Required.

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Continental 4-Cylinder Motor, Bosch High Tension Magneto, Schebler Carburetor, Hyatt Roller and New Departure Ball Bearings—Power, Brakes and Sand on all 4 wheels, and all parts very accessible. Any Gauge, 20-inch to Standard.

Let us tell you more about them, and how an 8-year old boy operates one in a clay plant at Morrisonville, Ill.

## The J. D. FATE CO.

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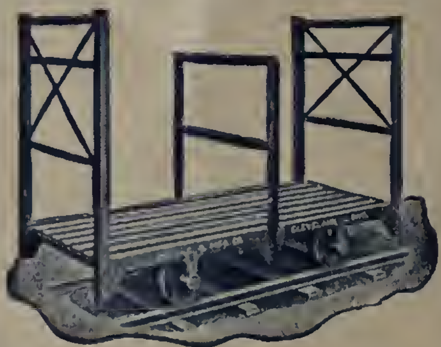

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Also made in end dump. Above car made for loading with steam shovel.

Storage Battery Locomotive for general use.

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# THE CLAY-WORKER

Making Clay Conduits at the Plant of the Clay Products Co., Brazil, Ind. See page 141.

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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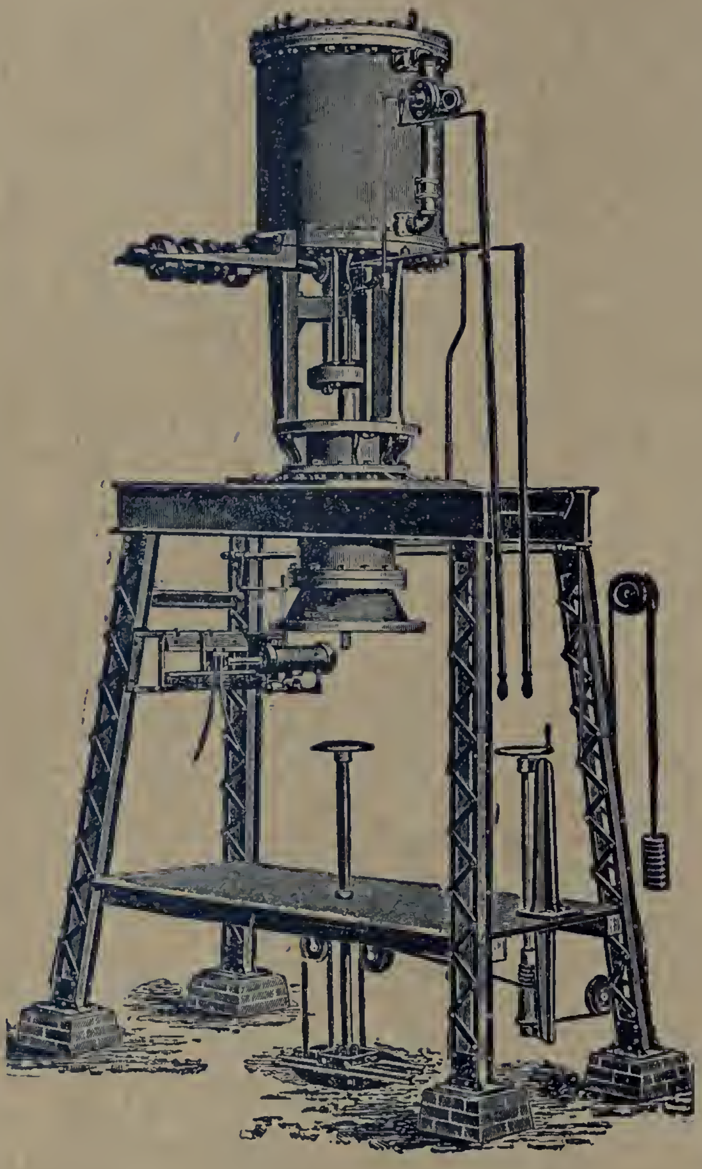
All men get stung sometime. Some men get stung all the time, except the ones who buy PIONEER CLAYWORKING MACHINERY.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

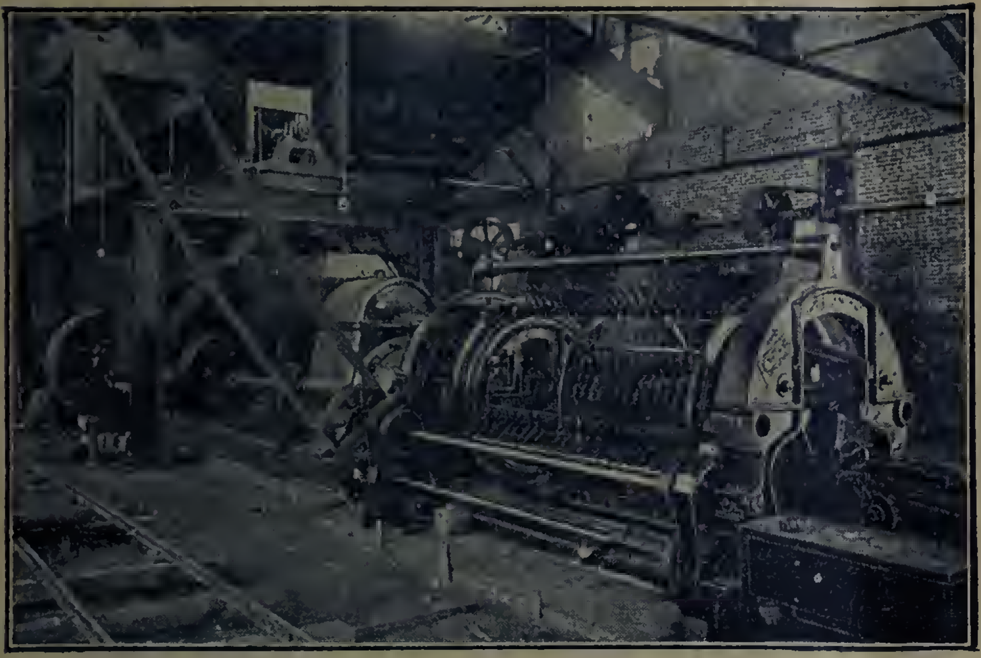
---

## THE TAPLIN, RICE-CLERKIN CO.

**Akron, Ohio**

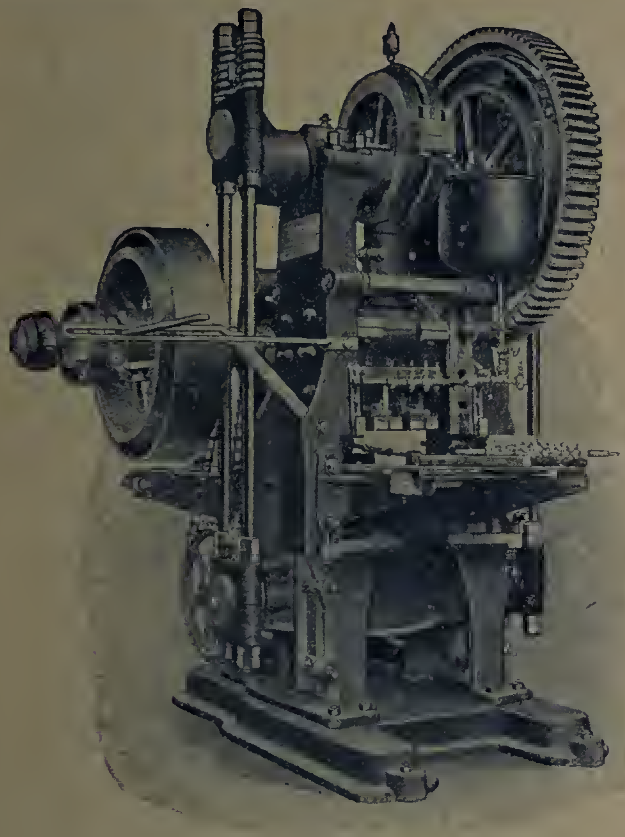
The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

AUG 29 1916

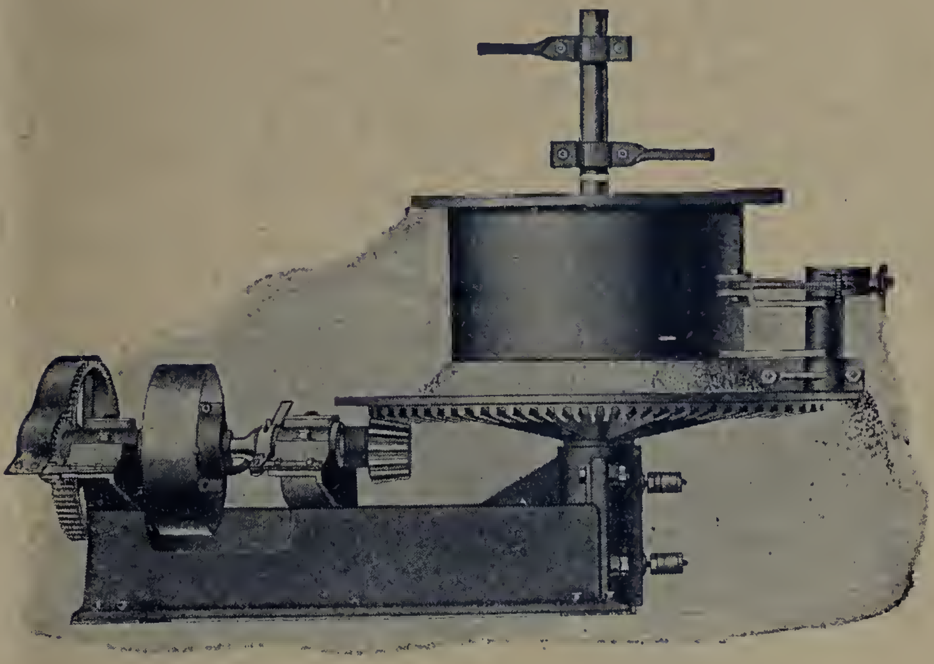


We manufacture a complete line of machinery for Brick and Hollow Ware.

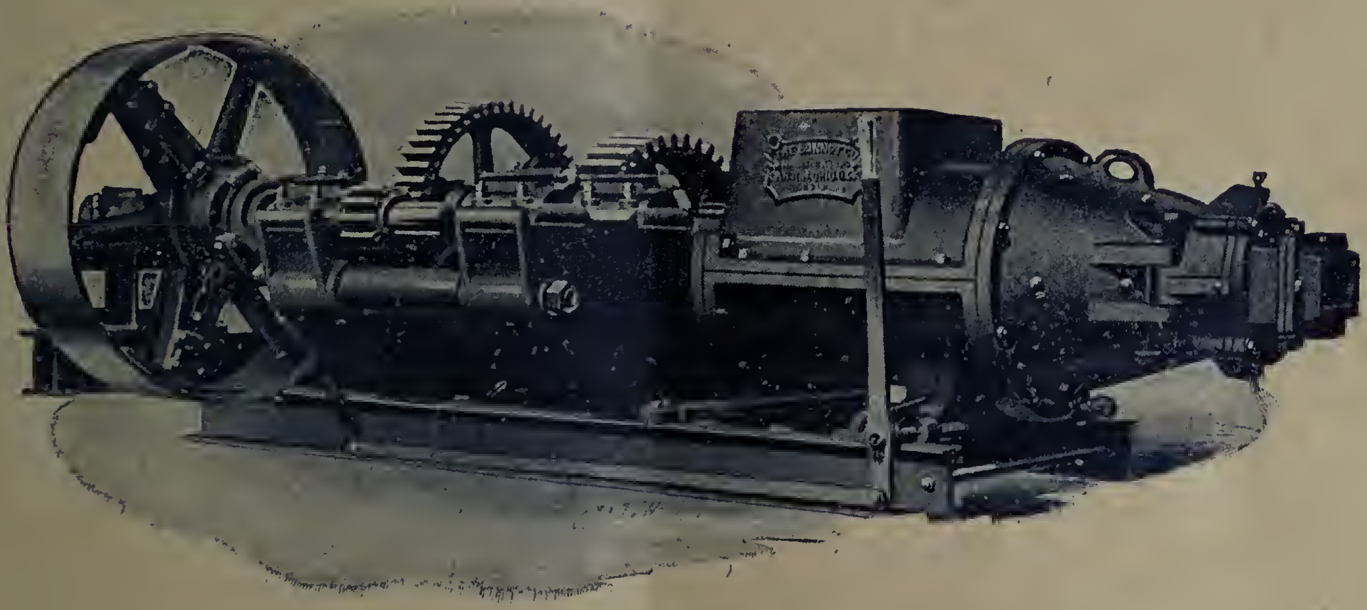
Complete catalog sent on request.



BONNOT REPRESS.



CLAY FEEDER.



AUGER MACHINE, 50,000-70,000 CAPACITY.

CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

**THE BONNOT COMPANY**

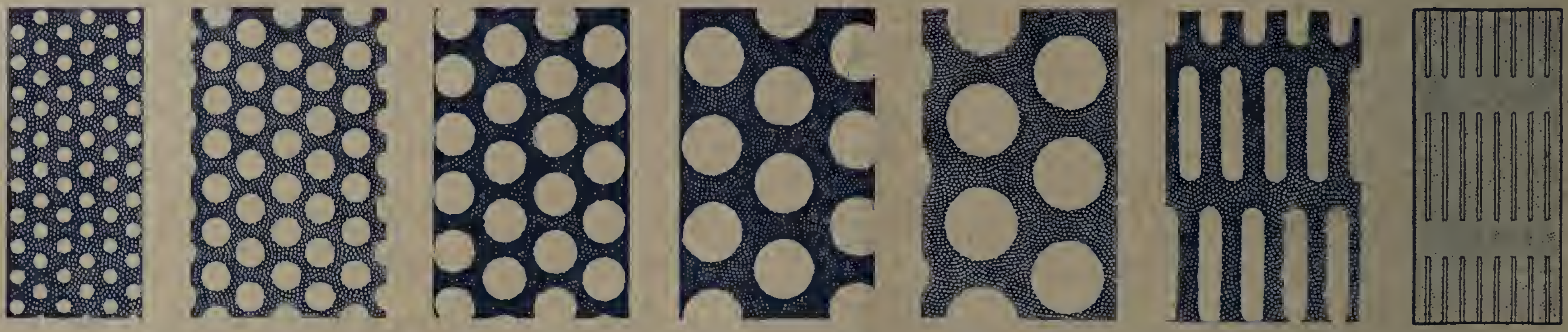
909 N. Y. Life Bldg., KANSAS CITY, MO. CANTON, OHIO
211 Higgins Bldg., LOS ANGELES, CAL.

CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

## PERFORATED STEEL SCREENS

FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

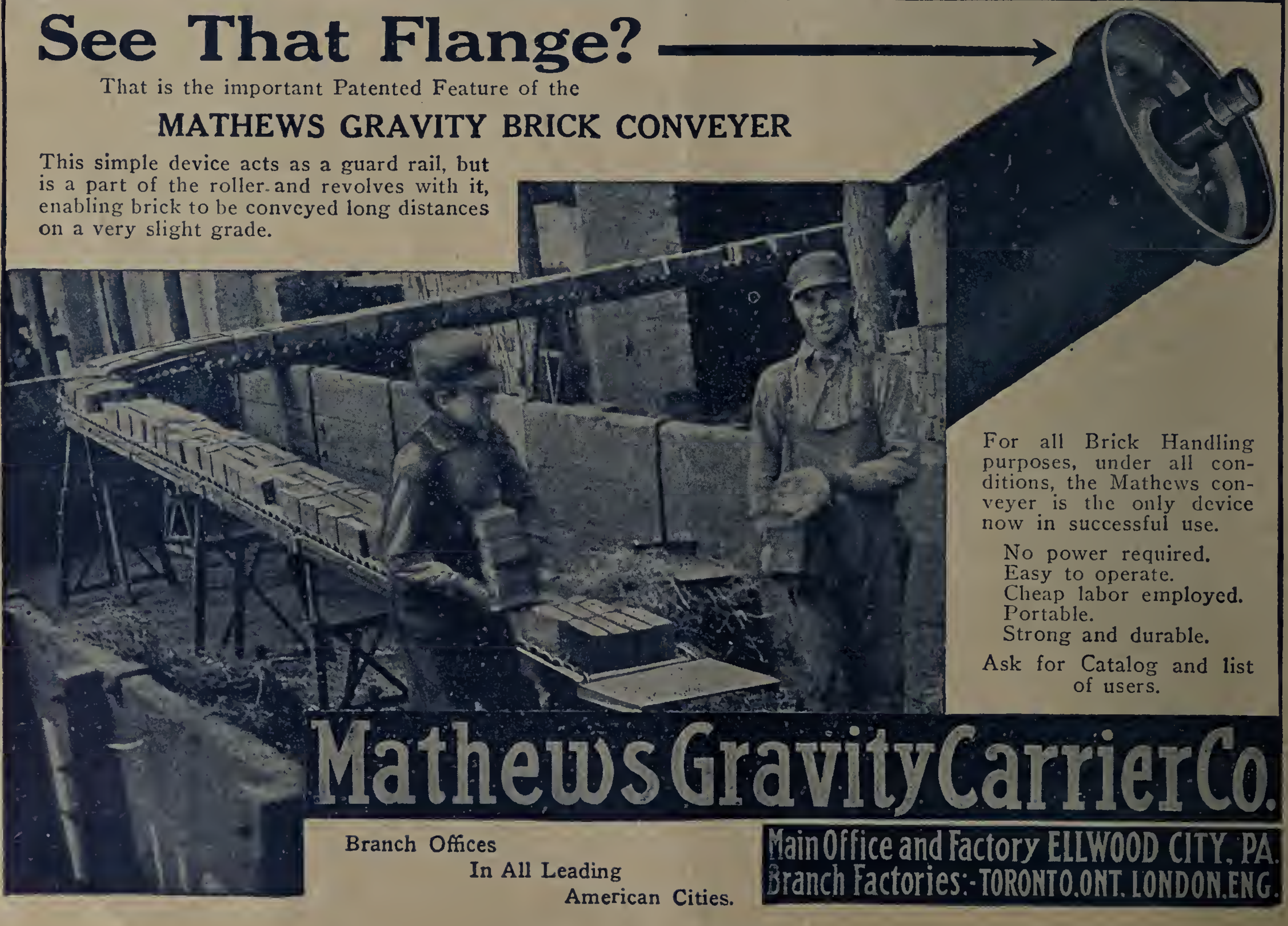
No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

## See That Flange?

That is the important Patented Feature of the

**MATHEWS GRAVITY BRICK CONVEYER**

This simple device acts as a guard rail, but is a part of the roller and revolves with it, enabling brick to be conveyed long distances on a very slight grade.



For all Brick Handling purposes, under all conditions, the Mathews conveyer is the only device now in successful use.

No power required.
Easy to operate.
Cheap labor employed.
Portable.
Strong and durable.

Ask for Catalog and list of users.

**Mathews Gravity Carrier Co.**

Branch Offices
In All Leading
American Cities.

Main Office and Factory ELLWOOD CITY, PA.
Branch Factories:-TORONTO, ONT. LONDON, ENG.

RODGERS

RODGERS FOR DRYERS

# ANNOUNCEMENT

**THE GENERAL OFFICES AND WORKS**
**of the**
**L. E. RODGERS ENGINEERING CO.**
**are now located in**
**ZANESVILLE, OHIO**

The L. E. Rodgers Engineering Company, for many years located in Chicago, has moved to Zanesville, Ohio.

The constantly increasing business of the Company, that of designing complete Clay Product Plants, Waste Heat Dryers and the designing and manufacture of Waste Heat Dryer Equipment, together with the continuous widening of their field of work—now embracing all branches of the Clay Industry—made necessary increased facilities for properly and promptly caring for same.

Zanesville is centrally located to the Clay Industry of the Middle West.

The new offices will be spacious and the factory well equipped with all modern machinery.

These facts, together with that of excellent railroad facilities available at this point, combine to insure the rendering of prompt and efficient service to Clayworkers in all parts of the country.

**L. E. RODGERS ENGINEERING CO.**

Waste Heat Dryer Specialists
Brick Works Engineers

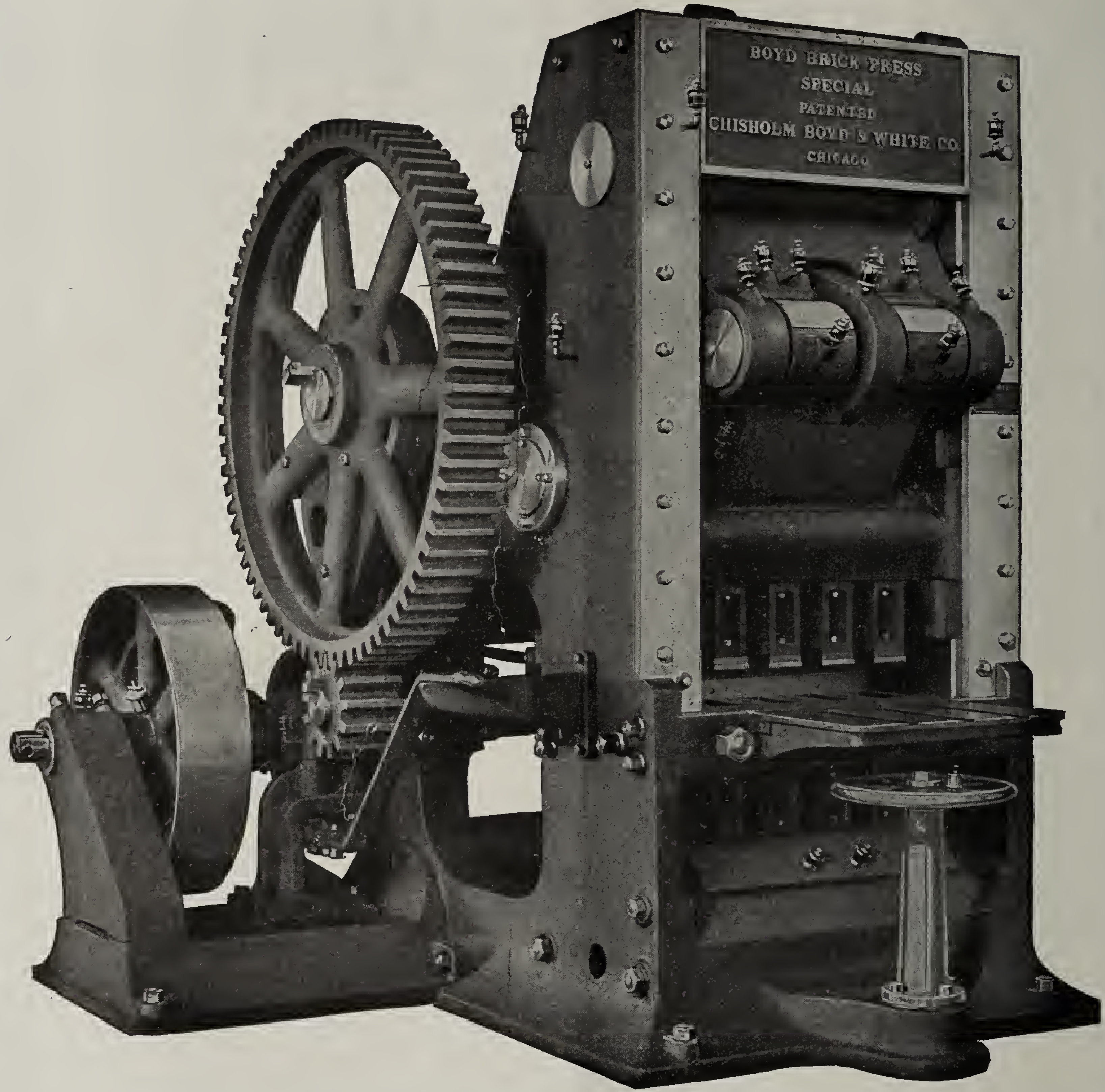
Largest Manufacturers of Brick Drying Equipment in the United States

General Offices and Works ZANESVILLE, OHIO

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED-PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

## Chisholm, Boyd & White Company

**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

## To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

### Ammeters.
The Brown Instrument Co.

### Analysists and Chemists.
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Arch Cutting Apparatus.
Ceramic Supply & Con. Co.

### Automatic Clay Bin Emptier.
Fate Co., The J. D.
Raymond Co., The C. W.

### Automatic Cutting Tables.
(See Cutting Tables.)

### Barrows and Trucks.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Barytes, Carbonate of.
Roessler-Hasslacher Chem. Co.

### Bearings, Roller.
(See Supplies.)

### Belting.
Ceramic Supply & Con. Co.
Gandy Belting Co.

### Belt Conveyors.
American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Blowers.
American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.

### Brick (Building).
Bloomfield Clay Co.
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.

### Brick and Tile Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Mchy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.

### Brick Machines (Stiff Mud).
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The
Chambers Bros. Co.
Fate & Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press).
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

### Brick Recutter.
Raymond Co., The C. W.

### Brick Setting Machinery.
American Clay Machinery Co.

### Buffing Machinery.
American Clay Machinery Co.

### Burning and Drying Systems.
American Blower Co.
Boss, John C.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Yates, Alfred.

### Cars.
(See Dryer and Dumping Cars.)

### Castings.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.
American Pulverizer Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Clays.
Bloomfield Clay Co., The

### Clay Dryers.
American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.
American Clay Machinery Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Marion Mach., Fdy. & Sup. Co.
Raymond Co., The C. W.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.

### Clay Gatherers.
(See Scrapers.)

### Clay Steamers.
Raymond Co., The C. W.

### Clay Technologists.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.
(See Supplies.)

### Coloring Materials.
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.
Orton, Edward, Jr.

### Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.
Ceramic Supply & Con. Co.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick & Tile).
American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Miller Wire Mfg. Co.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Drills.
Ceramic Supply & Con. Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

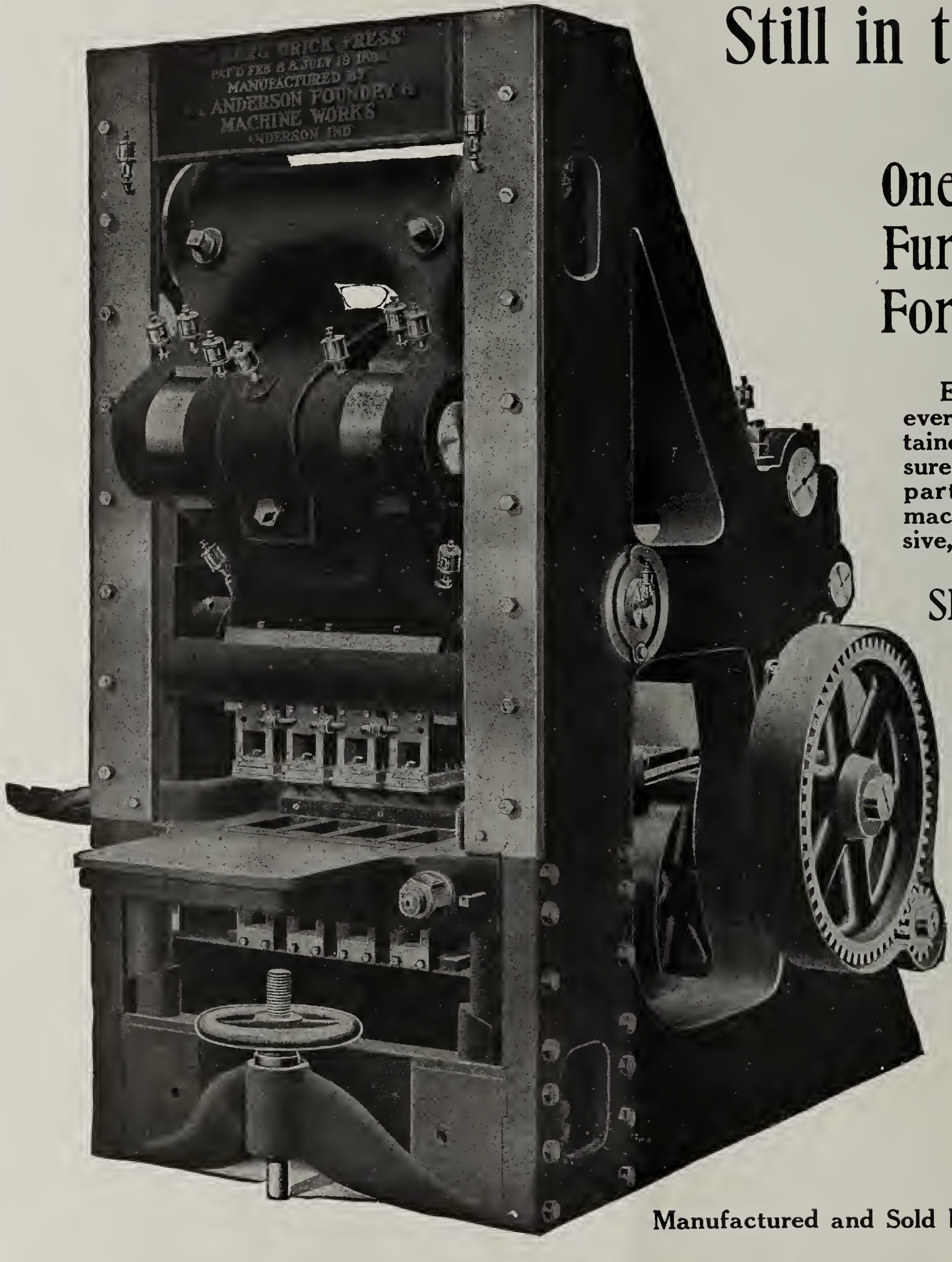
### Dryers.
American Blower Co.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.

(Continued on page 129.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE
FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

**SHIPPED IN ONE PIECE.**

All Machines Are Equipped With

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

### Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.

### Electric Instruments.

Brown Instrument Co., The
Thwing Instrument Co.

### Electric Shovels.

Thew Automatic Shovel Co.

### Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

### Electrical Locomotives.

Atlas Car & Mfg. Co.

### Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.
Westinghouse Elec. & Mfg. Co.

### Elevating Equipment.

(See Conveyors.)

### Engines.

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

### Engineers.

Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

### Fans.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Filler (Paving).

Barrett Mfg. Co.

### Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

### Fire Clay.

Bloomfield Clay Co.

### Floor Tile.

Chicago Ret. & Fire Brick Co.

### Flower Pot Machinery.

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The
Taplin-Rice-Clerkin Co.

### Friction Clutch Pulleys.

(See Supplies.)

### Furnaces.

Brown Instrument Co., The
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

### Gas Fire Continuous Kilns.

Raymond Co., The C. W.

### Gears.

(See Supplies.)

### Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Grates.

Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.

### Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin-Rice-Cerkin Co.

### Gravity Haulage.

American Clay Machinery Co.

### Grouter.

Marsh-Capron Mfg. Co.

### Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

### Hollow Blocks.

Smith, W. W.

### Hand Winch.

(See Supplies.)

### Hangers.

(See Supplies.)

### Hoists.

(See Supplies.)

### Hollow Brick Machinery.

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Illustrators.

Lamb, J. & R.

### Insurance.

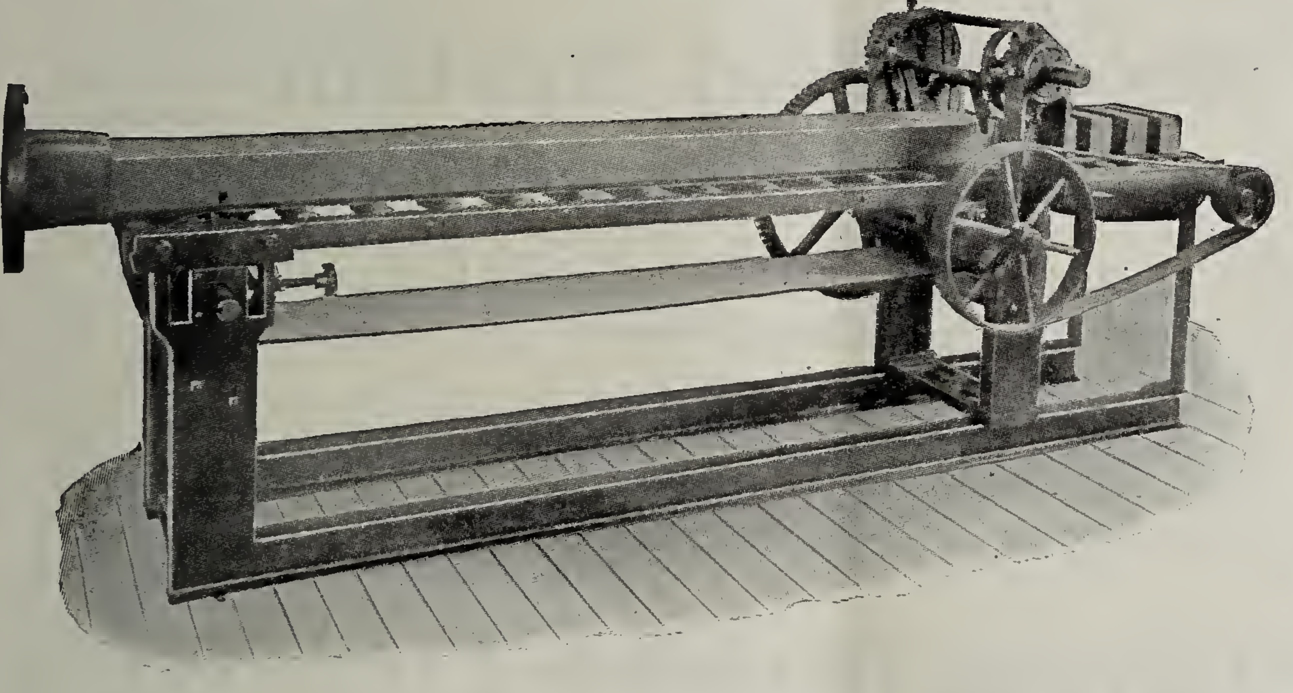
Mantle, Tile & Grate Monthly.

### Jacks.

(See Supplies.)

(Continued on page 131.)

MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

MUELLER BROS.

1436 Macklind Ave. (on Frisco Tracks) ST. LOUIS, MO.

**BUILD WITH BRICK**

The Layton, Pa., Plant of the Kier Fire Brick Co.

# 25,000 Silica Fire Brick

**are being dried every day by the**

## Sirocco

TRADE MARK.

## Waste Heat System

are dried economically at the Layton, Pa., Plant of the Kier Fire Brick Co.

They decided to convert their waste heat into a valuable drying element. You can do the same. The cost is small as compared to the results obtained.

Our Brick Engineering Department will lay out a Sirocco System for you, by the installation of which **you** can turn a **waste** into a **gain.**

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
Dallas, Texas, Southwestern Life Insurance Bldg.
San Francisco, Cal., 667 Mission St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lemcke Annex.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

### Kilns.

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Klose, A.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred

### Kilns, Doors, Castings and Frames

(See Supplies.)

### Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.

### Knives.

(See Supplies.)

### Locomotives.

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

### Manganese.

(See Coloring Materials.)

### Mechanical Draft.

Boss, J. C.
Rodgers Engr. Co., The L. E.

### Mineral Paint.

(See Coloring Materials.)

### Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.

### Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.

### Mortar Colors.

(See Coloring Materials.)

### Motor Trucks.

Fate Co., The J. D.

### Oil Burners.

Schurs Oil Burner Co.

### Paints.

(See Coloring Materials.)

### Pallets.

Fouts Co., The C. C.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

### Pans (Dry and Wet).

(See Dry and Wet Pans.)

### Paving Brick or Block.

(See Brick.)

### Perforated Sheet Metal.

Caldwell & Sons, H. W.
Ceramic Supply & Con. Co.
Harrington & King Perf. Co.

### Pitch (Paving).

Barrett Mfg. Co.

### Plows.

(See Scrapers.)

### Poidometers.

Schaffer Eng. & Equip. Co.

### Portable Track.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### Pottery Machinery.

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Taplin-Rice-Clerkin Co.

### Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

### Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Pulleys.

(See Supplies.)

### Pulverizers.

American Pulverizer Co.
Fate Co., The J. D.
Taplin-Rice-Clerkin Co.

### Pumps.

Ceramic Supply & Con. Co.
Dean Bros. Steam Pump Wks.
Potts & Co., C. & A.

### Pyrometers.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

### Rails and Railway Equipment.

Atlas Car & Mfg. Co.
Ceramic Supply & Con. Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

### Rattlers (Paving Brick).

Ceramic Supply & Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

### Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

### Represses.

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Con. Co.

### Revolving Steam Shovels.

Thew Automatic Shovel Co.

(Continued on next page.)

**Reduced Operating Costs**

Reduced cost is what every brick manufacturer wants now when the denand for brick is slack.

Our power engineers have convinced many owners of the economy of Westinghouse Motor Drive. The plants that are so equipped today are the ones which are saving money.

Give our power engineers a hearing. Their services are free.

**Westinghouse Electric & Manufacturing Co.**

Sales offices in all
large American cities

East Pittsburgh,
Pennsylvania

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### Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.

### Sand Dryer and Sand Sieves.

Ceramic Supply & Con. Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Lechtenberg Brothers.
Eagle Iron Works.

### Screens.

American Clay Machinery Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Lakewood Engineering Co.
Raymond, Co., The C. W.
Taplin-Rice-Clerkin Co.

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

Thew Automatic Shovel Co.

### Steam Specialties.

Frost Mfg. Co.
Standard Dry Kiln Co.

### Steam Traps.

American Blower Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Switches.

Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., H.
Brewer Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

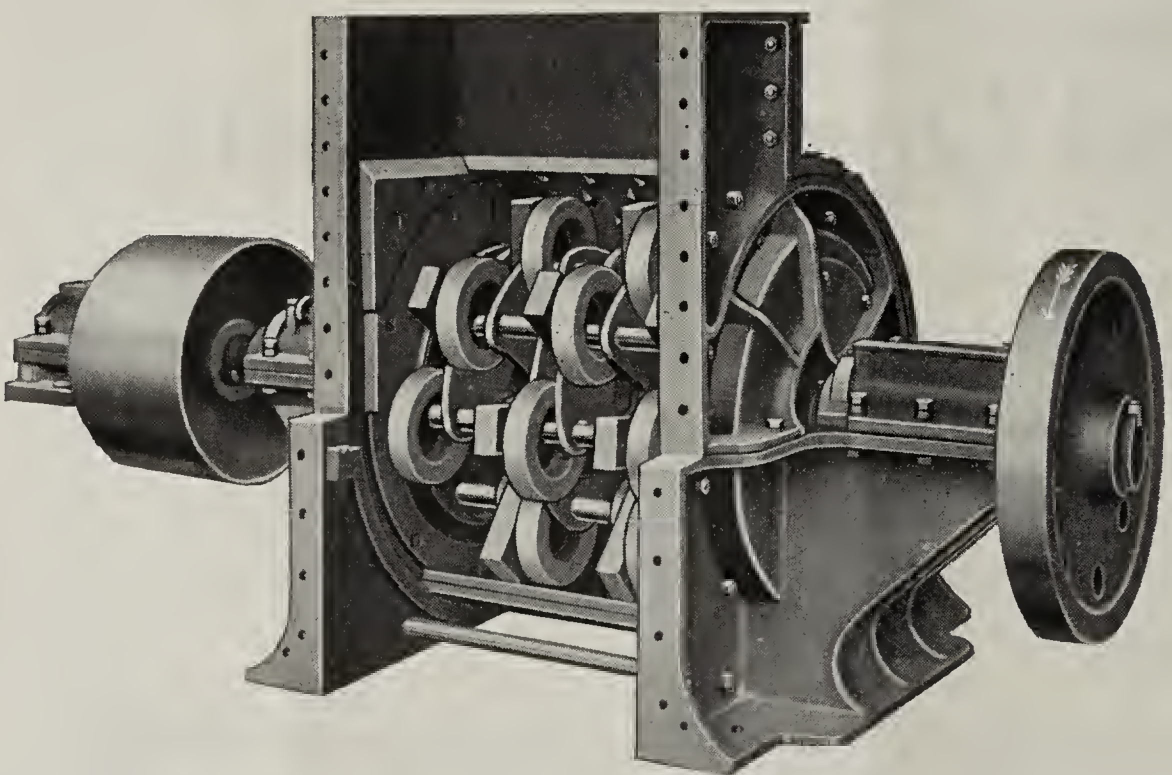
(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)



Our Number 48
PULVERIZER
Price $1650
will pulverize
18 to 25 tons
of
shale and clay
per hour.

COMPARE
this machine's ability with any other type of grinding machinery, like installation cost.

GUARANTEED UNDER 30 DAYS' GRINDING TEST.
SEND FOR PARTICULARS.

AMERICAN PULVERIZER CO., East St. Louis, Ill.

THEW SHOVELS

FULL CIRCLE SWING
THEW
HORIZONTAL CROWDING MOTION
STEAM SHOVELS

# *20 to 30 Cents an Hour for Fuel*

## But One of the Advantages of the THEW Gasoline Shovel

THIS shovel has the horizontal crowding motion, prying motion, swivel motion of dipper, and full circle swing feature, which are standard with all Thew Shovels, the only difference being in the kind of motive power.

It requires no fireman, is operated by one man, and demands no licensed engineer.

The cost of operating is particularly low, as only 20 to 30 cents worth of gasoline is consumed per hour; there is no expense for hauling coal, for boiler insurance, or boiler upkeep, and no time is wasted in getting up steam, banking fires or blowing off boiler.

Complete advantages of this new shovel are set forth in circular B, which will be sent on request.

Thew Steam Shovel Handling Deep Excavation

Thew Electric Shovel on Electric Railway Work

Type O Thew Gasoline Shovel—¾-Yard Dipper

**We make Steam, Electric and Gasoline Shovels**

Write for information about Shovel in which you are interested.

Sign and Mail or Use for Memorandum

**The Thew Automatic Shovel Co.**
**Lorain, Ohio**

Send me copy of new circular and full information about the...........shovel as per advertisement in The Clay-Worker.

Name ..............................

Address ..............................

**THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO**

Trautwein
DRYERS

# INSURE YOUR CAPACITY

To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

## ASSURANCE

Of Increased Capacity
Greatest Economy
And Largest Profits

OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

**Trautwein Dryer & Engineering Co.**
**Manufacturers-Engineers**
**417 South Dearborn Street Chicago**

# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP-TO-DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

## Claude Smith Company

**KILN BUILDERS**

**Plymouth Building Chicago, Illinois**

# JOIN THE

**BOOST** BUILD WITH BRICK **BOOST**

# CAMPAIGN

A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

## THE BUILD WITH BRICK MOVEMENT.

IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.

It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.

Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background. These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.

Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.

T. A. Randall & Co., Publishers The Clay-Worker.

Gentlemen:

You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ..................................................

..................................................

(Cross out the items not wanted, fill in and mail us the coupon.)

## The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country."
**Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio**

## SHAWMUT VITRIFIED PAVING BRICK WORKS

Shawmut, Pa. Alfred Yates, Gen. Mgr.
**Vitrified Shale and Fire Clay Paving Bricks and Blocks.**
Burned in Yates' Patent Kiln.
Samples and prices on application.

PAVING BUILDING · **BRICK AND BLOCK** · SIDEWALK FOUNDATION

## The Barr Clay Co.

C. C. Barr, Pres. · Streator, Ill.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

## KUSHEQUA

Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

## PROMENADE TILE

Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

## Tile Underdrainage.

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

## THE DECKMAN-DUTY BRICK CO.

CLEVELAND, OHIO.

THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

## ALTON BRICK COMPANY

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

## McAVOY VITRIFIED BRICK COMPANY

PHILADELPHIA, PA.
*"McAVOY BLOCK"*

## VITRIFIED PAVING BRICK.

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of $2.00.

T. A. RANDALL & CO., Publishers, Indianapolis.

## C. P. MAYER BRICK CO.

BRIDGEVILLE, PA.

The MAYER BLOCK is Unequaled in Abrasion Test.

## "Best Paving Block Made"

Daily Capacity
500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

IRONSTONE BLOCK

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

Terre Haute Vitrified Brick Co.
TERRE HAUTE, IND.

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,
(C. A. Bloomfield, Treas. and Manager)
P. O. Box 413. METUCHEN, N. J.

PAVE WITH BRICK
THE DEPENDABLE ROADWAY

Murphysboro Paving Brick Company

Manufacturers of

The Celebrated

EGYPTIAN PAVING BLOCK

The Block That Stands the Test.

Prices and samples furnished upon application.

MURPHYSBORO, ILL.

CLINTON PAVING BRICK CO.
Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

Clinton Paving Brick Company
Clinton, Indiana

Bessemer Limestone Company
Youngstown, Ohio.

Manufacturers of

BESSEMER BLOCK.

The Most Uniform Shale Paver Made.

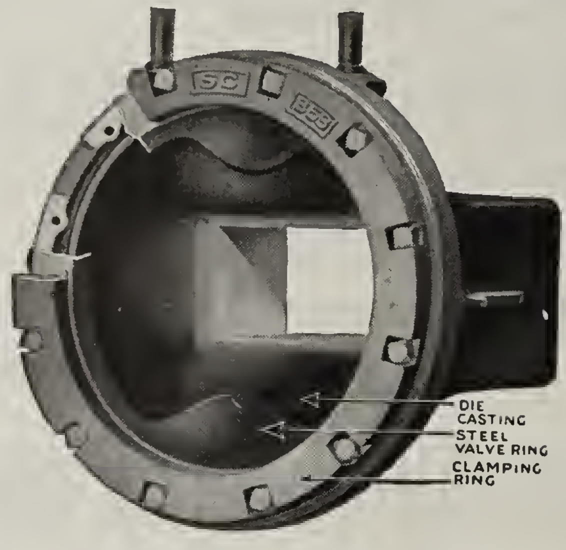
PURINGTON PAVERS
ARE MADE OF

GALESBURG SHALE

PURINGTON PAVING BRICK CO.
GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

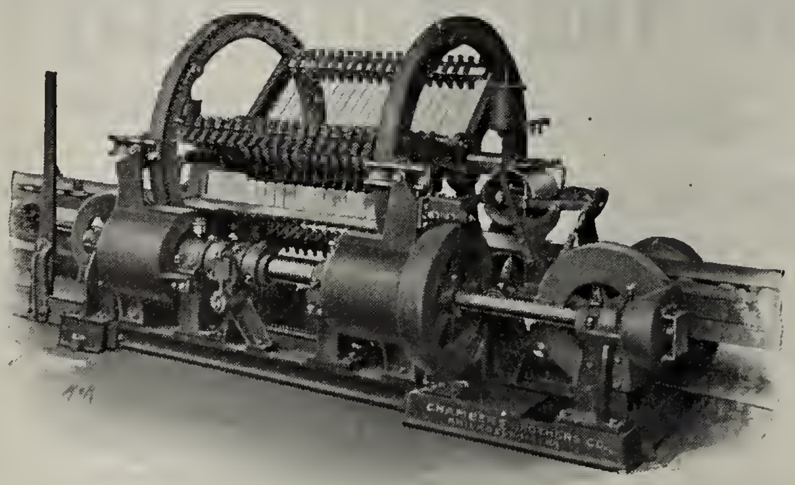
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

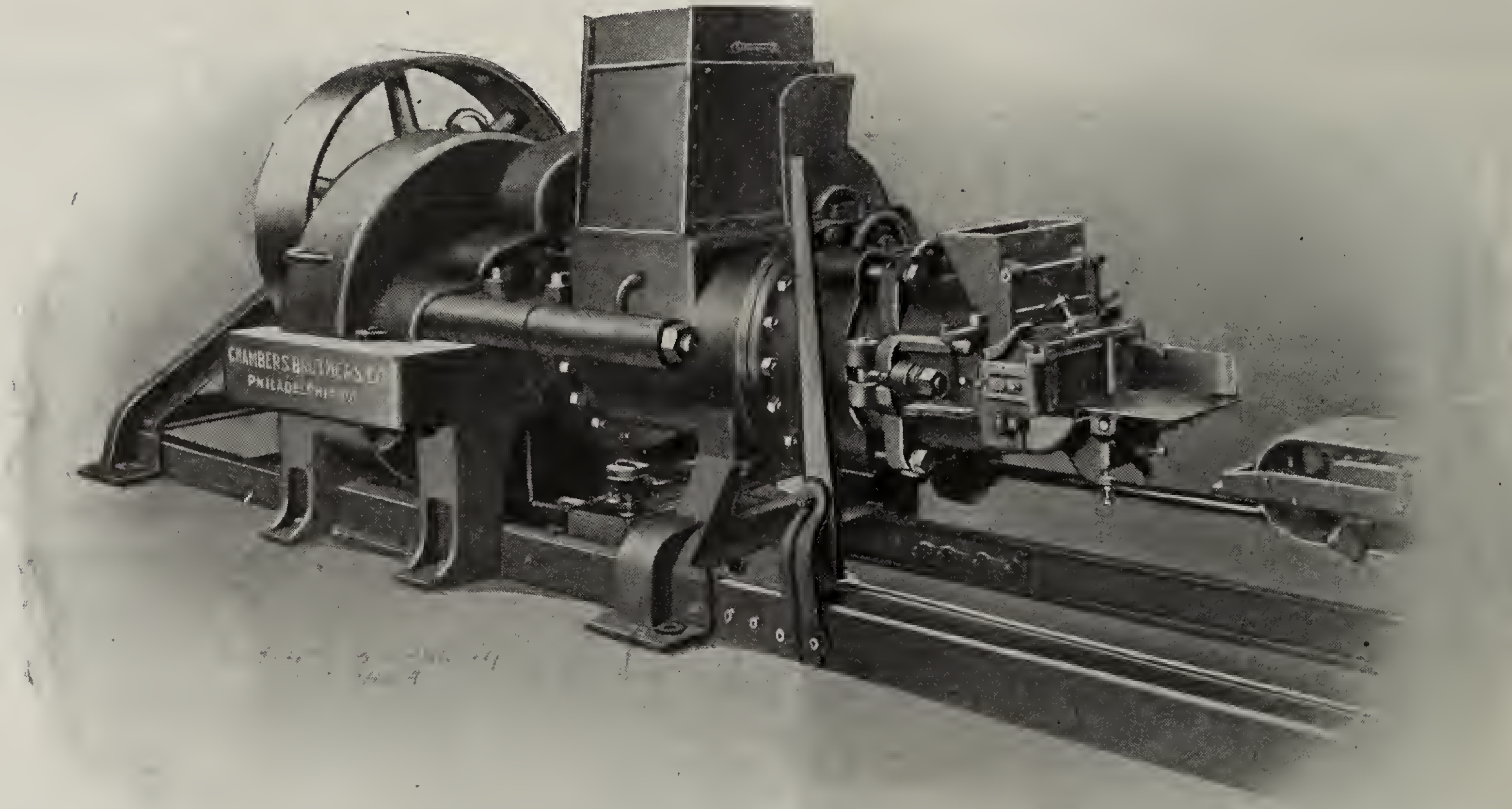
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

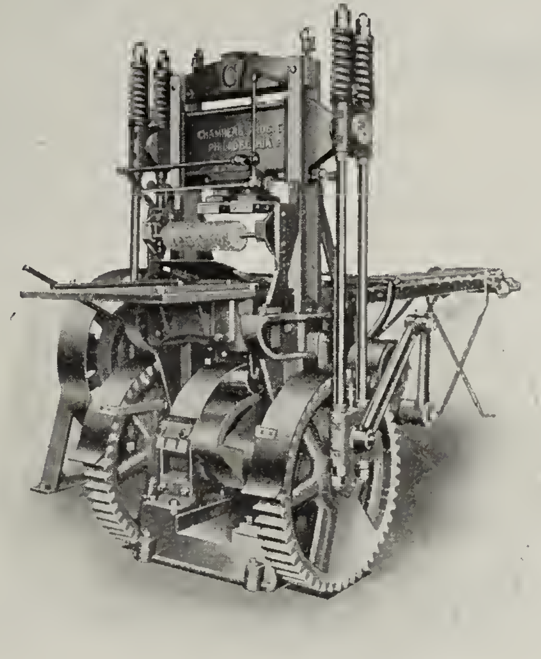
# Chambers Brothers Co., Philadelphia, Pa.

Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.



## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

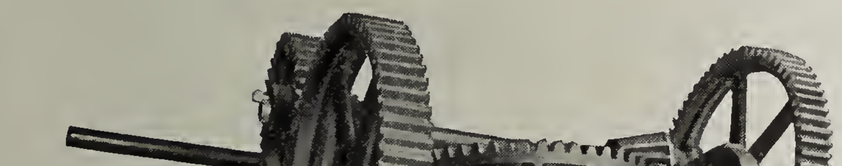
Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

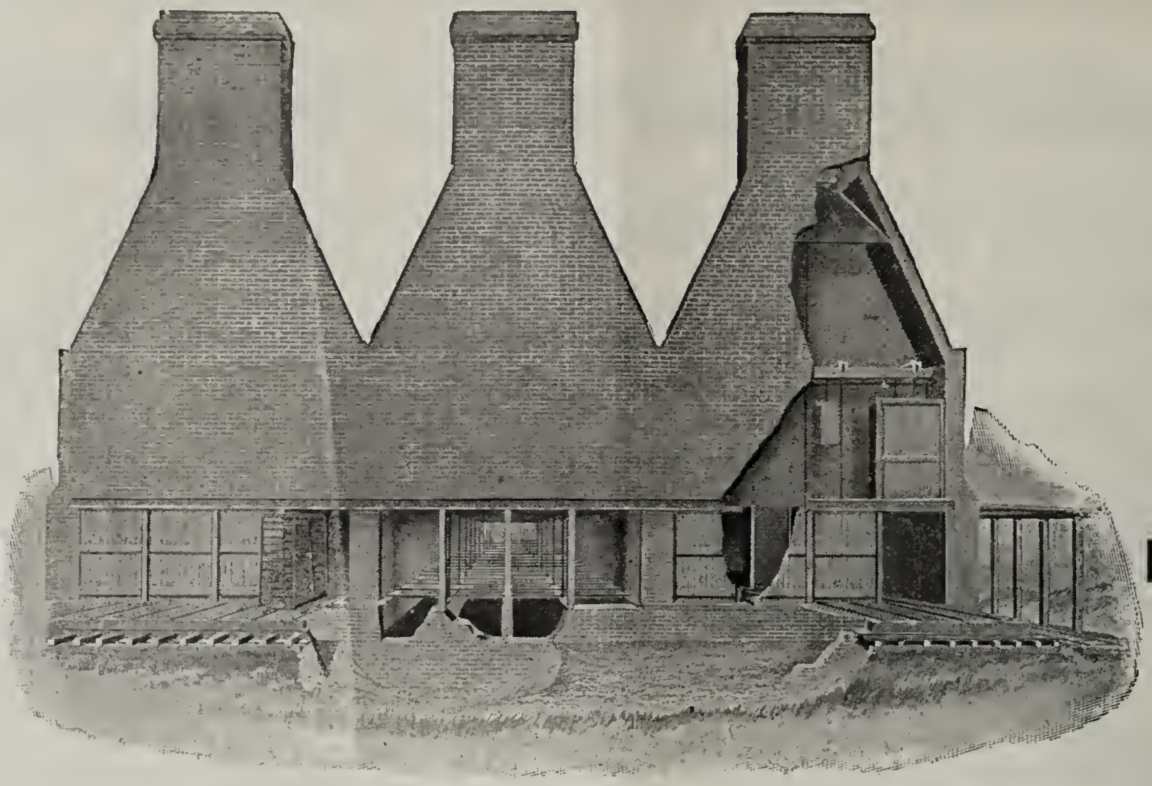
One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.



THE BELMONT
SOFT MUD BRICK MACHINE

Molds sharp clean edge brick as stiff as can be dumped from the molds.



**"But," you ask, "how can I be sure that The Standard Drying System will prove a success with my clay?" You have two assurances that it will.**

First, you have the evidence of The Standard Drier's success at other brick plants where the clay is of the same nature as yours. We'll send you the names of these other brickmakers and you can write them direct for the facts.

Second, you are protected by the plain written guaranty that goes with every Standard Drier. The drier *must* do all we claim. It *must* dry your product to your complete satisfaction. Write for the catalog and full information about our guaranty.

**The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.**

THE CLAY-WORKER

The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIV. INDIANAPOLIS, IND., AUGUST, 1915. No. 2

# BRAZIL, THE CLAY CENTER OF INDIANA.

## A Little of Its History and Some Information Relative to the Splendid Clay Product Manufactories Located There.

CLAY COUNTY POSSESSES the richest clay and shale deposits in the entire state of Indiana, so it is not surprising to find located within its boundary many clay product manufactories. Brazil, its chief city, is known as the clay center of Indiana, and rightly so, for there are nine large plants of unusual merit established there. From a small beginning in 1893, when coal mining was Brazil's chief asset, it has developed gradually with many changes in plant ownership and construction until today its ceramic institutions are most substantial. The clay products manufactured are conduits, interlocking brick and block, hollow tile, silo block, sewer pipe, wall coping, traps and bowls, segment block, fire clay stove pipe fittings, flue linings, chimney tops, drain tile, paving brick, common building brick and face brick. The nine large factories are located within a two-and-a-half-mile radius from the center of Brazil. These factories are those of The Clay Products Company, The National Fireproofing Company, The Brazil Hollow Brick and Tile Company, The Hydraulic Pressed Brick Company, The Brazil Face Brick Company, The Brazil Clay Company, The Indiana Paving Brick Company, The Chicago Sewer Pipe Company and the American Sewer Pipe Company. These factories, for the most part, are operated the year round, one plant having a day and night shift with machinery in continual operation except for short delays for repairs.

Immense Strip Bank of the Clay Products Co., Brazil, Ind.

For years Brazil has enjoyed an enormous production of clay products, millions of tons of clay have been used, yet there remains enough high-grade material within the confines of Clay county to run these plants for many years to come.

One of the most important clay product manufactories in Brazil is that of The Clay Products Company. It is one of the finest clay plants in the United States, with a large annual production of high-grade conduits and Denison interlocking tile.

The company was incorporated in 1906, at which time the present owners took over the interests of the Continental Clay and Mining Company. The officers are: President, H. H. Titsworth; vice-president, F. W. Darling; treasurer, J. R. Jones, and secretary, C. F. Shannon. Mr. Titsworth is also the general manager, while Mr. Shannon is the superintendent. Mr. Darling has proven an excellent sales manager.

The old plant was remodeled and was operated successfully until 1912, when the entire plant was wiped out by a disastrous fire. Reconstruction was begun at once on broader, safer lines, and an entirely fireproof plant erected, consisting of several large buildings made of hollow block and conduits, well situated and excellently arranged for their several purposes.

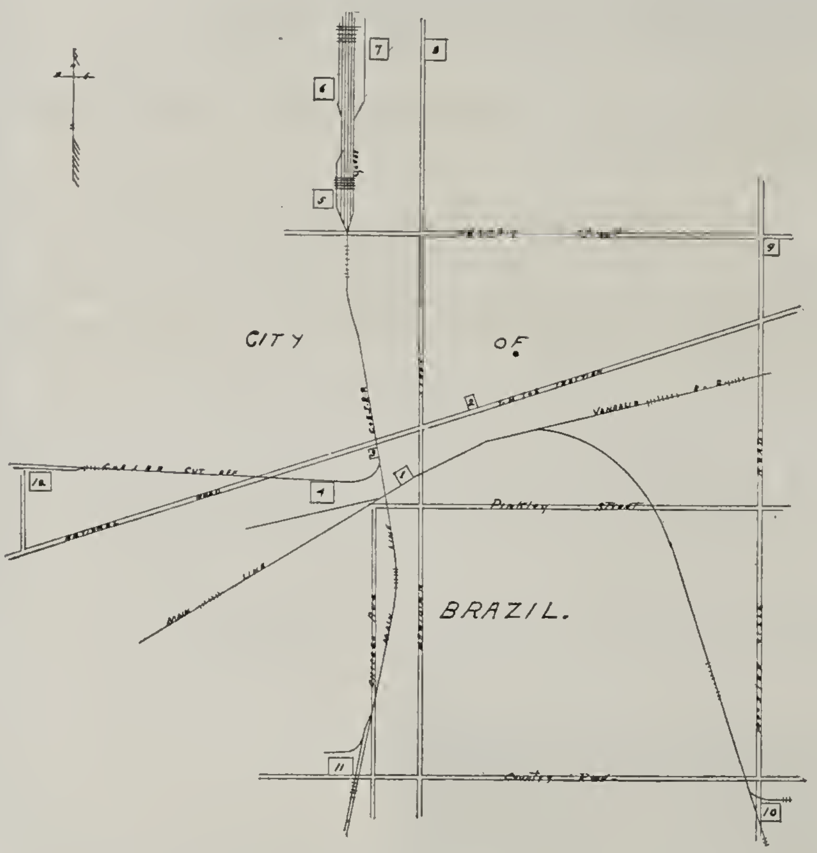
The main building contains five departments, namely: Clay storage, dry pans, machinery, car storage and dryer and inspection room. In separate buildings are located the machine shop and pattern shop, power department, blacksmith shop and two independent offices. The two offices are located in well-built, attractive bungalows, made of one and two-duct conduits. One of the bungalows is used for the plant office, while the other is used for accounting and executive work. The sales department is located in the Stock Exchange Building, Chicago.

Another fire-proof building contains the superintendent's office and display room, where are exhibited unusual panels of hollow interlocking brick and block, set up in substantial mortar for exterior building walls.

There is system throughout this plant; there is no lost motion and the operation is carried on in clock-like fashion. The writer was deeply impressed with the orderliness and cleanliness of the entire premises.

The plant is two and a half miles southeast of Brazil on a branch of the Vandalia railroad. The raw material consists of a No. 2 fire clay, grayish in color, and burning buff, and a blue shale. The material is shipped in from a large strip bank seven miles from the plant proper.

Two large steam shovels are used in the mining of the clay, about 240 tons being used daily, while 250 tons of clay and 150 tons of shale are gathered daily to fill outside orders for raw material. Twenty-five men and $100,000 worth of equipment are required in this clay pit, which averages 50 feet in depth of raw material. The top 12 feet consists of a yellow clay, which is thrown over into the old tracks of the steam shovel for future use, in the making perhaps of building brick. Beneath this yellow clay is a 28-foot strata of blue shale, overlying a 4-foot vein of coal, which more than supplies them with all the coal needed at the plant. Below the coal is a 7-foot bed of No. 2 plastic fire clay. One shovel is used to strip and load the material above the coal, while the other shovel follows in its tracks and shovels up the coal and the fire clay.



Maps Showing Location of Brazil's Clay Plants.

1. Vandalia Depot. 2. Davis Hotel. 3. C. & E. I. Depot. 4. Indiana Paving Brick Co. 5. American Sewer Pipe Co. 6. National Fire Proofing Co. 7. Brazil Face Brick Co. 8. Hydraulic Press Brick Co. 9. Brazil Hollow Brick and Tile Co. 10. Clay Products Co. 11. Chicago Sewer Pipe Co. 12. Brazil Clay Co.

A geared locomotive, made by the Lima Locomotive Corporation, pulls the standard-gage cars furnished by the Vandalia railroad to the plant, where a Browning locomotive crane is employed for taking the clay from the cars and dumping into bins built over the pan department. The coal is dumped near the kilns.

A reciprocating machine feeds the raw material as desired into two American Clay Machinery Co.'s 9-foot dry pans. This reciprocating machine, manufactured by the Stephens-Adamson Co., of Aurora, Ill., is proving a valuable feature in their manufacture.

It consists of a very heavily built 10x3-foot steel slab which serves as the bottom of the bin, connected to this slab is a shaft which is operated by means of its eccentric, which pulls the slab back and forth, allowing a certain amount of material to drop down in front, which is pushed out into the pans through a small opening at every thrust of the shaft. This gives them an accurate automatic feed. The pans are run twenty-four hours a day preparing material for the day and night runs.

From the pans the ground material drops onto a conveyor of the Stephens-Adamson make, which conveys the clay to any point along its 160-foot length in the top of the clay storage bins, which hold 10,000 tons of ground clay. The material is reclaimed by Stephens-Adamson Co.'s conveying system located in the floor of the bin. The material drops onto Newaygo screens, manufactured by the Newaygo Engineering Company. The screened material is deposited in bins directly above the augur machine, while the tailings are reground in an Eagle 9-foot dry pan.

A Columbus disc feeder, made by the Ceramic Supply and Construction Company, of Columbus, Ohio, feeds the clay uniformly as needed into the two J. D. Fate & Company large Premier machines. On these machines conduits of all sizes, from one duct to nine, are turned out by the thousands daily. These machines are doing excellent work and are highly satisfactory. A great amount of hollow ware is also made on these machines, certain days of the week being devoted to this work.

When one considers the strict requirements placed on clay conduits, he will understand how well these machines must perform their work. The purchasers must necessarily be most exacting in their demands, for the laws are strict in all electrical work. The tile must be thoroughly vitrified, straight and well glazed, but not hard enough to be fused or scoriated. Only ½ inch is allowed for warping. They must not show any blisters, nodules, projections or defects which will weaken the conduits or be detrimental in drawing the cables through the duct holes. All duct holes must be well centered and at least 3¼ inches in diameter, the wall of all single ducts must be not less than 7/16 of an inch at its thinnest part. The outer walls of all multiple ducts must be not less than ¾ inch and not more than ⅝ inch. The conduits must be symmetrical, both inside and out, with ends of ducts perpendicular to sides. The duct holes must be beveled at ends, smooth and free of projections. Cracks, if any, cannot extend into the surface more than 1/16 of an inch. The multiple ducts must be scorified at each end, while the single ducts must have scorification running the entire length of outside. The multiple ducts must have dowel pin holes for perfect alignment, the requirement being that the dowel pins which fit into the holes at the ends of each duct, shall fit accurately and shall be interchangeable in all parts.

Attractive Offices of The Clay Products Co.

With these facts in mind, one can readily understand that the manufacture of clay conduits is successfully accomplished only with the greatest care and efficiency. Every stage in the process is an important one and doubly so is the forming. This, the Premier machines do with absolute satisfaction. The conduits are cut to the desired length by hand cut-offs, which also cut bottoms, which take the weight off of the main piece while drying and burning. These bottoms after burned are sold to terra cotta firms for grog. Four men are employed in cutting, while six men handle the trucks. A wooden pallet supports the bottom and conduit, which are slid onto wooden trucks and wheeled to their place on the huge dryer cars, the like of which, so far as the writer is informed, has never been seen before on any clay plant. These dryer cars have a 13x15-foot perforated steel bed, on which is set the green ware. These cars run on depressed tracks, so that the flat bed of the car is on a level with the floor. In filling these cars with smaller ware, a belt conveyor is placed across the depressed track, allowing the cars to advance underneath as desired and permitting of faster loading the ware from the cutter, being slid onto this belt and taken at right angles to the dryer cars. When filled, they are pulled by electric power onto an electric transfer which pushes it into the clay storage. The clay storage has an average temperature of 80 degrees. The dryer, which is that of the Philadelphia Textile Machiney Company, connects with the storage room in a direct line, being 18 feet wide, 10 feet high and 48 feet long. The storage room and dryer together are 250 feet long. The first chamber in the dryer averages 80 to 130 degrees, the second 180 degrees, while the third gives heat to 210 degrees. Live steam is used.

There are three contributing fans and three ventilating fans above each compartment, so that temperature can be increased or decreased at all times, therefore absolutely under control.

A ratchet on a chain running through the center of the dryer catches the bottom of the end dryer car and pulls the entire line gradually, the cars being coupled. One to three hours is required for drying. Previous to the installation of this dryer, five days were required to dry the larger sizes of conduits.

When dried, the cars are transferred to the inspection room, where the ware is carefully examined before being delivered to a point near the kiln to be set. The ware is picked off by hand and placed on wooden trucks. A boy bevels dowel pin holes, while a man trims the edges of the duct holes.

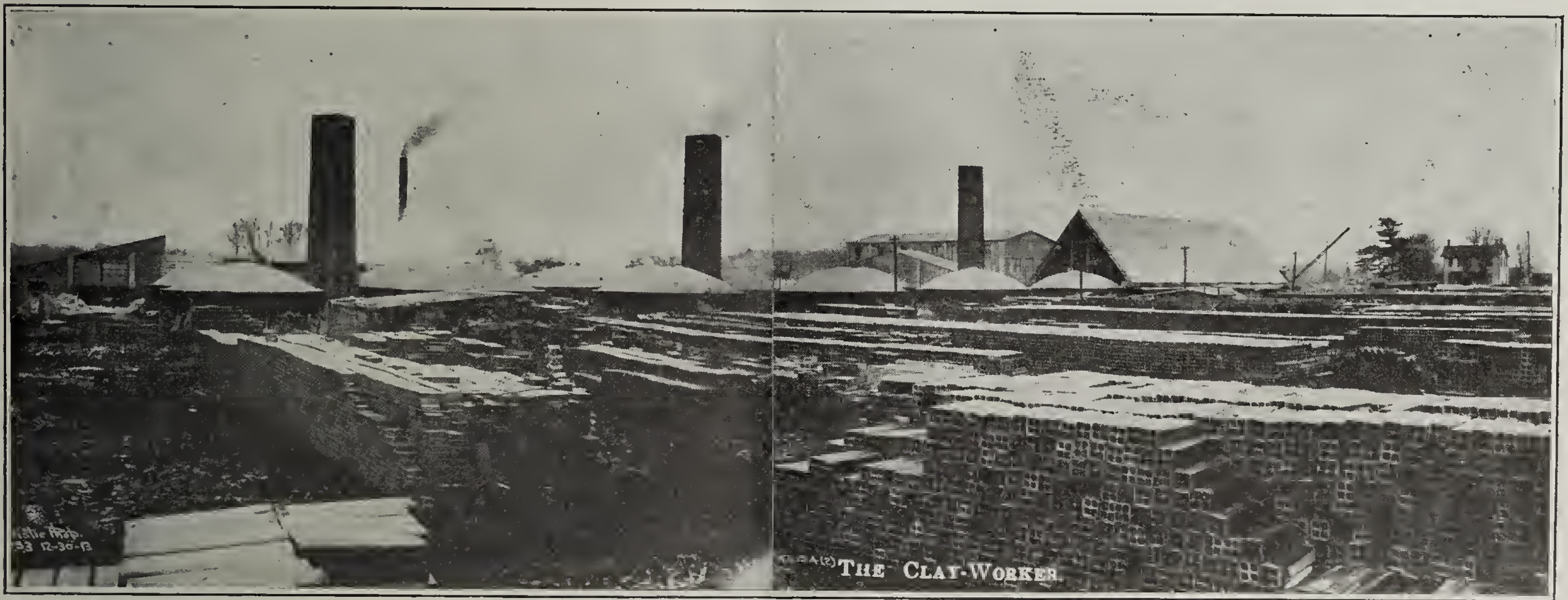
The larger sized conduits are set only two high in the kiln. Twelve down-draft, 32-foot kilns are used, fifty-six hours being consumed in the burning. Coal is used as fuel. An elaborate system for recording the temperature of each kiln during the entire burn is installed. This is the Frink Pyrometer system. It has proven a great money saving item. The kilns hold 95 tons on the average of conduits or 110 tons of shale ware. The ware is loaded directly into the cars on depressed tracks within 30 feet of the kilns. The Mathews Gravity Carrier System is used here.

The ware is shipped all over the country and to many foreign points. A large shipment of conduits to Panama is made every year.

The plant power is purchased from the Terre Haute, Indianapolis and Eastern Traction Co.; the company making its own direct current by means of motor generators for various departments. Sixteen Western Electric motors are used. The plant is electrically lighted. The water is secured from a 600-foot well, a Hill Machine Company pump being employed.

The Clay Products Co.'s Strip Bank.

Crane Unloading Cars at Plant.



Panoramic View of the Stock Yard on the Clay Product Co.'s Plant, Brazil, Ind.

While conduit and building tile are the regular output of the plant, an experimental department is constantly at work seeking new uses for hollow ware. A contract was recently completed for special tile for refrigerator insulation, used in beef coolers, and other special contracts are at present under way.

This firm is the largest producer of conduits in the world. In 1912 they produced one-third of the entire output of conduits in the United States.

### American Sewer Pipe Company's Plant.

One and a half miles northwest of Brazil is located a large sewer pipe plant, which is one of the thirty-five plants owned and operated by the American Sewer Pipe Co. This is considered one of their best plants, over 1,800 cars of clay products are shipped out of this factory each year.

The manufactured product consists of sewer pipe from 3 to 24 inches and a few 36 inches, flue lining, wall coping, segmental block, silo block, chimney coping, Raggle block, Raggle coping, chimney tops, etc.

Two complete lines of Stevenson machinery are used, made by the Stevenson Company, of Wellsville, Ohio.

The company mines its coal and clay. At the present time, they have the very pleasant task of filling a one-half million dollar order for segmental block to be used in sewers in Indianapolis. Just now, they are filling the order for completing the Warman avenue sewer.

Dried Conduits Leaving Dryer.

Conduits on Way to Kiln.

Inspection Room Where Conduits Are Carefully Examined Before Being Transferred to Kiln.

### The McRoy Works.

This plant is located a short distance from the American Sewer Pipe Company and is a plant of a large holding company with twenty-seven factories scattered over the country. This is one of the National Fire Proofing Company's plants and is considered among their best. This plant manufactures clay conduits, silo block and hollow building tile and block. Clay conduits, however, being the main product. This company's product compares favorably with that of the Clay Products Co.

The machinery equipment consists of two Bonnot pans, two Fate Premier machines, and a Fate disc feeder.

The raw materials used are fire clay and shale, a small portion of shale being used in comparison with the amount of fire clay. Not sufficient coal is found for their purposes. The clay is mined.

The ware is dried on dry floors, four in all, covering an enormous area. The ware is burned in seventeen down-draft

32-foot kilns. They generate their own electricity, which is used throughout the plant for power and lighting. Coal is used for creating the needed steam and current.

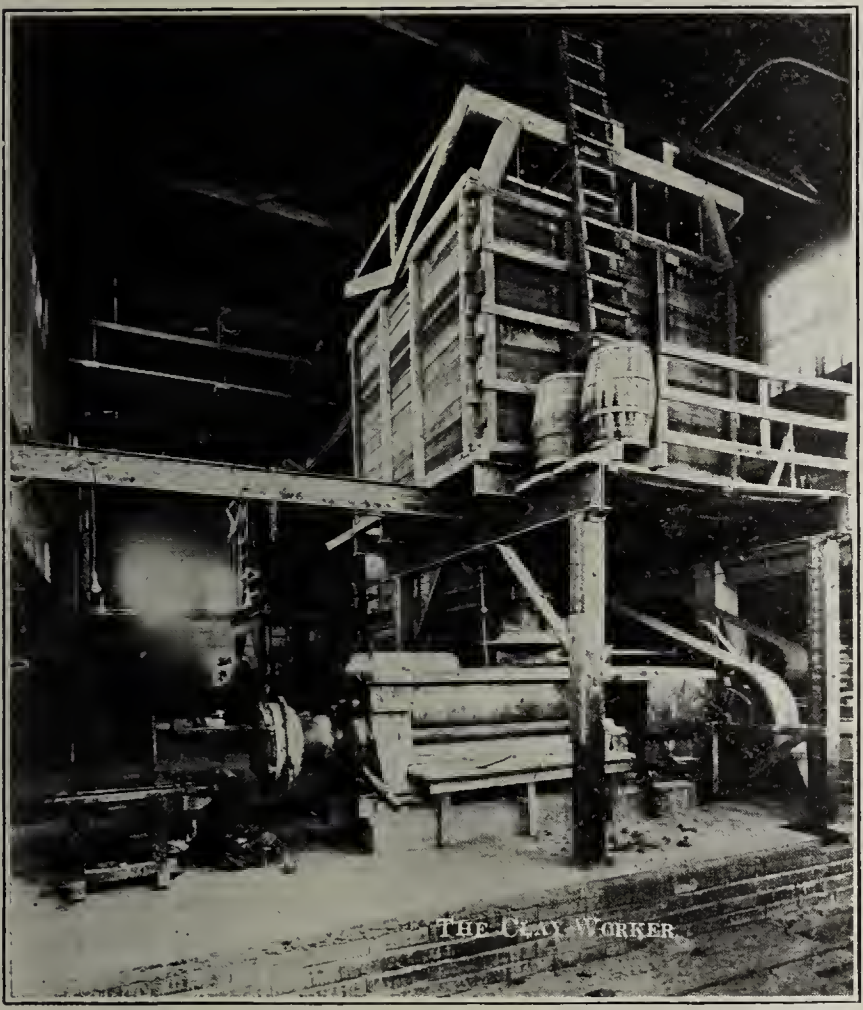
The main building, stock sheds and office building are all well constructed of hollow tile and conduits. In approaching the plant, one cannot help but see the large silo erected of their silo block in one corner of their yard. This is used for demonstration purposes.

Another large manufactory of conduits is that of

### The Brazil Hollow Brick and Tile Company.

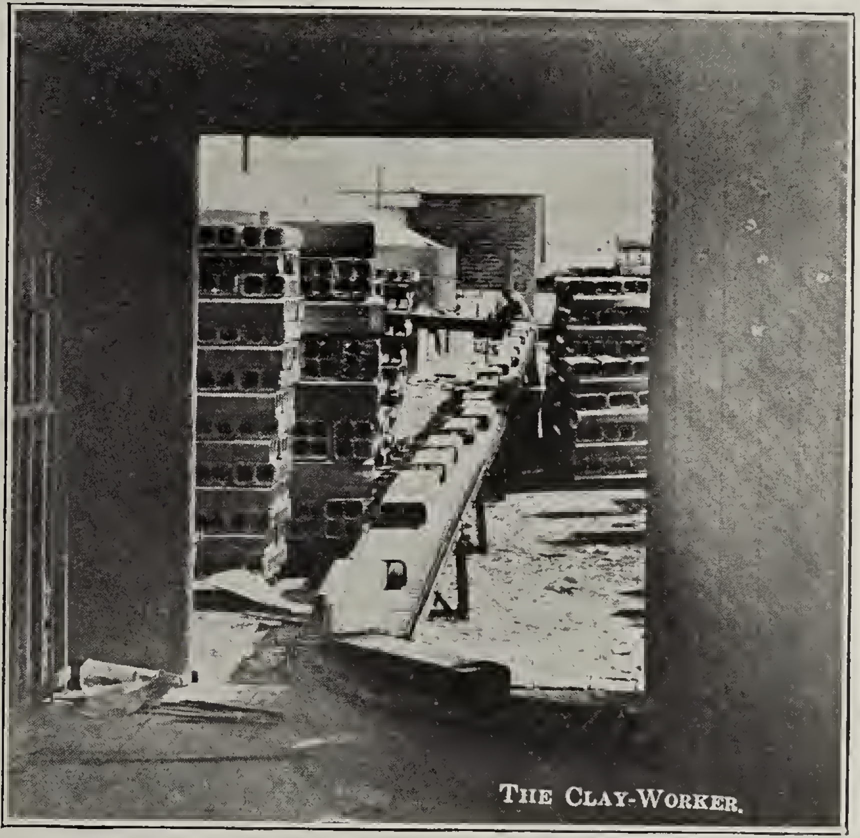
The factory is located a mile distant from the center of Brazil. A variety of clay products are manufactured, the major work being centered on about 40 per cent. in clay conduits. Forty per cent. is on silo blocks, while the remaining 20 per cent. is on building tile, flues and a miscellaneous line. Their celebrated Brazil fire clay hollow building blocks of various sizes and shapes, in both the glazed and unglazed, have been on the market for the past eighteen years and hold an enviable reputation in the list of building materials.

The company was organized in 1872 and has experienced a steady increase in business yearly. Several changes in ownership have naturally occurred, the present officers being T. H. McCrea, president and treasurer; J. S. Hayward, vice-president and superintendent, and S. G. Ralston, secretary. Formerly the plant was owned and operated by the Weaver Clay and Coal Company, who rebuilt the old plant in 1904, in order to gain increased capacity. The factory has been remodeled three times since then, the greatest change being made in 1909, when the factory building proper was torn down and an entirely new structure, thoroughly fire-proof, was erected on the old site. The present building is 300x250 feet, four stories in height, built of glazed and unglazed hollow blocks, making it unusually attractive. It is an object lesson of the adaptability of this material for durability, fire-proof construction work. The output of the new factory more than quadrupled the production of the old plant. The entire premises are most inviting, every part of the factory being as neat and orderly as possible. The beautiful matt green glaze tile roofed office made of hollow block is most artistic and contains four large well-furnished rooms and toilet. In the president's office, there is a large brick fireplace, in front of which we would like to toast our feet some cold winter day. The entire fittings of the room show the best of taste. Looking out of one of the windows, one can see a large 12x30 hollow block silo, erected on the other side of the road from the factory. This is used for demonstration purposes. It is made of blocks 5x8x14, well tied, having a high strength test and admirably suited to the making and storage of ensilage.



The Premier Machine and Storage Bin.

In the manufacture of their ware, the company uses raw materials mined a mile distant from the plant proper. A high quality of fire clay, surface clay and Brazil block coal is found on the company's clay lands. The fire clay appears in veins from 3 to 15 feet in thickness, superimposed by a vein of coal from 6 to 12 inches in thickness. The clay, shale and coal are all mined by contract, the company thus being freed from any worries on the mining question. Each car of clay, shale or coal is weighed at the plant and proper credit given. The contracting company hires its own men, pays all the bills for the purchase of powder and supplies, the housing of the mules and the expense incurred for keeping up track, cars, etc. The company finds this a very convenient method; there is never a shortage of clay, so that the work goes on without delay, save for breakdowns in the plant, which seldom occur.



Mathews Gravity Carrier System Transferring Conduits to Freight Cars.

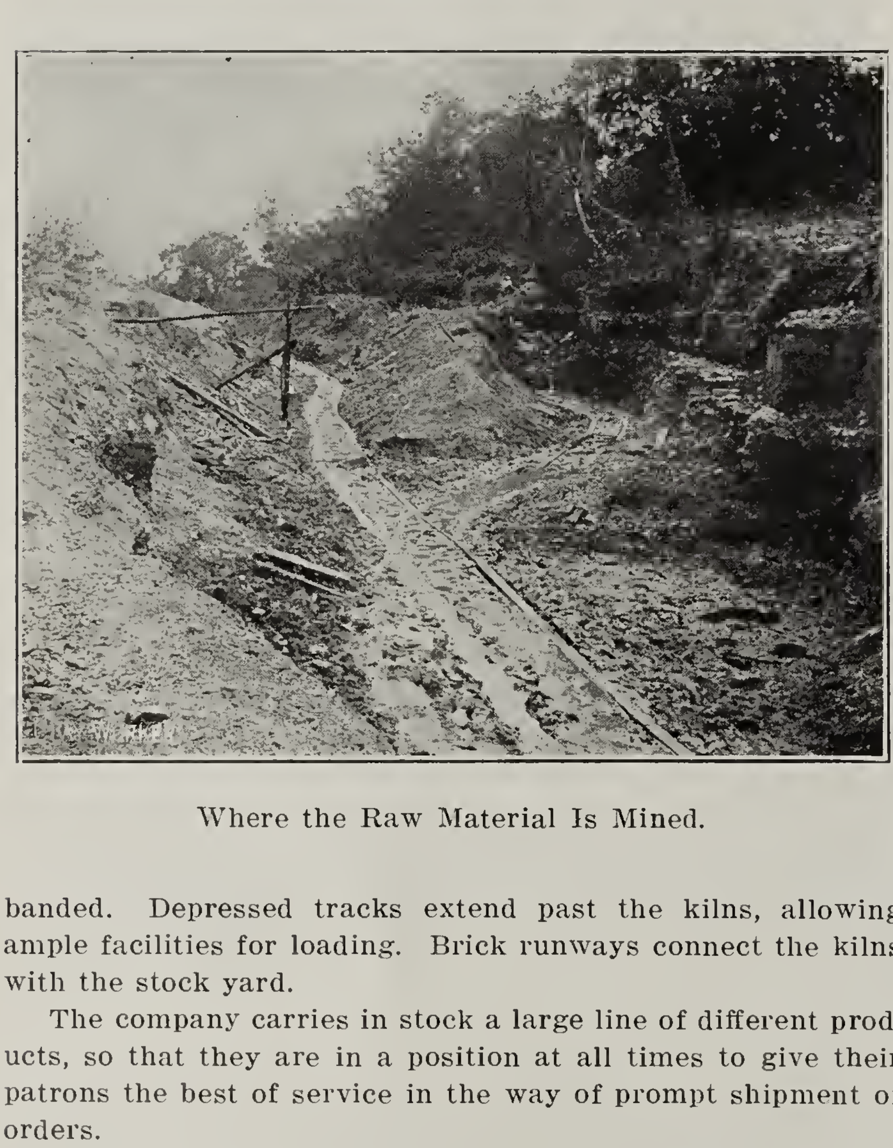
The loaded cars are hauled to the plant by mules. At the plant proper the cars are hitched to a cable and taken up an incline to a point on the second floor above the storage bins, where they are run onto a tipple and dumped. At times, the shale is dumped into chutes leading to the pans. The cars filled with coal required for steaming purposes are dumped directly in front of the battery of boilers. There are three boilers, two 150-h.p., the other 100-h.p.

From its two 9-foot pans, which are of the Bonnot make, the ground material is conveyed by cup elevators to the fifth floor, where it is dropped into gravity screens of the company's own construction. The screened clay descends by gravity to the prepared clay storage bins, from which it is taken by cup elevators to either of two lines of machinery. One line of machinery is used for making flues and large ware that can only be made on a vertical machine. This line consists of a Bonnot pugmill and the Stevenson sewer pipe press. The other line of machinery, the Fate disc feeder and a Fate Premier combined machine, is used for the making of hollow building tile. A Wallace Manufacturing Company's machine for making hollow ware is also used, while a machine of the company's own design is employed for making stone pumps. The green ware is placed on trucks and taken on power elevators and delivered to the drying floor. There are in all, five elevators used in transferring the green and dried ware.

Power for running this machinery is furnished by means of a 350-h.p. engine. The plant is equipped with electric lights, there being installed a 13-h.p. Chandler and Taylor for running the dynamos.

There are in all sixteen dry floors, four on each floor, the aggregate drying floor space being over 45,000 square feet. The dried ware is taken from the driers to the first floor on gravity elevators and conveyed to the kilns, there being fourteen, four of which are 26 feet in diameter, eight are 28 feet and two are 30 feet. All are round down-draft kilns, iron banded. Depressed tracks extend past the kilns, allowing ample facilities for loading. Brick runways connect the kilns with the stock yard.

A Dry Floor of The Brazil Hollow Brick & Tile Co.



Where the Raw Material Is Mined.

The company carries in stock a large line of different products, so that they are in a position at all times to give their patrons the best of service in the way of prompt shipment of orders.

Editor's Note—The next issue of the Clay-Worker will contain illustrated articles of a number of the other clay product manufacturers located in Brazil, the clay center of Indiana. These plants have some unusual features which our readers will, no doubt, enjoy studying.

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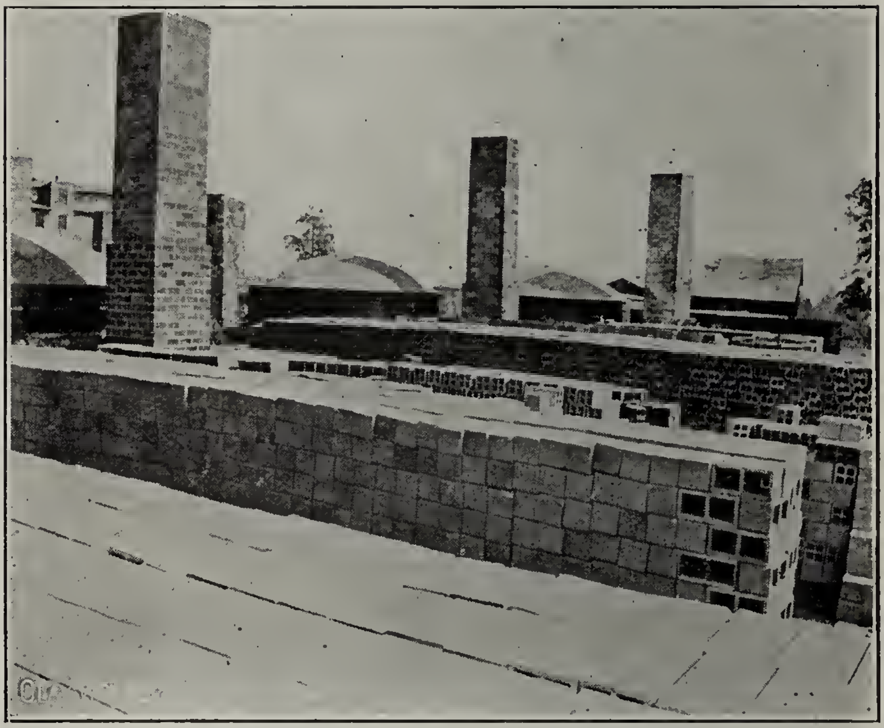
There is simply no getting around clay products being first in quality for building. The lumber folks will argue against brick to boost their lumber, and then turn around and build brick houses and offices for themselves.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

ONE OF THE BRIGHTEST features of the Wisconsin brick trade this season has been the extensive amount of brick paving which has been laid by most of the larger cities about the state. Brick paved streets in the various cities and towns of the Badger state have been giving universal satisfaction in the past, and each year sees an increasing amount of the brick paving laid. Milwaukee brick and building material houses have, as usual, been getting their share of this paving brick business about the state. Ricketson & Schwarz, 111 Mason street, one of the largest firms of its kind in the Wisconsin metropolis, has been especially fortunate in getting some fine orders for paving brick from the various cities and towns of Wisconsin. This well-known house carries among its specialties, the Purington, Barr and Metropolitan lines of paving brick, which have established a most favorable reputation all over the state. Among the good paving contracts secured by Ricketson & Schwarz during the present season are the following: Beloit, Wis., where 50,000 square yards of Barr brick were furnished; Marshfield, Wis., 30,000 square yards of Barr brick; Stevens Point, Wis., 20,000 square yards of Purington brick; Janesville, Wis., 6,000 square yards of Purington brick; Independence, Wis., 6,000 square yards of Purington brick. Good sales of various lines of brick were also made to Racine and Kenosha, Wis., while several large contracts are still hanging fire at various points about the state, which it is a pretty safe guess to say will be secured by George J. Schwarz, who handles the brick paving business for Ricketson & Schwarz.



Kiln and Stock Yards of the Brazil H. B. & T. Co.

Milwaukee brick and building material supply men and those citizens who are advocates of brick paving are much aroused over the declaration of Frank Blodgett, Milwaukee street superintendent, that agents for a cement company are causing his department all kinds of trouble by urging property holders in various parts of the city to demand concrete pavements. Superintendent Blodgett stated that such representatives were responsible for the appearance at his office recently of a delegation of citizens from the northwestern portion of the city, who protested against the department's plans for putting a brick pavement in an alley between Twenty-sixth and Twenty-seventh streets and North avenue and Elm street. The delegation was headed by Adam Reith, 781 Twenty-seventh street, and wanted the specifications changed to concrete. Mr. Blodgett declared that the agents of the cement company have been telling property owners that a concrete pavement would cost $1 per square yard less than brick. He declared that the real saving in price by the use of concrete is about 40 to 50 cents per yard, and that the entire saving to an owner of a 30-foot lot would be about $10 to $12. Superintendent Blodgett declared, however, that the department is only experimenting with concrete pavement at the present time, and does not consider it wise to adopt its use generally until the results of the experiments are known. Brick has been giving excellent satisfaction in alley paving here in Milwaukee, and the street building department can see no good logical reason at this time for making a change. On the advice of Mr. Blodgett, the property owners decided to call off the paving of the alley for another year, at which time they were assured that they could have concrete if the experiment proved this material satisfactory.

While, as a rule, the amount of building which is being carried on in Milwaukee just at this time is hardly as extensive as that of a year ago, there is an occasional week when the building figures exceed those of the corresponding period in 1914. The building investment during the last week in July, for instance, showed a gain of nearly $100,000 over a year ago. The Ticonic Investment Company was granted a permit during that week to erect a ten-story business block on West Water street, between Grand avenue and Wells street, which, when completed next spring, will cost $180,000. It is expected that brick will be used in the construction of this building. It is reported that the Saxe Brothers, operators of a string of moving picture houses in Milwaukee, will soon erect a large moving picture theater on Third street, just north of the Hotel Wisconsin. It is believed that the total building record for the year will not show a decided falling off, although it may not reach the mark attained last year.

A Tile Milk House Built in 1884, Good as the Day it Was Built.

General conditions in Milwaukee and about the state seem to be improving gradually. The big machinery plants in Milwaukee, for instance, are increasing their output and are enlarging their working forces—facts which mean much in this city, where the iron, steel and machinery business heads the list of industries. The crop outlook all over the state is especially bright. A bumper grain and hay crop is being cut at the present time, and indications are that the yield will be larger than last season. The corn crop has been hampered by extensive rains during June and the early part of July, but plenty of hot weather is now being experienced, and it is believed that the crop will turn out all right.

J. F. Kies & Son, building material men of Milwaukee, formerly located at 535 Merchants and Manufacturers' Bank building, are now located in new and larger quarters at 720 and 721 in the same building.

Zerrener Brothers, of New London, Wis., have been operating their brick plant at full capacity this season, and the members of the firm expect to keep going at this rate until late next fall. The firm has been filling a good many orders carried over from last fall, in addition to the new business received this season. Kilns of 200,000 and 300,000 brick each are being burned at the present time.

Peter G. Toepfer, head of the W. Toepfer & Sons Iron Works, a pioneer concern of Milwaukee, and president of the Acme Brick and Sand Company, with offices at 193 Broadway, Milwaukee, and plant at Barton, Wis., died recently at St. Mary's Hospital in Milwaukee. Death came unexpectedly. Mr. Toepfer was fifty-nine years old. He was a son of Wenzel Toepfer, who came to Milwaukee and engaged in business many years ago. Mr. Toepfer was a chess player and authority of national prominence. He had a room in his house, the floor of which was a giant chess board, and he had giant chessmen to go with the board. He also had a library consisting of works devoted to chess, which was one of the best in the country. Mr. Toepfer is survived by his widow, a sister and four brothers.

Milwaukee brick and building material supply men are much pleased over the news recently received by Frank Barry, secretary of the traffic bureau of the Merchants and Manufacturers' Association of Milwaukee, that the Interstate Commerce Commission has decided that the railroads entering Milwaukee were not justified in instituting the proposed minimum "spotting" tariff of $2 per car for Milwaukee shippers. This decision will result in a saving of several hundred thousand dollars annually to Milwaukee shippers, according to Mr. Barry.

News received from Marshfield, Wis., indicates that that city may be the home of a large clay products industry within the near future. At the head of the project are Louis Hartl, president of the Marshfield Brewing Company, and Ernest Krause, a practical brick manufacturer, who, in his former plant, made some of the first brick ever used in Marshfield. The initial steps toward the establishment of the new Marshfield industry will begin with the erection of a large plant about two miles north of the city, to be constructed of brick and hollow building tile.

## OUR POTTERY PRODUCTS.

Some idea of the magnitude and importance of the pottery industry in this country may be had from the fact that our domestic output and our imports put together make a total value for last year of $43,000,000.

The domestic output, while not the greatest on record, was, in 1914, $35,389,161. At this writing, there is a detailed report on the pottery industry by Jefferson Middleton, of the Geological Survey, now in press that will be available in a short time. An advance bulletin of this report shows an increase in red earthenware, which was really the only line of pottery that increased the total value as compared to previous years. Porcelain and electrical supplies showed a decrease perhaps largely because of the depression following the outbreak of war. Chinaware showed only a small decrease.

In the rank of states, Ohio leads by practically double the quantity or value of New Jersey, the next state in importance. Ohio produced 43.37 per cent. of our total pottery supply and New Jersey 22.97 per cent. The only other state producing more than 10 per cent. of the total was West Virginia, with 11.10 per cent., the next state of importance was New York, with a total of 6 per cent. Indiana produced 3.25 per cent. of the total, Illinois 2.21 per cent., Pennsylvania 4.93 per cent.

The total domestic production of pottery as compared to imports was 82 per cent. of the total, the highest percentage yet reached, and since we export a fair share of pottery now, too, it may be said that in a general way we make practically all the pottery we need and our domestic production is practically equal to the domestic consumption.

# BUTTON-HOLE TALKS.

## JOGGING ALONG FINISHED.

The FINISH TO THE whole thing had come. There was a sort of finality and fixed determination about that telegram of Randall's that did not admit of any change in the program. The verdict of the jury was in, the decision of the judge rendered and there was no appeal. The only thing to be done, and what had to be done in accordance with the direct, authoritative command in the telegram, was to have the photograph taken and to have it done at once. In critical situations like this, when the really awful has happened, there comes the desire for companionship. The dread of being alone; the wish that there should be some one near to counsel and help, to console and sympathize with one in hour of sorrow—this longing led me to hunt my friend of the "Square Toes" and insist on his companionship and aid in this new and final undertaking. Having found him, we went out, side by side, on our hunt for the photographic artist, whose art should finish this undertaking. We paused at several entryways decorated by framed-in collections of pictured denizens of the city, all of which we viewed with a critical eye, for this was to be a thorough job and one not to be botched. For this there must be a real artist, so we took our time and examined them all critically. Of course, it was hard to make selection, for they were all impossible, were all stiff and constrained, not at all lifelike. When I urged this defect upon my companion he remarked: "Well, you don't want it to look like you, do you? I thought you wanted this for publication, wanted a fancy picture, one sort of built up to what you wished you looked like, not what you really do look like." This appealed to me, showed the real necessity, and proved I had not counted on his aid in vain. But not to dwell on the details of our search, we made our selection and climbed the stairs.

W. D. Gates, the Author of Button-Hole Talks.

As we climbed the stairs, I could not help confiding in him the regret I had felt in the way Randall had treated me. He either had a mighty poor collection of patent medicine cuts or else he had shown poor judgment in using the old Peruna cut and labeling it with my label. Really I did not think he had been vindictive about it; I had rather think he had poor judgment than to think he was deliberately vindictive and ugly in using it.

When we reached the door I felt the same sensation that I had felt when I went to the dentist, or that I would if I went to the surgeon to have a leg cut off. I hesitated and would have back-tracked had it not been for him, but he slapped me on the back and said, "No backing out here—have your nerve with you," and opened the door and pulled me in. Then I stood in the presence of the Circassian Beauty who there presided. She spread out before us an array of the different styles in which I might be taken and volubly urged the beauties of each style. Really, gazing into her large, limpid lamps, I fear I did not pay sufficient attention to the samples she spread before us, so intent was I on the lamps. Would I be taken sitting or standing, or grouped? Would I like to show my ears and feet both in the same plate? Controlling, as best I could, an impulse to be taken running, I tried to break away from the lamps and confine my attention to the samples spread before me. She explained the beauties of one style after another to me, showing where this style was superior to that, and then why another was still better. I could readily see that she was deeply impressed with me; that she recognized superior qualities in me, not always noted by the ordinary crowd, but quickly noted by her. She evidently realized that this taking my portrait was not simply the ordinary thing as with the usual chance customer, but was an important event and one that must not be carelessly handled.

I was about to order one of each when he of the "Square Toes" interposed and made definite selection. He had noted my condition and saw that I was no longer rational. Meanwhile, the owner of the lamps was taking down personal data with regard to myself—my age, nationality, complexion, birthmarks (noting her looking fixedly at the mole that stood sentinel by my nose, I adjusted my tie to more effectively conceal the one at my throat that I was using as a collar button); then she asked the question I had dreaded all along—"married or single?"

Before I could stammer any answer, however, the Assassin entered, bowing low. He had an embroidered smoking jacket and dirty hands. Evidently he was an artist, for he had been many years without a hair-cut. The Turkish Fez that crowned his head ended in a red tassel, that dangled and danced before his eyes, as he again bowed and beckoned us toward his lair.

Holding tightly to the hero of the "Square Toes," I dragged him with me into the chemical lair of the Assassin. They seated me in the usual, carefree attitude illustrated in the old family album; screwed an iron behind each ear; raised my chin; ran walls of thin scenery all around me and then the Assassin wheeled up the 30-centimeter gun and sighted it at me. I suddenly remembered something I wanted to say to Limpid Lamps outside, and hurried out to tell her, but they caught me and restrained me. The gun was shoved this way and that, closer and closer, so he could not miss me. I was thinking how appropriate it was that the machine was all trimmed in black, in mourning, when my friend remarked: "There now, that will do for the mouth display; we all know you have tonsils, but it isn't necessary to show them in the picture." So I took the hint and closed my mouth. I had determined to have a smiling, happy expression, but how could I do it under such circumstances. I wanted an expression that would lead the looker on, toll him along, until he might be inclined to read something I had written. It has all along seemed to me that the reason no one had ever yet read anything I had written might well be on account of the picture that Randall had put my label on. Anyway, when I looked at the picture, I myself didn't feel inclined to read any of it, so why should another? Anyway, there's no use of my describing all the harrowing details; you have been there and know them yourself. I think he missed me entirely the first shot. Then he adjusted me all over again, put some more twists in my anatomy, made me more uncomfortable in body and impossible mentally, and fired another shot. He was real earnest about his work, though, and took me as a group, ears, feet and hands.

When he had finished, I went out to talk some more with the owner of the lamps, who had been so much interested in me and from whom I had been so rudely snatched away. She was busy with another candidate, however, and gave me no attention whatever; was just as much interested in the new candidate as she had been in me in the first instance, and showed plainly that I had passed out of her vision; was in the forgotten past, as far as she was concerned.

The Assassin had carried his plates to his darkened lair and was now bowing to the next candidate and oblivious of me. I had no wish to see the ghastly results, so I arranged that he of the 'Square Toes" should inspect them, make his choice and send direct to Randall, who will exhibit it, if he dares do so. So, if the Assassin hit me, if he of the "Square Toes" is satisfied, and if Randall dares publish it, you will see it. GATES.

---

# Brick and Tile Production Valued at Nearly $130,000,000.

## Interesting Statistics Relative to the Value and Output of Clay Products During 1914, With Comparative Statements and Rank of States in Last Year's Valuation.

THE great brick and tile industries of the United States in 1914 produced material to the value of $129,588,822. This was a considerable decrease, according to the United States Geological Survey, from the value of 1913, which was $143,296,757, but as compared with the output for a number of years preceding it shows a general growth for the industry. Compared with 1911, the figures for 1914 show an increase of $1,871,201; compared with 1908, they show a gain of $21,526,615.

### Common Brick.

The principal clay product, considered as to value, is common brick, the value of which comprise over one-third of that of all brick and tile products in 1914. The quantity reported for 1914 was 7,146,571;000, valued at $43,769,524, a decrease of 942,219,000 brick in quantity and $6,365,233 in value from 1913. The average price per thousand of common brick declined 8 cents, from $6.20 in 1913 to $6.12 in 1914. Illinois was the leading common brick producing State in 1914, reporting 941,343,000, valued at $4,898,698. This was a decrease of 214,137,000 brick in quantity and $1,547,123 in value. This decrease may be in some measure due to strikes in Chicago, the principal brick producing center of the States. New York was second, reporting 908,868,000 common brick, valued at $4,666,037 in 1914, compared with 1,068,516,000 brick in 1913, valued at $6,029,103, a decrease in quantity of 159,648,000 brick and $1,363,066 in value. The average price per thousand in New York declined 51 cents in 1914 from 1913.

Common brick is made in every State of the Union and in the District of Columbia, and in Porto Rico.

### Fire Brick.

The second clay product in importance is fire brick, the output of which was valued at $16,427,547 in 1914, compared with $20,627,122 in 1913, a decrease of $4,199,575. The value of fire brick in 1914 comprised 12.68 per cent of the value of all brick and tile products. Fire brick is used principally in the iron and steel, and coke-making industries and its production naturally rises and falls with the fluctuations in these industries.

The leading State in the production of fire brick is Pennsylvania. This State reported for 1914, a production, including silica fire brick, of 396,519,000 nine-inch equivalent fire brick, valued at $7,836,503 of $19.76 per thousand. This was a decrease in quantity of 97,071,000 brick and $1,867,231 in value. Pennsylvania produced nearly half the output of the country. Ohio was second in rank in 1914, reporting an output of 102,735,000 fire brick, valued at $1,833, 740, or $17.85 per thousand, compared with 109,884,000 brick in 1913, valued at $1,961,020, or $17.85 per thousand, a decrease in quantity of 7,149,000 brick and in value $127,280. Missouri ranks third, producing in 1914 76,177,000 fire brick, valued at $1,554,431, or $20.41 per thousand, compared with 104,728,000 brick valued at $2,138,368 in 1913, a decrease of 28,551 brick in quantity and $583,937 in value from 1913. Kentucky and New Jersey ranked fourth and fifth, respectively.

Production of fire brick was reported from thirty-three States in 1914.

### Sewer Pipe.

Sewer pipe, third product in value, with an output worth $14,014,767, or 10.81 per cent of the total, was made in twenty-eight States in 1914. The leading States in the production of sewer pipe in 1914, named in the order of their importance, were: Ohio, Missouri, California, Pennsylvania, Illinois, Georgia, Indiana and Iowa. Ohio's output was valued at $4,691,719 in 1914, a decrease of $467, 829 from 1913. Missouri, on the other hand, showed a small increase, $22,347, from $1,213,889 in 1913 to $1,236,236 in 1914. This output in California decreased from $1,032,094 in 1913 to $959,193 in 1914, a loss of $72, 901. The decrease in the total value of sewer pipe in 1914 compared with 1913 was $857,336.

### Vitrified Paving Brick.

Production of vitrified paving brick or block, valued at $12,500,866, or 9.65 per cent of the value of all brick and tile products in 1914, was reported from twenty-eight States. This is the only important clay product whose output increased in value in 1914. The increase was $362,645, or 2.99 per cent. over 1913. The quantity of vitrified brick decreased 27,356,000 brick from 1913, and the average price per thousand increased from $12.66 in 1913 to $13.42 in 1914. Ohio was the leading State in the production and value of vitrified paving brick in 1914, reporting an output of 293,381,000 brick, valued at $3,682,230, or $12.55 per thousand, a decrease in quantity of 11,010,000 brick, but an increase in value of $373,255 over 1913. Ohio reported about 30 per cent of the quantity and value of the vitrified brick of the country. Illinois ranks second, reporting 157,176,000, valued at $2,086,344, an increase of 23,238,000 brick in quantity and $203,145 in value over 1913, and Pennsylvania ranks third.

### Front Brick.

There were 810,495,000 front or face brick marketed in 1914, valued at $9,289,623 or 7.17 per cent of the total, a decrease of 17,170,000 brick in quantity and of $324,515 in value. Front brick was reported from forty-one States in 1914. Pennsylvania leads in production and value, reporting 219,923,000, valued at $2,402,361, an increase of 5,189,000 in quantity and of $77,160,000 in value, over 1913. Ohio ranked second, reporting 188,074,000 for 1914, valued at $1,944,486, an increase in quantity of 2,264,000 brick but a decrease in value of $5,947. Indiana ranked third in this product, reporting 80,349,000 brick, valued at $799,520, an increase over 1913 of 13,147,000 brick and $90,775. These three States combined produced considerably more than one-half of entire quantity and value of front brick in 1914.

### Drain Tile.

Drain tile ranked sixth among the brick and tile products in value in 1914. The output was valued at $8,522,039, or 6.58 per cent of the total in that year, a decrease of $36,281 from 1913. The Middle West is the great producing region for this product (though it was reported from thirty-six States in 1914), Ohio, Indiana, Michigan, Illinois and Iowa reporting over 88 per cent of the total in 1914. Iowa ranks first, reporting drain tile to the value of $3,180,836 in 1914, an increase of $382,020 over 1913. Ohio was second, with $1,589,565 worth in 1914, an increase of $81,001 over 1913. Indiana was third in 1914, with $1,332,002, a decrease of $263,288 from 1913.

### Fireproofing.

Fireproofing, including hollow building tile, or block, ranked seventh among brick and tile products in value in 1914. It was reported to the value of $8,385,337, or 6.47 per cent of the total, a decrease from 1913 of $234,879. Ohio is the leading State, reporting fireproofing to the value of $2,200,544, an increase of $84,638 over 1913. New Jersey was second and Iowa third in 1914, New Jersey reporting $1,599,295, a decrease of $493,075 from 1913, and the latter $1,093,397, an increase of $320,834 over 1913.

### Rank of States.

Ohio.—In 1914 Ohio was the leading State in the production of brick and tile, having passed Pennsylvania in the value of these products. As Ohio's products decreased in value, this gain in rank was reached by a larger decrease in the value of Pennsylvania's products. The value of Ohio's brick and tile products in 1914 was $21,815,392, or 16.83 per cent of the total, a decrease of $53,015 from 1913. Ohio's principal brick and tile products in 1914 were sewer pipe, valued at $4,691,719, vitrified brick, $3,682,230, common brick, $2,862,109, and tile not drain, $2,331,079. Ohio was the leading State in the production of vitrified brick or block, sewer pipe, fireproofing and tile, not drain.

Pennsylvania.—Pennsylvania ranked second among the States in the value of brick and tile products, having been displaced from first position in 1914 by Ohio. The value of Pennsylvania's brick and tile products in 1914 was $20,100,495, or 15.51 per cent of the total for the country, a decrease of $2,084 from 1913. Pennsylvania's principal brick and tile product in 1914 was fire brick, which, including silica brick, was valued at $7,836,503, a decrease of $1,867,231 from 1913. Its other large products in 1914 were common brick, valued

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BUILD WITH BRICK

**FIGURE**

# THE ULTIMATE COST

AND YOU WILL FIND THAT
A HOME BUILT WITH BRICK
IS CHEAPEST AND BY ODDS
THE BEST INVESTMENT.

**The Advantages**

**ASK US**

THERE IS NO PAINTING.
NO REPAIRS. NO UPKEEP.
WARMER IN WINTER.
SAVES FUEL BILLS.
COOLER IN SUMMER.
VERMIN PROOF.
FIREPROOF.
ELEMENT PROOF, ETC.

**A BRICK HOME HAS BEAUTY**

(Firm Name)

(City) (State)

Use This in Your Local Papers the First Week in September.

---

# Brick Construction is Cheapest

Some Reasons Why Brick is Cheaper Than Frame or Stucco

*Eliminates Cost of Maintenance, Repairs and Painting.*
*Reduced Insurance Rates. It's Fireproof.*
*Reduced Fuel Bills.*
*No Annual Loss by Depreciation.*
*Life of Brick Construction Double that of Frame or Stucco.*
*Warmer in Winter and Cooler in Summer.*
*Mouse and Vermin Proof.*
*Increased Selling and Rental Value.*
*Brick is the Old Aristocrat of Building Materials.*
*The Beauty, Individuality and Permanence of a Brick Building is not only a source of satisfaction but a selling asset.*

Get Down to Business and Figure the Total Cost. There is a First Cost and a Perpetual "Up-Keep" Cost Too.

**BUILD WITH BRICK**

(Firm Name)

(City) (State)

Use This in Your Local Papers the Second Week in September.

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# Use These Advertisements in Your Local Papers

at $4,641,269, front brick, $2,402,361, and vitrified brick, $2,052,676. Pennsylvania was the leading State in the production of front brick, fancy or ornamental brick, and fire brick.

Illinois.—Illinois ranked third among the States in the value of brick and tile products in 1914, as in 1913, reporting wares valued at $12,538,374, or 9.67 per cent of the total. This was a decrease of $1,742,237 from 1913. Illinois' principal brick and tile products in 1914 were common brick, valued at $4,898,698, vitrified paving brick, $2,086,344, architectural terra cotta, $1,652,945, and drain tile, $1,041,927. Illinois was the leading State in 1914 in the production of common brick, and terra cotta, and second in the production of vitrified paving brick or block. Illinois reported for 1914 every variety of brick and tile products as classified in this report.

New Jersey.—New Jersey was the fourth State in the production of brick and tile products in 1914, as in 1913. Its wares in 1914 were valued at $8,353,296, or 6.45 per cent of the total. This was a decrease of $2,513,537 from 1913. New Jersey's principal brick and tile products in 1914 were: Common brick, valued at $1,944,806; architectural terra cotta, $1,620,791; fireproofing, $1,599,295, and tile, not drain, $1,139,895. New Jersey is the leading State in the production of enameled brick, and is second in terra cotta, fireproofing and tile, not drain. New Jersey reported for 1914 every variety of brick and tile products as classified in this report.

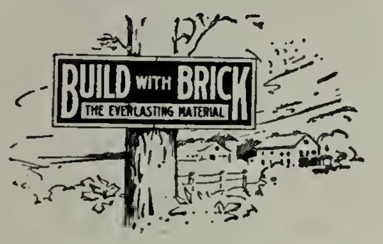
New York.—New York was the fifth State in rank in the value of brick and tile products in 1914, as in 1913, reporting wares valued at $6,923,141, or 5.34 per cent of the total, a decrease of $1,704,677 from 1913. This decrease was principally in the value of common brick, which declined in value from $6,029,103 in 1913 to $4,666,037 in 1914, or $1,363,066. Common brick was New York's chief clay product, and terra cotta (valued at $889,468 in 1914) was its second.

Value of Brick and Tile Products in 1914.

| | Value. | Percentage of total. |
|---|---|---|
| Common brick | $43,769,524 | 33.77 |
| Vitrified paving brick | 12,500,866 | 9.65 |
| Front brick | 9,289,623 | 7.17 |
| Fancy or ornamental brick | 124,459 | .10 |
| Enameled brick | 1,075,026 | .83 |
| Drain tile | 8,522,039 | 6.58 |
| Sewer pipe | 14,014,767 | 10.81 |
| Architectural terra cotta | 6,087,652 | 4.70 |
| Fireproofing | 8,385,337 | 6.47 |
| Tile, not drain | 5,705,583 | 4.40 |
| Stove lining | 520,585 | .40 |
| Fire brick | 16,427,547 | 12.68 |
| Miscellaneous | 3,165,814 | 2.44 |
| | $129,588,822 | 100.00 |

A little bit of trouble is a pretty good tonic if you take it right.

## LOOK AROUND



And study the beautiful residences of the average city. You will find most of them built with brick. Ask the owner what he thinks of it, and you will find that he is more than satisfied.

The people of today "Build with Brick" because it is the only material in which they can get an effective, lasting beauty. They don't have to paint a brick home. It improves with age, and is the most economical (by far the best investment) in the end. Ask us to tell you the many advantages of brick over other materials.

**BUILD WITH BRICK**

(Firm Name)

(City) (State)

Use This in Your Local Papers the Third Week in September.

## $$ DOLLAR$ TO YOU $$

$ATI$FY YOUR$ELF THAT YOU ARE MAKING A $AFE INVE$TMENT BEFORE CON$TRUCTING YOUR RE$IDENCE.

**THE $AFE$T MO$T $ANITARY HOME IS THE ONE BUILT WITH BRICK.**

IT SAVE$ YOU MONEY IN THE END. IMPROVE$ IN VALUE A$ THE YEAR$ PA$$ BY. BRICK DOE$N'T DECAY. REQUIRE$ NO PAINTING NOR REPAIR$. IT I$ LE$$ THAN 10% MORE IN FIR$T CO$T. BUT THINK OF THE ULTIMATE CO$T IN THE HOME$ **NOT BUILT OF BRICK.**

(Firm Name)

(City) (State)

Use This in Your Local Papers the Fourth Week in September.

## During the Month of September---Boost

# Announcement of Midsummer Meeting of American Ceramic Society.

## Newcastle, Pa., to be Headquarters for the Society August 25-27, When a Large Number of Ceramists and Their Friends Will Visit Many Interesting Plants in That Vicinity.

THE SEVENTEENTH Summer Meeting of the Society has been arranged by the Committee appointed for that purpose, and will meet at New Castle, Pa., at 9 a. m., Wednesday, August 25, 1915, and will conclude at 5 p. m., Friday, at Rochester, Pa. The localities comprised in this tour all lie close together in Western Pennsylvania, a region of great natural beauty, historic interest, and industrial activity. The list of visits arranged and those available to individuals after the disbandment of the party make this program one of unusual attractiveness. The program by days, follows:

### Wednesday, August 25, 1915.

The members will gather at the Lawrence Club at 9 a. m. At 9:30, promptly, they will leave for the works of the Universal Sanitary Manufacturing Company. Those arriving over the P. & L. E. Ry., by the morning train, should get off at New Castle Junction, and proceed at once to the plant which is distant only five minutes' walk to the south from the Junction.

The Universal Sanitary Manufacturing Company has two features of great novelty and interest to show, in addition to a well organized and well appointed factory. The first is the manufacture of large compound pieces of clayware by the fluidcasting process. The second is the New Dressler Continuous Tunnel Kiln, now under construction and rapidly nearing completion. This is the first installation of this kiln in America. The claims made for it, on the basis of its performance in England, are extraordinary and no one interested in burning claywares can afford to remain uninformed about it.

Luncheon will be served at the Universal plant and the party will return to New Castle by train at 2:35 p. m.

At 3 p. m. the members will visit the plant of the Shenango China Company, manufacturing table porcelains. If any of the members prefer to visit the plant of the Lehigh Portland Cement Company they will be welcomed there. Both plants are accessible for visit in the time available.

At 7 p. m., dinner will be served at the New Castle Country Club. Music and entertainment will be arranged by the local committee.

### Thursday, August 26, 1915.

9:30 A. M.—The party will leave by special train over the private branch of the Bessemer Limestone Company to visit their works at Bessemer, Pa. This company conducts two interlocking mineral industries, first, the quarrying, crushing and grinding of limestone on a large scale, and, second, the manufacture of paving brick from shale and clay stripping which covers the stone. The brick works is one of the largest in the country, and the Haigh continuous kiln used in burning the product is without question the largest in the world.

Noon—Lunch at Bessemer.

1 P. M.—Leave for Crescentdale to view the plant of the Crescent Portland Cement Co. This plant is interesting in the fact that it obtains its own coal, limestone and clay on its own property. It mines its coal as usual and in addition mines its limestone in underground quarries, a practice quite unusual. The works are modern in every respect.

5 P. M.—Leave Crescentdale for Beaver Falls.

7 P. M.—Dinner at Country Club with Beaver Ceramic Society. Following the dinner the formal disbandonment of the Beaver Ceramic Society and the organization as the Beaver Section of the American Ceramic Society will take place. This is the first local section to be formed under the recent amendments to the Constitution. Professor Orton will make the address of welcome to the new section.

### Friday, August 27, 1915.

9 A. M.—Leave by street car for works of the Armstrong Cork Co. This company is producing a novel type of brick for heat insulation purposes. It is composed of clay, infusorial earth and ground cork. The latter serves not only to create the desired porosity in the product but by its combustion furnishes the entire heat in the kiln. In fact, holding back and regulating the heat is one of the principal problems they encounter in making this product.

11:30 A. M.—Lunch.

1 P. M.—Visit to the Brighton Chemical Company, manufacturers of borax and boric acid, in New Brighton.

2:30 P. M.—Visit to the Beaver Valley Pot Co., at Rochester, Pa., manufacturers of glass pots, flattening plates and glassmakers' refractories.

3:30 P. M.—Visit to the H. C. Fry Glass Co., at Rochester, Pa. This plant manufactures specialties in blown table and bar glassware of high quality.

5 P. M.—Disbandonment.

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For those who come from a distance, and who desire to use Saturday also in sight-seeing, there are numerous opportunities. East Liverpool is distant only 30 minutes' ride, and Pittsburgh one hour. There are many other ceramic plants in Beaver Falls, which were visited on our previous summer meeting at Beaver Falls and are not included this time solely to avoid repetition. All of these plants stand ready to welcome any A. C. S. visitors who desire to call. In Pittsburgh, the U. S. Bureau of Standards, and the U. S. Bureau of Mines, are located, and should be seen by all who are not familiar with their work.

### Hotel Accommodations.

One night at New Castle and either one or two at Beaver Falls must be provided for. The local committee will be pleased to arrange accommodations for all who desire. For this purpose, postal cards are inclosed, addressed to the Chairman of the Committee. Those intending to go must fill out these post cards, the sooner the better, and send them in, or must be content to take their chance of accommodations if they come unannounced. The convenience of those who attend, and those who are arranging for their comfort and pleasure, both require that this simple card of announcement be used, and promptly.

### Railroad Rates.

No special rates have been secured or sought. At this season, many will be able to use stop-over tickets on longer trips, and possibly some may be able to take advantage of local excursions. Each member must make his own arrangements in this respect.

### Expenses.

The cost of the trip, beginning at New Castle and ending at Rochester, will be slight; probably not over $7.00 each.

### Visitors.

Permission has been asked and granted for a number of practical potters to visit the Universal Sanitary Manufacturing Company at the time of our visit. It is not improbable that some or all of these gentlemen may desire to go with us over the remainder of our itinerary and a cordial welcome has been promised them. The policy of this Society has always been most liberal, in giving welcome to all who are interested in any phase of ceramic work at our meetings.

### The Committee.

The Committee is composed of the following gentlemen:

C. T. Kirk, New Castle, Chairman.

J. M. Smith, New Castle.

F. R. Kanengeiser, Bessemer.

F. W. Walker, Jr., Beaver Falls.

In addition, President Hice has been active in giving assistance. Address any of the Committee for special information, other than accommodations. Address the Chairman only on the subject of accommodations.

### Conclusion.

The Board of Trustees thinks that the Committee has prepared an unusually interesting and instructive trip and that in addition to the regular features the Thursday night session and the formation of the first local section will prove of great interest and stimulus to all. They, therefore, express the hope that there will be a large attendance.

For the Board of Trustees,

EDWARD ORTON, JR.,
Secretary.

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Written for The Clay-Worker.

## PACIFIC COAST NEWS.

THE BUILDING situation in California has not changed much in the past two months, yet there is at present a slightly better outlook than a month ago. Considerable public work is being planned in the country districts. The greatest activity is in regard to public schools. The class of public school buildings now being favored in even the most remote communities is that in which brick and terra cotta are largely used. The public schools of California rank high architecturally and civic rivalry between different towns tends to encourage the expenditure of larger and larger sums for educational and public buildings. As many of the structures are of the Mission type, a type exceptionally suitable to the Pacific Coast, tile roofs are, of course, necessary. The popularity of tile roofing is growing steadily both for public and private buildings, and there is no feature of construction work which makes a better showing in the landscape than a sweep of red-tiled roof.

Brick manufacturers have practically established the factory price of common brick at $7.50 per M. This price is expected to hold firmly for a long time. Business is not rushing, but the demand is steady enough to warrant most plants keeping a fair-sized force in constant employment during the summer. Fancy brick of the standard types are moving steadily in most quarters, and the season will probably not fall very far below normal. No extreme styles are catching on to any extent, the call being principally for simple pressed brick of red and brown shades for the dark products, and cream and buff for the light.

The terra cotta market is rather slack, yet the demand is constant for supplies in small quantities for trimming and ornamental features in construction. The terra cotta situation will not be normal until there is a building revival in the commercial centers.

The sewer pipe market is suffering from too radical competition, induced by slack demand. The public sanitary work under way is not as great as it should be as yet, though much additional work is planned for the future. In view of the heavy rains of last winter it is hard to account for the backwardness in making provision for next winter. The spirit of financial retrenchment is just about as prevalent among civic bodies as among private business concerns. With banks loaded with deposits there is no scarcity of cash. But very little capital is open for investment at present on account of the uncertainties in world affairs. The psychological effect of the war is probably more potent to retard industrial activity than any other cause. Local clay products dealers and manufacturers look for a healthier condition this fall, but do not expect any sensational improvement until the war closes and California begins to profit by the influx of desirable immigrants from Europe.

Ths Steiger Terra Cotta and Pottery Co., are supplying the architectural terra cotta for the new Grammar School at Auburn, Cal., and the new High School at Willows, Cal., besides materials for a number of small jobs. Their terra cotta department is pretty busy, but the management reports rather slack business in sewerpipe.

C. Hidecker, president of the Ione Fire Brick Co., is at present in the East on a business trip. The brick plant here is operating steadily.

C. G. Berg, president of the Port Costa Brick Works, has just started developing new clay deposits at his plant at Port Costa, the survey of the State highway having interfered with the former diggings. The plant has recently been equipped with new coal bunkers and modern unloading devices. Mr. Berg says business has held up fairly well this summer, in spite of the dull times.

E. J. Shaw, of Seattle, the Northwestern representative of the American Clay Machinery Co., of Bucyrus, Ohio, was a business visitor in San Francisco last week.

The United Materials Co., have just completed the furnishing of tile roofing for the new Southern Pacific station at Third and Towsend streets. The same company is supplying 4,000,000 brick for the San Francisco Sulphur Co., for an addition to the factory across the bay. Mr. Hoyt, the manager, says business is fair and he looks for considerable improvement later on.

The Los Angeles Pressed Brick Co., have put in a spur of railroad track at their Richmond plant to connect with the Santa Fe. The branch line was installed at a cost of about $35,000. The same company is putting out a new product, under license from the Hocking Valley Clay Co., of Ohio, called rug brick. The product at present is only being made at the Los Angeles plant, and is taking quite well already with southern builders and architects.

N. Clark & Sons have just landed a big contract to supply the architectural terra cotta for the new National Bank at Reno, Nev. They are also supplying terra cotta for a new Primary School, and a new Grammar School at Woodland, Cal. J. R. Gwinn, manager of N. Clark & Sons, is chairman of the executive committee of the Panama-Pacific Clay Products Association and he is to be complimented for his effective interest in making the dedication exercises of the Brick Home at the Exposition a success.

C. S. Laumeister, San Francisco agent for the Denny-Renton Clay and Coal Company, of Seattle, Wash., is a firm believer that the State should give vitrified paving brick a thorough test on the great State highways. He says this sort of paving would last about fifty years and could be maintained at a small expense. Being non-skidable, it would favor automobile traffic, as well as afford better footing for horses, especially in wet weather. Mr. Laumeister says business streets in Seattle paved with brick have held up secure for nineteen years. The Denny-Renton Co., has recently completed two miles of brick paving along the Seattle waterfront.

San Francisco, Cal., Aug. 3, 1915. SUNSET.

BUILD WITH BRICK
THE CLAY-WORKER, INDIANAPOLIS

# DRYING OF CLAY WARES.

## By Ellis Lovejoy.

### Part XVIII—Waste Heat Progressive Dryer.

THE USE OF combustion gases from kilns has not been considered and it would materially change the situation. The combustion waste gases and the heat of cooling kilns would give sufficient heat without considering the engine exhaust. The direct application of combustion gases rapidly deteriorates the dryer cars, and frequently causes scumming and in consequence the continued use of combustion gases should be through an economizer in which the heat of the gases serves to heat air for drying and in this way we get the benefit of the heat without the loss and damage by direct use of the gases. An economizer involves the use of fan draft for the kilns, which in itself often would be an advantage over natural draft.

In the selection of the dryer there are many questions to be considered, and one should canvass the whole situation before reaching a decision.

Auxiliary furnaces to supply deficiencies in waste heat supply are frequently imperative, although, as previously mentioned, their use is objectionable. Where wood is abundant its use in the furnace removes the objections since wood contains no sulphur and its products of combustion will not injure the cars nor cause scumming. Either oil or natural gas may be used, since they are very low in sulphur, but coal or coke give a combustion gas seriously objectionable in clay ware dryers.

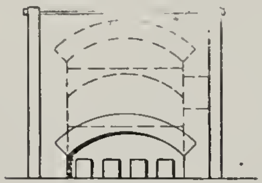


Fig. 74

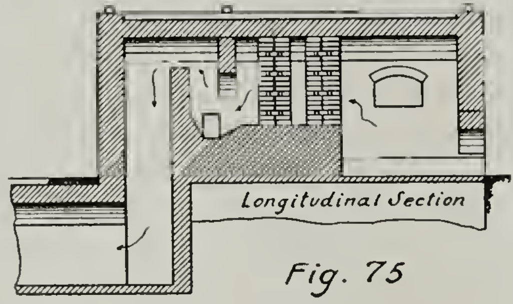


Fig. 75

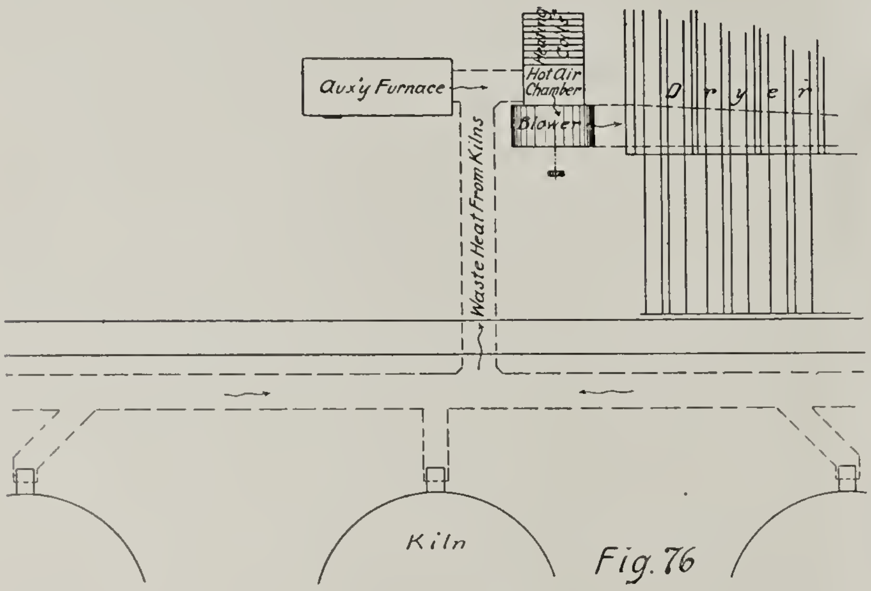


Fig. 76

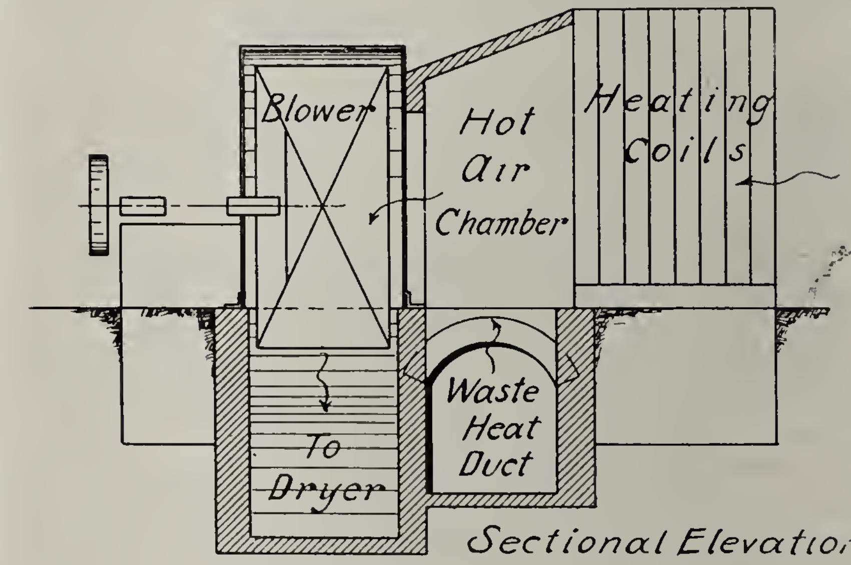


Fig. 77

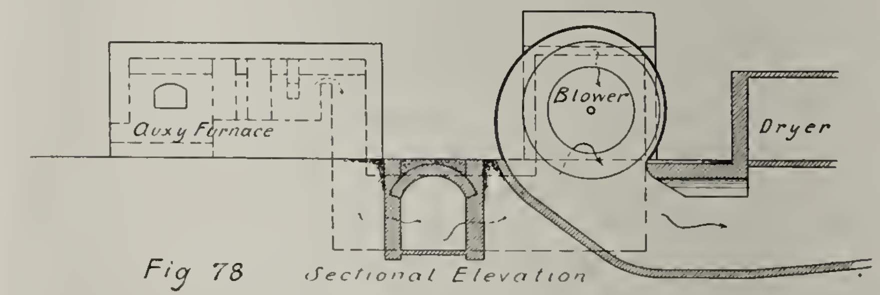


Fig 78

Figs. 74 and 75 show a wood-burning furnace adapted to clay ware drying, or it may be equipped with grate bars for coal burning. The bridge wall is made broad and filled with brick checker work. This checker work assists in maintaining a uniform temperature, acting as a regenerator and at the same time brings the gases into intimate contact, thus giving better combustion. A chamber is provided back of the bridge wall to serve as a dust collector and spark arrester.

Figs. 76, 77 and 78 are plan and sections illustrating the relation of steam coils, kiln ducts and auxiliary furnace and duct. All the air, whether from coils, kilns or auxiliary furnace comes into a mixing chamber adjacent to the fan, and each source of hot air supply is controlled by damper. We can, therefore, use all kiln heat, all auxiliary furnace heat, all steam coil heat, or any proportion of each. The kiln ducts are usually placed underground and preferably so, but it is important that the ducts be perfectly underdrained and that they be built moisture proof, as far as possible.

The proper kiln connection has been a fruitful cause of study and experiment.

A common method is to connect the dryer duct with a stack duct, each under damper control. With the stack damper open and the dryer damper closed, the kiln is under natural draft and the products of combustion pass into the air. After the kiln is burned, a change in the dampers shuts off the stack and turns the hot air into the dryer. There are three objections to this method:

1. It is difficult to keep dampers tight and in consequence combustion gases find their way into the dryer to vitiate the air, scum the bricks and blacken them with soot, and destroy the car equipment.

2. Less heat is obtained by down draft through the kiln floor.

3. Some wares are damaged by forced draft among them during the cooling stages.

Regarding the dampers we have found any single damper unsatisfactory and we have tried double dampers without success. Some yards close the dryer duct with a brick wall, which is replaced before each burn. After a kiln is burned and ready to connect with the dryer fan, the stack is dampered off and a hole is punched in the dryer duct wall. This hole is enlarged as the kiln cools down, to keep up the heat supply by a larger volume of air. Obviously this method has no merit. It is not tight, nor is it a satisfactory control.

In one instance, the dryer duct was below the draft duct and the two were connected by a vertical flue from the bottom of the draft duct. The top of the vertical flue was recessed and in the recess was bedded a heavy fire clay slab, thus closing the connection. The sulphur gases which leaked by these dampers destroyed the reinforcement in the dryer roof and the roof fell in. This damper looked good on paper, but it failed in practice. A fairly tight sand sealed damper might be constructed in this way, but the deep dryer ducts would be expensive in first cost and difficult to drain.

The simplest and at the same time fully effective damper is a stub duct connected to the dryer duct by a gooseneck. When the gooseneck is removed, the connection between the kiln and dryer is completely broken and there can be no combustion gases leaking into the dryer.

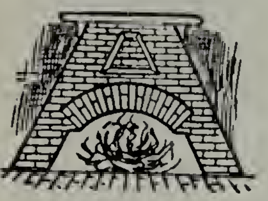
Clayworkers are familiar with the fact that the bottom of the kiln cools first, even though we may be drawing air down through the ware. This, we think, is sufficient proof that we cannot get all the heat out of the kiln through the floor.

One argument in favor of the bottom draft is that at any time combustion gases can be turned into the dryer to supply any deficiency. We hold that there should be no occasion to use combustion gases from kilns or coal-fired furnaces. If the steam equipment is proper, the deficiency can be made up in live steam, but if the deficiency is excessive and continuous, either the kilns and dryers should be connected by an economizer or the waste heat dryer should be replaced by some other type.

(To be continued.)

Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



A STRANGE SEASON is under way this summer—strange as to weather and as to general conditions. The weather has been completely abnormal. Excessive rain, unusual coolness and very little warm weather has marked the season up to the beginning of August. In commercial matters, a similar unusual situation has prevailed. Business has been somewhat backward, partly on account of the unseasonable weather and partly on account of a feeling of uncertainty, because of war and unsettled conditions. Building has been spasmodic—progressing irregularly—at times in good volume, and again holding back sharply. However, all materials have to take their portion of this situation, and a general survey of the business in the Northwest indicates that brick has received a good share of the building which has been done. Possibly this is due in part to the fact that a good amount of the work done has been public and semi-public, such as schools, court houses, churchs, lodge buildings and others. Most of these have called for brick in varying quantities, but enough to make up a fair total altogether. It is notable that there have been fewer large private structures this year than for several years. And of these few, apparently reinforced concrete construction has not had any great percentage. It is not safe to say that this indicates any real turning to wisdom in the matter, but rather that large buildings are not being constructed. Concrete has had a strong hold in the Northwest, and is not losing it to any extent, except insofar as occasional collapses and disappointments develop sufficient to work against the material. Its boosters keep up a continual fusilade about their material, which serves to give it a better name than it deserves. And on the other hand brick is not given any real publicity, and has to make its way as best it can, without much assistance from publicity. There are some who follow the lead of the Clay-Worker and urge to "Build With Brick" and their work helps, undoubtedly, but many more do not seem to assume any part in the work.

Arrangements have been made with the Dunwoody Institute, a school of trades in Minneapolis, by the Builders' Exchange and others, whereby the former is to provide a course in brick-laying. Contractors will employ workmen somewhat on the Cincinnati Trade School plan, whereby they attend school part time and work the remainder of the time. The workmen thus are instructed in the art which they follow, and have the practical application whereby they can utilize it and see the workings at once. The department will open in October, and will be one of the few in the country where students are to be paid for perfecting themselves in their chosen line of work. Apprentice bricklayers of 16 years or over, will be allowed to enter the class, and will devote half their time to school. A tentative course contemplates educating students from the very beginning of the work, including the manufacture of brick, lime and cement, and the values of various materials. The entire course will require three years, of two months to each course—January and February being the months devoted. This is a most important move for the brick business, and one which could result in great good to the material, by providing a new class of bricklayers to succeed the men who are growing old. It is not intended to do more than furnish a new method of doing what the old apprentice method used to do, before modern conditions relegated it to the background. With a younger generation being trained in bricklaying, it will not be a question where to get men to build brick walls and buildings as has seemed likely.

Charles H. Wheeler, of Minneapolis, has awarded the contract for a modern warehouse at Seventh avenue North and Third street, to be occupied by the Herschel-Roth Manufacturing Company, implement jobbers. It will be brick, seven stories. James Leck & Company have the general contract.

The Willys-Overland Automobile Company has bought a site on University avenue and Eustis street, St. Paul, close to the Minneapolis line, and has plans prepared by a Toledo architect, for the erection of plant for storage and assembling work to cost about $250,000.

K. F. Lott & Company, St. Paul and Minneapolis, received the contract to furnish terra cotta for an addition to the St. Paul Arcade, to match the present building. The addition will be six stories, brick, terra cotta and steel construction.

The Colburn-Murray Brick Company, Minneapolis, received the contract to furnish brick for the erection of the school building at Wheaton, Minn., and also for the school at Milaca, Minn.

Farnum Bros. Co., of the Plymouth Building, Minneapolis, received the general contract for the erection of the school building at Kinbrae, Minn., The Twin City Brick Co. received the contract to furnish the brick.

The Haglin-Stahr Company, Minneapolis, received the contract for the E. W. Decker garage building at 26 to 30 Willow street, Minneapolis. It will be of brick, 100x150, costing $45,000.

T. WIN.

## PAVING BRICK FOR ST. LOUIS.

The city of St. Louis, Mo., in rewriting its specifications for brick paving, has included the following phrase:

"They shall be unrepressed, side wire cut in such a manner that lugs will be formed during the process of cutting, and shall have the ends beveled."

The recognition of the advantages claimed for wire-cut-lug brick is obvious. St. Louis is one of the largest consumers of vitrified paving brick in the country, and the change from the repressed brick to the unrepressed brick was only made after investigations which have extended over a period of more than six years.

The efficiency idea has replaced the system habit and incidentally it has replaced some of the office force here and there by cutting out unnecessary red tape.

# THE VALUE OF TILE DRAINAGE.

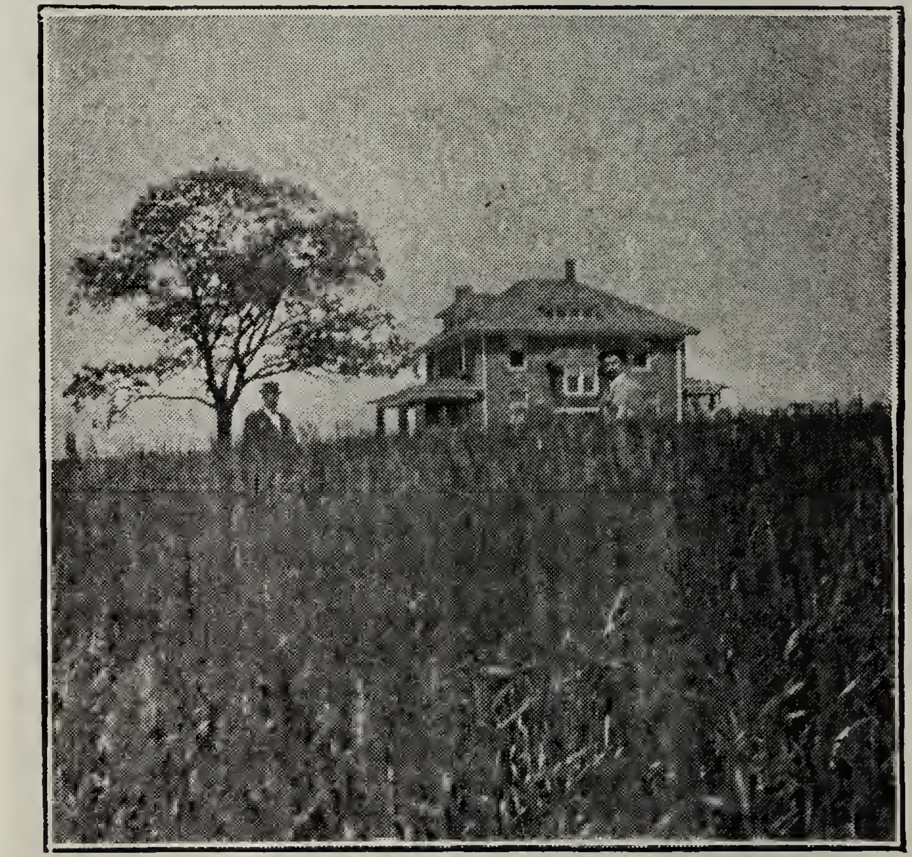
## By James E. Randall.

THAT WHICH is of importance to the farm is of importance to the nation, for the farm is the main spring of prosperity. The crop production is used as a barometer of the times; and rightly so, for the farms furnish the food that generates the energy and makes possible bigger and better things. In these times of stress, therefore, the eyes of the nation are turned to the farm. It is claimed that Germany far surpasses any other nation in thrift, economy and thorough detail in farming, while the United States is the most wasteful nation on the face of the globe. The former statement is being strongly tested by the great war going on, while the latter statement does not need proof. Uncle Sam is extremely wasteful in respect to the natural resources, and especially is this true on the farm. Germany raises more potatoes per acre than any other nation on earth, for she is far advanced in agriculture and makes each acre produce many times over what the United States is growing, though the Kaiser's soil is poorer than ours. How is this accomplished? By preparing the soil to do its work with the greatest efficiency. The farmers of America, for the most part, overlook the most important scientific fact in improving their soil; namely, tile underdrainage. In Indiana this is indeed the case. The purpose of this article is to prove our contention that tile drainage is necessary, and to urge upon the farmers of the state to thoroughly drain their land.

In making an investigation of conditions in Indiana, we found that the successful farmers were those who had tile-drained their farms, while the most failures were due to lack of proper drainage. Let us sight a few cases where the farmers are meeting with success and reaping big profits from their crops. We visited a number of farms in Fayette and Franklin counties, the first week in June, and interviewed the farmers, finding them, for the most part, enthusiastic advocates of tile drainage, for reasons set forth below.

One of the first farms we visited was that of Mr. Dan Broaddus, who owns a 120-acre tract of land four miles north of Connersville. He was just completing a splendid brick residence on his farm that would have done proud to any large city. This residence was made possible by the big profits made during recent years on this farm. It was not a paying farm a few years ago, for the cold clay soil made a poor farm land. There was an excess of water, the soil was too compact, and it didn't have the life and accessibility for air conducive to good plant growth. In endeavoring to improve the land, he experimented in various ways with the manures and commercial fertilizers, but the ground was so dense that the rainfall washed the fertilizers into the gulleys, so that the subsoil was little benefited. The ground was plowed and harrowed, but the excessive water was still there, and the winter freezings kept the soil in the same old condition. Finally, a small section of land was tiled, a great deal of the excessive water was thereby removed, the soil was thus made more porous, permitting the air to get down to the roots of the plants and give them the air fertility they needed. The fertilizers remained in the soil, adding greatly to the productivity of same. The first planting showed a wonderful improvement, and each succeeding year brought a larger crop. Every year he put in more tile, until his whole farm was tile-drained. This farm is producing over thirty bushels of wheat to the acre. When we were there, we walked through wheat fields over four feet high, and the heads were well formed. One of the illustrations shows the splendid crop and the brick residence in the background.

Charles Thomas, who owns a farm a short distance from that of Mr. Broaddus, proved the value of underdrainage. His land was by no means swampy, for it consisted of high, rolling ground, hardly enough level land on it to gather water. The soil was light grey in color, the subsoil a hard, dense formation. The water penetrating the soil was halted when coming in contact with the subsoil, causing this land to become foul and sour. For several years he attempted to make his land more productive with the aid of commercial fertilizer, but his efforts were not rewarded with any increased production. He simply needed to ventilate his subsoil, a condition which exists on thousands of farms in Indiana today. As a last resort, he tried tile underdrainage, which absolutely solved the problem and turned a poor farm into a splendid paying investment. Where forty bushels of corn to the acre was a good yield, he is now producing nearly seventy bushels. The year before the land was drained he produced seven bushels of wheat, and that was a representative yield in that county on undrained farms. He took each field as it came in rotation for corn and laid in a good system of tile drainage, and then followed with wheat and clover. He put in 5,500 feet of clay tile each year, until the entire farm was underdrained. The entire lines were sixty to eighty feet apart and thirty to thirty-six inches deep. The tile were mostly four-inch tile, but a quantity of five and six-inch tile were used. The first year after the tile were put in, the yield of wheat leaped from seven bushels to twenty-five bushels to the acre, and each succeeding planting of wheat brought a larger yield. He is growing alfalfa where it was impossible before, for the subsoil became more open and thawed earlier and prevented the freezing out of the crop.


The Wheat Field and Brick Home of Dan Broaddus.

We asked Mr. Thomas what he thought of tile drainage. He stated that he owed everything to it; that it was an absolute necessity, and he wouldn't be without it for any consideration. "Why," he said, "there is seemingly no end to the benefits of tile drainage. Before, plowing was difficult, for the ground was so dense; now, it is surprisingly easy and allows me to do the plowing much earlier; therefore, I can plant much sooner and harvest early without fear of delay until the fall frosts. While the ground was cold and close-grained before, it is porous now, and I get a better effect from the fertilizer. Before, I could dig a hole most any place and find water in the clay within eighteen inches of the surface. The farmers around Harrisburg thought I was crazy, to tile my farm; they laughed at me and joked about my ditching the hillside, saying it was a foolish idea to drain where there were no swamps; but they are all tiling their farms now, since they learned what tiling was doing for me. Tile drainage is the only thing."

He showed us a field of rye that was standing over five feet high, a beautiful sight waving in the bright, hot sunshine.

Mr. W. E. Higham, who had plowed this farm years before, when a boy, stated that formerly the ground, when plowed, seemed to have a hard board floor underneath, and that they never had a good crop until Mr. Thomas tiled it.

This farm consisted of ninety-eight acres; every part of it was clean and orderly; the barnyards were free of rubbish and the usual scattered machines and odds and ends; everything had its place, and a spirit of real pride pervaded the entire premises.

*The Heavy Crop of Clover Raised on a Tile Drained Farm.*

*Scanty Growth of Clover in Field Across the Road Not Tile Drained.*

We came to a field of clover, in which we walked knee-deep, as one of the illustrations shows. This was on tile-drained land. Directly across the road was another field of clover, with numerous bare spots, the plants scanty and scarcely reaching the shoe-tops. This was the same kind of land as the other, but not tile-drained, giving us a very good object lesson in the effects of same. The owner is thoroughly convinced of the need of drainage now, and is going to tile his farm.

Over in Franklin county, there are numerous large crop-yielding farms. We stopped at one of them. This one happened to be owned by John Hoffman, three miles north of Brookville. He is getting sixty to seventy-five bushels of corn to the acre, where formerly twenty-five bushels was all that could be expected. The same development is shown in regards to the other crops. He is harvesting thirty-six bushels of wheat to the acre, while previous to tiling he got only eight to ten bushels. Two acres of oats now bring him 142 bushels; before, it was only one-third of that amount. Mr. Hoffman had no end of good to say about land drainage.

We stopped along the road to Brookville and called a farmer from his plow. It was Mr. John Rohmer, who owns a large farm, and delights to work in the field, although getting on in years. Asking for a statement relative to the benefits of tile drainage, he waved his hand and shouted: "Go ahead and say anything. You can't say too much in favor of clay tile and tile drainage; it pays big and is the only thing to do. Why, look at the big crops I am getting, and just think, I can plow so much earlier and easier." His production is three to four times larger than before he thoroughly tile-drained his farm, and increases each year. Mr. Rohmer had the same condition to overcome as did Mr. Thomas.

We met farmer after farmer, and it was the same thing over again. They had had ocular demonstrations, had tiled their farms and were reaping the big harvest and enjoying the happy, prosperous life they deserved for their enterprise.

These farms have been made from a poor soil in the beginning. The success and good profits enjoyed by these farmers are due to the simple fact that they followed the laws of nature and secured the necessary things for good growth. Let us dig down into the fundamentals of the subject and find the reasons why tile drainage is necessary and why, when properly and systematically done, it always doubles and even trebles the value of the crops in production.

It has been truthfully stated that it is as unhealthy to plant life to have wet feet as it is to human life. Therefore, one of our first objects should be to get rid of the excess water, which is injurious to plant growth. Especially in the early spring do we find a good argument for the use of tile—the protracted rains give the soil a great amount of excess water, which, if allowed to remain, stunts the growth of the plant, for it prevents the air, which is so essential to plant life, from penetrating to the roots of same. Plowing does not relieve this condition in close-grained soils. Then, too, undrained land is always subject to this undesirable condition through the season.

Tile drains take off the excess water and make the subsoil porous, thus allowing the air to go to the roots; which grow deeper and secure the greater amount of necessary food. The air carries with it a great amount of fertility, and the fresh rains penetrating into porous soils carries the fertility of the air down to the roots, also; so we see why it is necessary to rid our subsoil of its dense, close-grained condition. A porous soil naturally can be plowed easier, and it thaws more quickly in the spring, thus giving the farmer the advantage of an earlier plowing and planting, which develops more rapidly and is sooner out of the danger from frost or drought. The manures and commercial fertilizers prove more beneficial in porous soils, from the simple fact that the needed ingredients go into the soil and are not washed away into the gulleys or streams, as is the case with dense, cold clay lands.

Tile draining does not carry away all the water in the subsoil, only the excess water, for there is a capillary action in opposition to gravity, which retains as much water in the soil as should be available for the growth of the plant.

To further consider the point, we quote from an excellent treatise on same by Mr. A. S. Kempton, which is as follows:

"Capillary attraction, the force that carries oil up a lamp wick in opposition to gravity, will retain in the soil as much water as can be made available for plant growth. It is the same force that causes a sponge to absorb water. If a sponge be compressed, a small quantity of water will be absorbed; allow the sponge to expand to its full size, and a much larger quantity will be absorbed, because its pores are larger than they were before. So it is with the soil. The waters percolating through it to reach the tiles, together with the action of the frost, makes the pores larger and longer, and therefore capable of holding more water than before. Still, I do not wish to be understood as asserting that all the pores thus formed will be filled with water, for such, fortunately, is not the case.

"Many of the pores thus formed will be too large to be acted upon by capillary attraction, and hence their water will be discharged into the tiles, and air will take its place and will prevent the formation of those injurious chemical compounds that are found in stagnant waters. As air is as necessary about the roots of crops as moisture is, this arrangement of air and water, side by side, deep down in the soil, would seem to be, and is, the ideal one. It enables the roots to grow deeply into the soil, reaching utilizing elements of fertility that otherwise would remain unused because untouched. It was doubtless this phase of the question that inspired Emerson to say: 'This year a very large quantity of land has been discovered and added to the agricultural lands, and without a murmur of complaint from any neighbor. By tile drainage we have gone to the subsoil, and we have a Concord under Concord, a Middlesex under Middlesex, and a basement story of Massachusetts more valuable than all the superstructure.'

"As we have seen capillary attraction is a greater force than gravity, for it causes the water to rise up in the pores, therefore the moisture thus held in the soil cannot be parted with except by evaporation and plant growth. It is observed of tiled land that at the surface the soil pulverizes and dries rapidly. This fine dirt acts as a blanket and largely prevents the formation of hoar frost and stoal ice, so injurious to winter wheat, and prevents almost wholly the evaporation of the moisture stored deeper down. Thus it is seen that tile drainage causes a larger amount of water to be absorbed and gives rise to a condition that prevents its loss, except as required for the growth of the crop."

### Summary.

In conclusion, we wish to state briefly the advantages to be gained by draining your land with tile.

It removes the excess water from the soil or subsoil, which is so apt to injure or retard the plant growth.

It prevents the loss of soil fertility by allowing the water to pass down through the subsoil and into the tile, where otherwise it would wash the surface, carrying with it those ingredients you wish to retain.

It makes the soil porous and open, giving it the condition necessary to retain the needed moisture for plant growth, and allowing the roots of the plant to reach a greater depth for food and moisture, which is particularly advantageous in dry weather, thus making the soil drouth-resisting.

It increases the fertility of the soil to the depths to which it is tiled, because of the circulation of air to that point, the air causing chemical changes most beneficial for food for the plant.

Our last reminder is this: Properly tile-drained farms can be plowed earlier, easier and retain the plant food, which is necessary to large, profitable crops.

Eventually, you will tile your farm. Do not do it in a haphazard manner; make a careful study of your land and the proper methods of tile underdrainage before proceeding. It is not necessary to tile your entire farm in the beginning. Test it out on a small section; you will find the tile will be more than paid for the first year by the increased profits, and the land will improve as the years pass by.—Indiana Farmer.

## CLAY EXHIBITS AT STATE FAIR.

Manufacturers of clay products have not taken advantage of one of their best opportunities for reaching a highly desirable market, which for many years has been open to them through their state fairs. These expositions have become one of the greatest mediums for manufacturers in many lines to get in direct touch with the farmers of the state, and the clayworkers are about the only line that has not been represented there, year after year, with exhibits of their products. The cement makers, silo builders, manufacturers of heating furnaces, labor-saving machinery for home and farm use, water, lighting and sewage systems, all evidently find the state fair a place where they can directly come before consumers with their output, for these manufacturers attend the fair with their displays year after year.

There is no department of the state fairs which holds more interest for men and women from the farms and towns than does that of machinery, where the various lines of manufactured products are shown, and it is here that the manufacturers book many orders for future delivery, or get in touch with prospective customers.

Farm people are building better homes than in any era of our history, and they are much interested in decorative brick for porches, fire places and hearths. The farmers, too, are giving more attention to drainage, and the state fair offers a choice place for manufacturers to show what they are doing along these lines. The Indiana State Fair has an annual attendance of upward of 200,000 people, and perhaps two-thirds of them are well-to-do men and women from the farms, who seek at the fair all of the new ideas that manufacturers have to offer in the way of farm equipment and home adornment. The fair management encourages all Indiana exhibitors in making displays of the state's industrial resources and clayworkers shuold find in the fair one of their best market places.

DRAIN YOUR FARM
WITH EVERLASTING CLAY TILE.
KRICK TYNDALL CO. DECATUR, IND.

# CHICAGO TO ZANESVILLE.

## L. E. Rodgers Engineering Company Make Change of Base.

As announced in their ad, on page 125 of this issue, the L. E. Rodgers Engineering Co. has changed its base of operations from Chicago to Zanesville, Ohio. Always original, Mr. Rodgers has surprised the trade by this move. It was generally supposed he was a fixture in the Windy City, where he has played a conspicuous part in the clay industry for a number of years. He began business there early in 1904 and by his thorough mastery of the science of drying clay wares and his skill in planning and constructing brick plants, soon came to be known and recognized as an authority in that line of engineering. Many large brickmaking concerns in various sections of the country have profited by his counsel and advice. Of late years the demand upon his time has taxed his endurance to the limit and to enable him to conserve his working hours he has established headquarters in the heart of the clay industry, Zanesville, Ohio, from which point he can meet the demands of the trade more effectively and economically than heretofore.

L. E. Rodgers, Zanesville, Ohio.

Being now in the very center of the brick industry, he will be able to keep in closer touch with his patrons than would be possible from a less central point. Chicago will be less attractive to visiting clayworkers without Rodgers, but those who depend upon the Rodgers Engineering Company for expert advice in all dryer troubles, and their name is legion, will get quicker service from Zanesville. That city is, itself, a great clay center and clayworkers desiring to visualize plans for improved equipment can accomplish their desire by visiting Zanesville, for they will find there a number of model brick plants where they can see the Rodgers system in operation every week in the year. "Seeing is believing" in all human affairs, and one good look is oftimes worth many volumes of explanatory description, so we advise our readers who are planning trips of inspection to include Zanesville in their itinerary, and afford Mr. Rodgers an opportunity of demonstrating the economy of Rodgers Waste Heat Dryers. They will find L. E. on the job with the "smile that won't come off," and with the glad hand extended that in past years has pointed the way to the successful solution of dryer troubles.

We congratulate Zanesville and her good people on the acquisition of Mr. Rodgers and his organization.

## BRICK CONDITIONS IN CANADA.

We have had recently two special consular reports on the clay products industry in Canada, which between them, give a pretty good idea of the brick situation up there all around.

Canada makes most of its own common brick, there being, according to the last census, 399 plants making brick, tile and pottery in Canada, with a total capitalization of $14,782,226, employing 8,208 men, and turning out a product valued annually at $8,291,561.

This represents approximately 75 per cent. of the clay products used in Canada. The remaining 25 per cent. is supplied from the United States and consists mainly of fire brick, fancy-face brick and fancy tile. There has been some hollow clay blocks sent to Canada, but there is a Canadian gypsum block which seems to hold most of the trade up there in hollow block.

For the benefit of those who may be interested in shipping clay products to Canada there is appended herewith the customs tariff of Canada under the present regulations of 7½ per cent. increase, because of the war:

### Canadian Tariff on Clay Products.

| | | |
|---|---|---|
| Fire brick, of a kind not made in Canada | 7½% | advalorem |
| Building brick and paving brick | 30 % | advalorem |
| Drain tile, not glazed | 27 % | advalorem |
| Sewer pipe, chimney linings, tops, etc | 42½% | advalorem |
| Flooring or mosaic tile | 37½% | advalorem |
| Clay, including china, fire and pipe clay | 7½% | advalorem |
| Brickmaking machinery | 35 % | advalorem |

During the war period the consumption of clay products has been very low in Canada, as building operations calling for brick have been very meager and it is not expected that very active building will be taken up until the war is over. There is, of course, some call for fancy-face brick for fine home building and some demand for fire brick. When the business depression is over it is expected that there will be not only better times in the industry up there but a better demand for such clay products as are brought from this side of the line, and also it is thought, there will be a good demand for machinery.

Practically all the clay working of Canada is done with American machinery. It is thought that with the return of normal conditions many of the existing plants will remodel their layouts and be in the markets for new equipment. Consul Henry P. Starrett, of Fort Williams, Ontario, even goes so far on this point as to suggest that American manufacturers of clay working machinery and patent kilns should begin at the present time creating some interest in their offerings to the end that when business does revive they will be in shape to get prompt action.

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The week of October 18 to 23 is to be characterized as American Builders' Week at the Panama-Pacific Exposition. We are glad to see this recognition of the importance of the builder and the building industry in the affairs of the country, for we have long held the idea and preached the doctrine that good home building and plenty of it is important to the welfare of a nation. October 20 has been designated specially as N. B. M. A. Day..

# A PAVING PRIMER.

STANDING NEAR the corner of Pine and Ohio streets, Indianapolis, recently, the writer overheard the following conversation between a youngster and his father, who were looking at a wrecked wooden block pavement, caused by a small flood which floated the block out of position into piles and groups, in some places a square distant from their original place:

"See the blocks?"

"They are wooden blocks, are they not?"

"Yes, they are wooden blocks."

"My, how they are bunched around."

"Yes, they sure are bunched."

"What naughty boy left those playthings there?"

"They are not playthings; they are an expensive luxury."

"Why are they a luxury?"

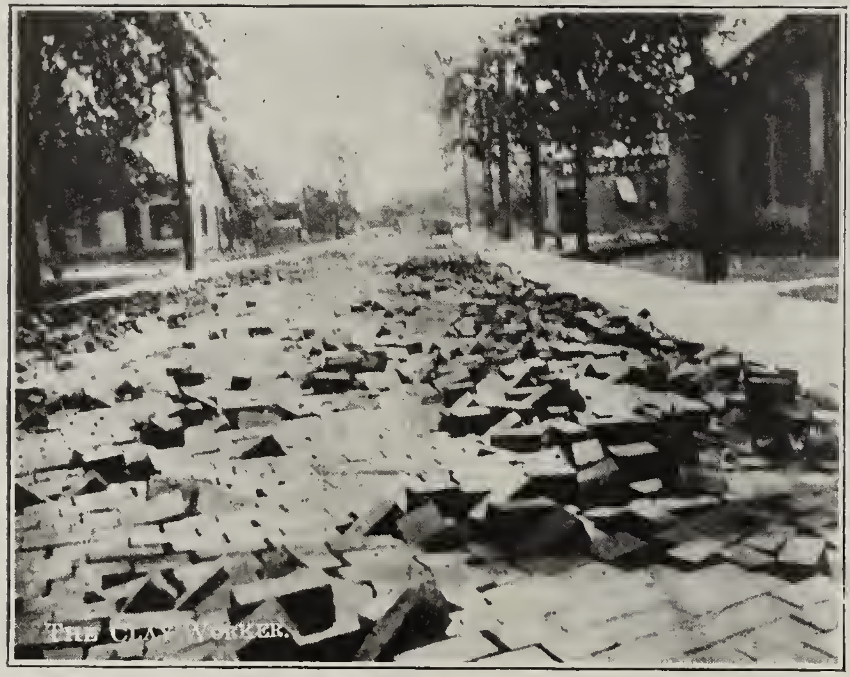
"They are convenient, but not necessary."

"How can they be convenient?"

"Why they make a nice pavement to drive over in good weather."

"But you can't drive over that bunch of blocks."

"No, not now, but you could the shape they were in before."



The Wrecked Wooden Block Pavement.

"But why were they left there to litter up the street?"

"They were not left there; they floated there."

"But how could they float there, there is no river?"

"A small flood did it."

"But you said they made a pavement."

"Yes, they made a wooden block pavement."

"But I thought pavements were fastened down."

"Most of them are, but wooden block pavements won't stay put."

"Why can't they make them stay put?"

"Water gets under the block during a flood and they float off."

"Oh, look at the block up there near the wagon."

"Yes, I see them. They floated there from this street."

"The flood didn't hurt that other street, did it?"

"No, that was laid with brick and they stay put."

On another occasion, the youngster saw a badly distorted wooden block pavement the day following a heavy rain, and the following conversation resulted:

"Oh, look up yonder at those hills in the street."

"Those aren't hills."

"What are they, daddy?"

"Those are humps on the wooden block pavement."

"Do they have prairie dogs here?"

"No, son; why do you ask?"

"They look like the homes of the prairie dogs we saw out West."

"Yes, they do, and they would house a big colony of them, too. They are only humps, though, son."

"Why do they want them here?"

"They don't want them, son; they are black eyes to wooden block pavements."

"What makes them, daddy?"

"The water soaks the blocks and they expand and the pavement bulges."

"But can't they keep the water out?"

"They try to make them water proof, but it is no use."

"Why, daddy?"

"The creosote evaporates and leaves the block porous, so the water gets in. Then the sun comes out good and hot and makes those bumps."

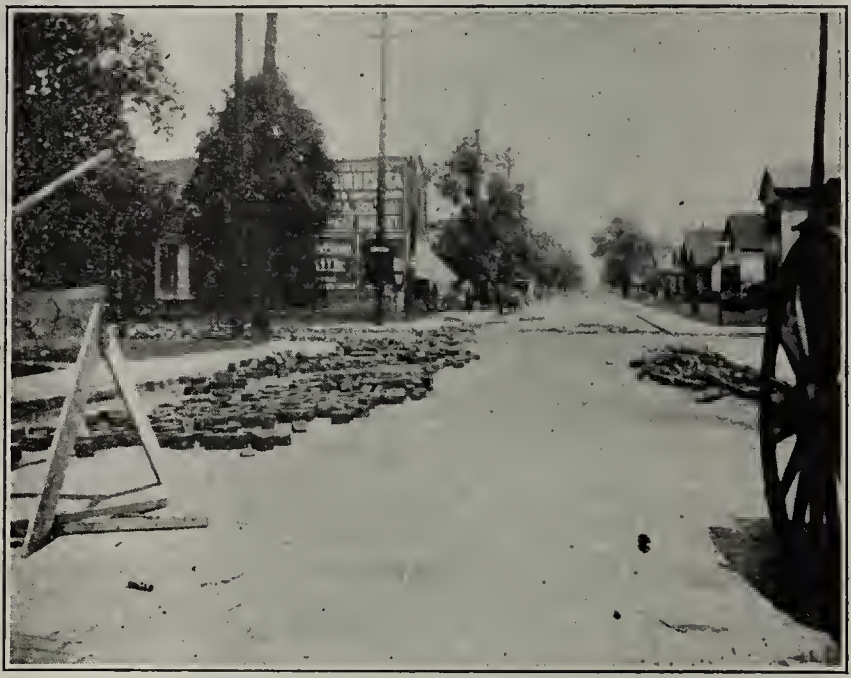
"Can't they do anything for it, daddy? When my jaw gets puffed up, you get a doctor."

"They have doctors who are doctoring the wooden block pavements after every hard rain."

"Gee, that must cost money."

"Yes, indeed; it costs more than it is worth."

"Well, don't they cure them? Mother says she never cares how much it costs, as long as I was cured."



Wooden Blocks Scattered Along the Brick Pavement, Which Stayed Put.

"All the money in the world, my son, won't cure wooden block pavements from humping."

## BUILD NOW.

In the business world nothing is more certain than that periods of depression will be followed by periods of activity and advancing prices.

We have for some time been passing through a period of depression in which prices for nearly all manufactured products have been extremely low. Building work can be done to greater advantage at the present time and at a much less cost than will be possible when the next burst of activity comes. At present men are seeking work. Manufacturers of lumber, bricks, cement, iron and steel and other building materials are hunting for customers, and hunting hard to find them. But the time will come when work will be hunting for the workers and when buyers of building materials will be hunting the manufacturers, and often paying a bonus or premium to get what they wish.

Construction work done in these periods of activity at high prices is costly, and often done in such a rush way as not to produce the best results. Construction work could now be done to great advantage and at a low cost. There are thousands of people throughout the country who intend to build dwellings or business houses, and who are abundantly able to finance construction work without embarrassment, but they are holding off merely on some "psychological" reason that they will wait for better times. The waiting may cost them money and many inconveniences. Far better would it be for men who intend to build, and who can do so, to do so now and thus during this period of depression get the benefit of low prices of lumber and materials, and at the same time help to improve the whole business situation by employing labor and buying materials.

Every contract let helps to brighten the business situation. Every contract withheld merely out of fear or lack of decision helps to becloud the business outlook and retard the coming of the sunshine. Build, and build now, should be the rule adopted by everybody who expects to build in the future and who can build now.—Manufacturers' Record.

## IMMENSE NEW PAVING BRICK PLANT FOR ILLINOIS.

THE STREATOR CLAY MFG. CO., Streator, Ill., has recently increased their capital from $200,000 to half a million, and are going to build what will be when completed the finest paving brick plant in the country. They have also recently purchased the sewer pipe plant of the Monmouth Mining and Mfg. Co., of Monmouth, Ill.

The paving brick plant will be constructed entirely of steel and brick, having metal window sash and doors, with a composition roof. All of the glass in the windows will be of the fire-proof woven wire type. Every thing in the machinery line will be driven by electricity, which will be purchased from a local power company at a very low rate. The plant will embody all of the latest labor-saving devices in the mechanical as well as the burning end. J. P. Williams, of St. Louis, has designed the plant throughout, and L. E. Rodgers is furnishing the specifications and blueprints. The dryer will be the latest Rodgers waste heat type, having hollow tile partition walls as well as a hollow tile top, instead of the usual concrete type, which is hardly consistent with good brickyard practice. The kiln, however, will probably be the most important part of the whole plant. It will consist of a thirty-chamber producer gas kiln, running two fires, and arranged in two units each of fifteen chambers, each unit being located on opposite sides of the transfer track, having depressed loading tracks on the outsides of the units, so that at no time will the setting gang and the loading gang interfere with one another. The kiln will be of the under-fired type, of which all the latest kilns have been built, and the chambers have been reduced considerable, in both width and height, thereby getting a practically uniform heat zone, a thing that is impossible to get in the larger chambers. Chambers of this size will permit of getting out of the maximum number of No. 1 ware, and in the paving brick business this is especially vital, as it eliminates, as far as is possible, the No. 2 and No. 3 brick, which are usually sold at a loss.

The plant will also have two distinct storage bins, one for the lump storage and the other for the ground clay storage. The latter will be unique, in that it will provide for the by-passing of the screened clay in the event that either of the conveyors get out of order, thereby permitting of the continuous operation of the machines.

The material will be loaded in the pit by a steam shovel and conveyed to the crusher room by an aerial tram. It is then automatically dumped into a large crusher, where it is crushed up into lumps about as big as one's fist. From here it is conveyed or elevated to an elevated storage bin, from which the sewer pipe plant will also take a part of its supply.

From this lump storage bin the material is dropped by gravity into the pans, and after being ground and screened it is passed on to two storage bins, which will hold about five days' run each.

All of the steel for structural purposes has been purchased as has the roofing on the factory building. The machinery will all be purchased during the coming month, and a specially designed dryer car will be used, specifications and blue prints will be furnished prospective bidders.

The dryer will be equipped for an auxilliary automatic stoked producer, so that same may be installed in the event that the kiln does not furnish enough waste heat.

One feature of the continuous kiln will be that it will be so designed that every other chamber can be isolated from the cooling cycle, so that it may be salt glazed, and sealed up, the same as a periodic kiln, allowing the back heat to be bypassed around it. The vital objection to the ordinary continuous kiln for salt glazing purposes is that while it is possible to salt glaze the ware, the back fires in passing over the salt glazed stuff re-oxidizes it again, and burns all of the salt off of it, leaving it pretty much as it was before it was salted.

Mr. R. H. Green is president and treasurer; Mr. Jas. A. Green is vice-president; Mr. John Connelly is secretary, and Mr. George Connolly will have the general management of both the sewer pipe and the paving brick plant. Jas. P. Williams, the St. Louis engineer, is the consulting engineer, and will be in charge of the construction of the plant. All inquiries, bids, etc., should be addressed to the "Streator Clay Mfg. Co.," Streator, Ill. O. B. SEVULT.

## EXPERT ADVICE FOR USERS OF THE DUNN WIRE-CUT-LUG BRICK PROCESS.

Mr. R. T. Stull, E. M. Cer., has become associated with the Dunn Wire-Cut-Lug Brick Company, of Conneaut, Ohio, as its ceramic engineer. His special duty will be to advise with the licensees of the Dunn Company, and help them with their brick making problems. Mr. Stull is widely known as author of numerous contributions to ceramic literature, as well as in practical and educational fields. He is a graduate of the department of ceramic engineering at Ohio State University in 1902, and for five years was connected with various important ceramic industries as superintendent. He became an instructor in ceramic in the University of Illinois in 1907, and has been connected with that institution continuously since that time. In August, 1913, he was advanced to the position of acting director Dept. Ceramic Engineering. He is a member and vice-president of the American Ceramic Society, a member of the American Chemical Society, American Society for Testing Materials; National Brick Manufacturers' Association, and the Illinois Clay Manufacturers' Association. He is also a member of the Honorary Scientific Society of Sigma Xi, Alpha Chi Sigma, and Keramos.

R. T. STULL.

In engaging the services of Mr. Stull the Dunn Wire-Cut-Lug Brick Company was influenced by a desire to give its licensees the benefit of the highest scientific assistance in perfecting the quality of their brick. This is an extension of the policy of the company as already developed in the maintenance of expert engineers, who are supervising the constructional work.

# CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

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### Information Desired in Regard to Mr. Plant.

Editor Clay-Worker:

Some years ago a gentleman by the name of Mr. Plant, who we understood was formerly from Toronto, was in Augusta and was employed on one of the paving plants here. This gentleman built some of his kilns on this plant and operated same for quite a while. We are desirous of getting in touch with this gentleman, and thought possibly you could give us his address. If you can do this for us, we will very much appreciate same, or if you will advise us any way to enable us to reach him. Yours truly,

HANKINSON & HAGLER.

Augusta, Ga.

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### Suggests the Use of Hollow Brick.

Editor The Clay-Worker:—

I have often wondered why brick manufacturers did not generally make hollow brick, not a hollow block, but a hollow brick. It does not cost a penny more to manufacture, and makes a better burned brick for it gets burned on the inside as well as on the outside, takes less clay and weighs considerably less in shipping. With a hollow brick, the brick manufacturers could meet and compete with the hollow tile people, for they would accomplish in part at least what the hollow tile manufacturers achieve; without it they are handicapped in meeting competition. I enclose a rough drawing showing you what I have in mind, and hope some of the brick manufacturers of the country will think well enough of the idea to get in the game with these hollow brick.

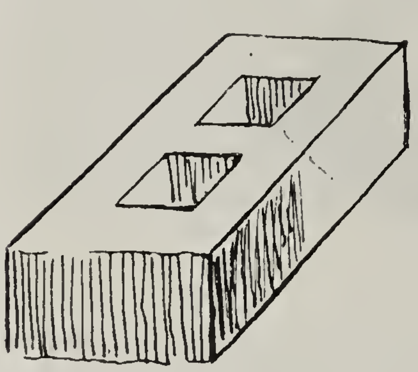

Fig 1

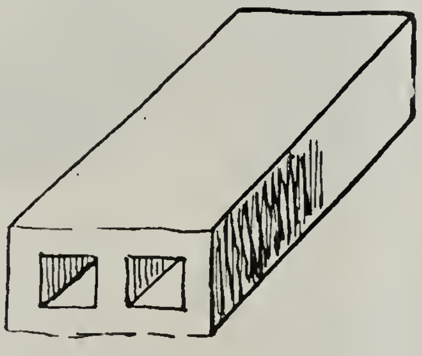

Fig 2

ARCHITECT.

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### Dunn Brick Plant Not Damaged by Flood.

Dear Mr. Randall:—

I am pleased to inform you that aside from the loss of three days' business, due to water in our shale pit, our brick plant was uninjured by the flood in uly, but many of our business friends are hard hit, and three of the most valuable buildings in the city destroyed. They were built of our brick and all completed within the last year. Our hearts are sick from the knowledge of the suffering caused by death and loss of property to our fellow citizens, many closely associated with us, and our nerves are so strained that we can hardly work. I am inclined to think that Associated Press accounts are much magnified, as the area devastated is only from two to three blocks wide by thirty blocks long, much of which was not closely built up. I thank you for the interest shown.

Yours very truly,

WILL H. MILLER, Secretary,

Erie, Pa., August 7, 1915. THE DUNN BRICK WORKS.

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### What Will Produce Iron Spots in Red Brick.

Editor Clay-Worker:

Can you give us information as to the best thing to buy to change a red face brick so it will show iron spots, also how to produce a brown flashed effect?

Yours truly,

BROWNWOOD BRICK AND TILE CO.

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### Bricklaying to be Taught at Minneapolis Institute.

Editor Clay-Worker:

A bricklayer's course is to be part of the curriculum of the Dunwoody Industrial Institute, and bricklayer apprentices employed by Minneapolis contractors will be paid, it is said, for the time spent by them in their course.

An arrangement to this effect has been entered into between the Institute, the Master Builders' Association and the Builders' Exchange.

The apprentices will learn about the making of bricks, concrete and cement, the values of sand, and technical principles connected with the problems of building.

The classes will be conducted in January and February, which are the dull months for bricklayers.

I think it would be well for brickmakers to emulate the example set by the Minneapolis builders. M. SOTA.

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## BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.

THE BRICK BUSINESS has not been very active in Toledo this summer, although trade is fair. The call for building brick in the city proper has been fully up to other years, but there has been less of the outside call than in other seasons. There have been constructed in Toledo this season a number of fine school buildings, which called for a large number of brick. The Willys-Overland automobile factory put up a million-dollar addition to its plant, which used a great many more brick, and another immense addition is now being started, which will add another large amount to the former orders. Many other factories have built additions this season. There have been a large number of investment structures of an exceedingly handsome nature in the downtown section, all calling for more or less brick, and many more brick homes are being constructed than was formerly the case. Outside of the city, and especially in the rural districts, the call has been curtailed and there has not been so much building. Prices are not very firm.

Ohio has done less road building this year than last year, and the demand for paving brick has not been quite so active. There is still a good deal of road building, of course, and a good many of the roads are now being constructed of brick, which has kept a fair call, but nothing especially active.

John A. Hall, aged seventy-five years, grandson of Josiah Hedges, the founder of the city of Tiffin, Ohio, died recently at his home in that city, of hardening of the arteries. Mr. Hall was for many years a brick and tile manufacturer.

A brick house built eighty-five years ago by the late Judge Knapp, at Freemont, Ohio, has just been torn down and will be replaced by a modern dwelling house. The old structure was still in good condition.

A handsome new business block is being erected on Erie street, which will have a 66-foot front and will be two stories high. The building is to be faced with white enamel brick tile and will cost $26,000. The Irving B. Hiett Co., which is constructing this building, has erected buildings on Erie street making a total of 300 feet frontage. All have been of brick construction.

N. A. Whitney is erecting a combination brick flat and business block on Monroe street at a cost of $6,000. Enamel brick will be used for facing. T. O. D.

# GALA DAY FOR CLAYWORKERS AT THE PANAMA-PACIFIC EXPOSITION.

### Dedication of the Brick Bungalow an Event of Much Interest to Fair Visitors.

THAT THE ENTHUSIASM accompanying the movement for the promotion of Safe Construction, as exemplified by the exhibit of the Panama-Pacific Clay Products Association at the San Francisco exposition, is not confined to the officials of the association and their friends who have come to their support to date, is proven in the dedicatory exercises held on July 23, under the direction of the local committee, officials of Louise Brigham Home Arts, Incorporated, and numerous friends and champions of the movement.

As shown by a panorama photograph, "Our Brick Home," situated among the state buildings, tastefully decorated with the national colors, the speakers and prominent guests of of honor facing the assembled throng in the open terrace, proves to the ones who by their zeal and belief in the principles which safe contruction of the home stands for, that the issue is a live one, and in the unavoidable absence of eastern representatives of the association, which was deeply regretted by its officials, the local committee very efficiently performed the honors of the occasion.

The exposition officials aided in every way possible, furnishing a band of thirty-five pieces, necessary benches distributed on the terrace, banners and orators, all of which, in conjunction with the regular program, proved a very jubilant affair from four o'clock until late in the evening.

The program, which follows, was punctuated with various selections by the band.

Introductory remarks—Mr. Walter E. Dennison, president of the Steiger Terra Cotta and Pottery Works.

Address and Presentation of Bronze Plaque to the Association and Miss Louise Brigham—Mr. Colvin Brown, representing the Exposition Company.

Acceptance and Response—Miss Louise Brigham.

Acceptance and Response—Mr. Walter E. Dennison.

Address—Mr. Pope, chief of the Palace of Education, touching on the efforts of the Panama-Pacific Clay Products Association and those of Miss Brigham.

Reading—Mr. Edwin Markham, poet; reading of several poems touching on "The Home."

Address—Mr. John D. Barrie, one of San Francisco's prominent lecturers.

Address—Mr. Edward Rainey, representing His Honor, Mayor Rolph.

Remarks—Mr. James F. Kerr, president Louise Brigham Home Arts, Incorporated.

Address—Mr. Walter E. Dennison, and formal opening of "The Home."

The exercises were followed by a reception in the evening, interspersed with a musical entertainment and light refreshments, making for the day a mark in burned clay product publicity that must be recognized by the industry throughout the entire country.

Since the official dedication, hundreds of interested visitors daily have inspected "The Home," seeking information as to its object. This information should be given them. Printed matter is required, "The Home" must be maintained, and a representative of the association should be at the exhibit daily until the close of the exposition, December 4.

Mr. Charles Bonner, treasurer, Chamber of Commerce Building, Chicago, will accept contributions to the cause. Help those who are trying to help you.

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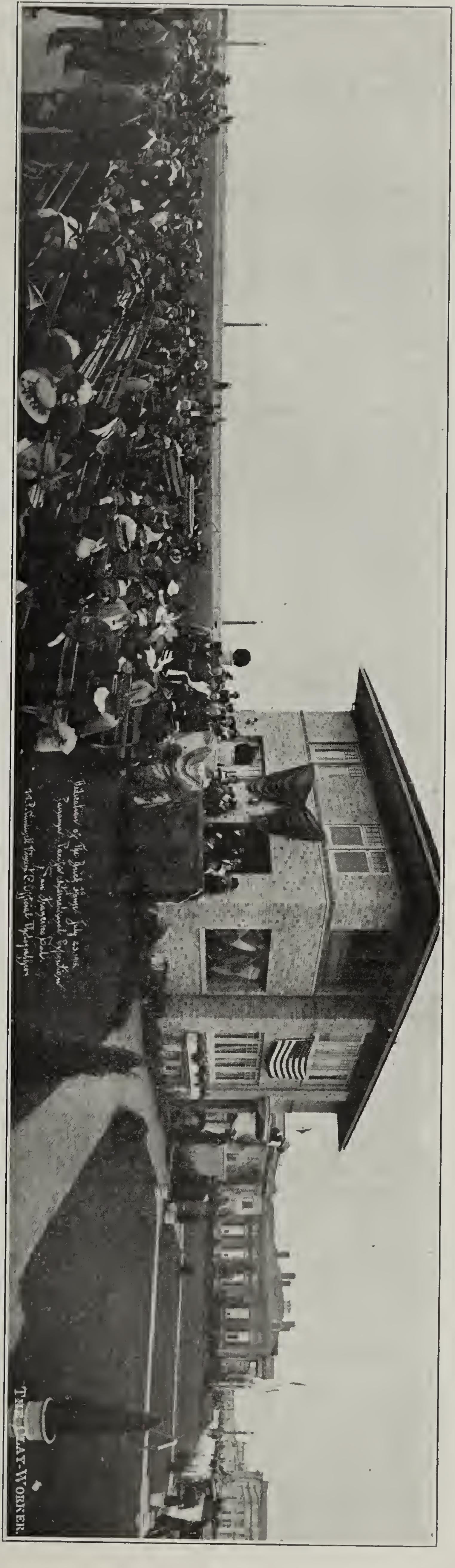
We can manage to serve our actual home needs without outside help, but we need outside markets for some of our products, and a fair exchange is a good thing.


Dedication of The Brick Home July 23, 1915
Panama Pacific International Exposition
San Francisco Cal.
THE CLAY-WORKER

DEDICATION OF THE MODEL BRICK HOME AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION, SAN FRANCISCO, JULY 23d, 1915.

# BRICK BOOSTING AS A BUSINESS.

## Why Brickmakers Should Support the National Building Brick Bureau--Concerted Effort Essential to the Further Growth of the Industry.

IT is easily evident to one who travels about the country these days that brick is making wonderful progress in the home building operations, because in the cities often there may be found whole rows of brick cottages and brick bungalows where in times gone by these rows would have been built of lumber. Another noticeable feature of the day is in the great use of brick in porches including foundation piers and parapet walls. These are not only a part of brick buildings, but many of them are seen as a part of frame buildings and making the front face of stucco buildings.

Taking it altogether no other building material has made anything like the progress that has been made by brick during the past year in home building operations. Brick has long been conspicuous in the big business buildings and more pretentious homes, but it is entering now into every type of home from the modest cottage up. That it is coming to the front rapidly all around where there is brick available is easy enough to see. Also the sight of brick coming to the front in this way is ocular evidence that brick boosting is bearing fruit.

### Progress in the Face of Competition.

Generally results in progress of this kind are obtained through local exploitation and through the cultivation of the home territory by brick manufacturers and dealers engaged in business therein. There is some widespread exploitation of brick, some nation-wide advertising that is helping too, especially to encourage the use of the finer face brick. It helps turn the public mind to brick generally also and in this way contributes its share of the boosting.

It is an interesting fact, too, worthy of more than passing notice that this splendid progress has been made by brick in face of the most active competition we have ever had. The cement people have not only continued their activities, but the lumber people have raised an immense fund and are now waging an active campaign to encourage people to build with lumber. They are borrowing from our "Build with Brick" slogan, or rather adapting it, and making a slogan of their own, which is "Build with Lumber." They are, undoubtedly, doing some good work along this line, too, but notwithstanding their activities, wherever the brick men are awake and on to the job brick has made progress in building operations until it stands out more conspicuously than ever before in the home building district in all the cities and towns.

To some it may seem like a contradiction of the brick progress in this way when we turn to the brick figures of last year and see that the consumption of common brick fell off considerably. Perhaps, we will have the same situation this year. We hope not, and if the brick boosting game is kept up lively enough we believe that common brick will regain the slump of last year. That slump, however, came in the face of more active use of brick in home building and it was because of a general let-down in the larger undertakings in building operations which consume enormous quantities of common brick. Big buildings have not been doing their part in the way of consumption for a year now either in the use of brick, cement, steel or any other structural material. And it is this that is responsible for whatever slump may exist, how much greater the slump would have been had there not been active exploitation is all a matter of guess work. It is easy enough, however, to see the situation has been saved largely by boosting brick and the more extensive use of brick in home building.

### Local Boosting with Bureau Aid.

This boosting as stated above has been largely a local proposition, every man talking brick and boosting brick in whatever way appeals to him in his own community, in many instances inspired and instructed by enthusiasm and information developed at different gatherings of the brick fraternity. The big meeting of the N. B. M. A. at Detroit, which put the boost into the brick business by authorizing the organization of the Build with Brick Bureau did a whole lot to set the wheels going and now we have as a result of it not only more brick boosters and more brick being used, but an organized central bureau to help further the cause in every way.

What the Building Brick Bureau is, why it was brought into existence and what it purposes to do in the way of assisting in the game of local and general exploitation has been set forth in these pages in more or less detail heretofore. The bureau and its doings, however, are properly a part of every review or discourse pertaining to progress in building brick.

THIS STRUCTURE IS BUILT WITH

**BRICK**

MADE IN DETROIT

DETROIT LABOR DELIVERED IT

DETROIT LABOR LAID IT

BE A BOOSTER---BUILD WITH BRICK

THE EVERLASTING MATERIAL

Miniature of Poster Used in Detroit.

Some of the brick manufacturers may be asking themselves why, if boosting brick is largely a local proposition, should we maintain a central bureau and what benefits does the local brick man derive from it?

### The Mission of the Bureau.

The answer to this is just as easy as the answer to why we should have a central national government when each state, each county and each city has a government of its own. The functions of the bureau differ materially from those of the central government, but its needs are just as imperative if we are to perpetuate and keep growing as we should the brick boosting business.

The Building Brick Bureau is for the purpose of supplying munitions for any and every campaign waged by the individual brick manufacturer or group of brick manufacturers in their own territory. It gathers and disseminates information of instances where brick has been put across and why, furnishes the figures and arguments with which to meet competition and is beginning the work of getting together and distributing literature which every man in the business can make use of in helping boost brick in his own territory. Thus, it not only helps keep alive the spirit of exploitation, but it supplies much of the essential material with which to carry on the work.

That is part of the reason why every brick manufacturer should be affiliated with and help support the bureau. It will help him directly in return by furnishing advertising copy, specific data of comparative costs, and talking topics generally for use in a campaign of pushing brick against all competitors.

### What Has Happened to Paving Brick.

As to all this being worth while, we find a good answer to this and a graphic illustration in the latest report of the brick industry. We find here that while the consumption of common building brick slumped in 1914 that vitrified paving brick showed an increase. In point of total value, paving brick as a rule amounts to only about one-fourth the total of common building brick even though the price of paving brick is generally twice that of common building brick. In other words there are aproximately eight or nine common brick made to where there is one paving brick. Still with the smaller quantity and the lower value the paving brick people perfected a boosting organization of the paving brick interest and has been putting in some excellent and enthusiastic work in exploiting the brick paved street and the brick paved roadway. It is largely because of this active exploitation and the maintenance of a central organization to do it that the paving brick industry was the only branch of the clayworking industry which showed any substantial gain in the total value of products in 1914 as compared to previous years.

### The Opportunity for Building Brick.

Now it naturally follows that if the paving brick people can do good effective work that will save the day for them and make a gain in the most depressing years of the decade the building brick people can do the same thing. There are in round numbers about a billion paving brick manufactured a year, while in common brick the range is from eight billion to ten bililon, and surely if those who make the smaller quantity can do this kind of effective work, the common brick people with the wider range of territory and the more variety and uses of this product and the greater quantity can afford to support abundantly a central organization and in co-operation with it boost the game of building brick so that it will be a steady gain through good years and bad. When we get the work of brick boosting in full swing as it should be and everybody doing their part the common brick industry should show a material increase in the slowest building years to come and in the year of active building operations the consumption of brick should be such that the problem would be how to supply the demand rather than how to sell the brick.

Good progress is already being made and there is evidence all around us that the exploiting so far done has brought good results. In fact, the results have been so satisfactory when measured against the limited amount of money and effort which has been expended, that one feels like growing enthusiastic over the situation, and that all we need is some hearty co-operation all around by everybody for a season and the building brick business will be on such a boom as never was known before.

BUILD WITH BRICK

THE CLAY-WORKER, INDIANAPOLIS

## N. B. M. A. DAY AT EXPOSITION OCTOBER 20, 1915.

*The officials of the Panama-Pacific Exposition originally announced August 26 as N. B. M. A. Day at the exposition. So many of the clayworkers who have expressed an intention of going to the exposition have stated that a later date would suit them better that the exposition officials have been requested to postpone N. B. M. A. Day until October 20. This will enable those who attend to participate in the meeting of American Builders as per statement below. Members of the N. B. M. A. are requested to take note and govern themselves accordingly. As previously announced the "Brick Home" erected by the Panama-Pacific Clay Products Association will be headquarters for all visiting clayworkers during the exposition period, but it is to be hoped that all who can will plan to be at the exposition the week of October 20 and register at the "Brick Home" on that date.*

### American Builders' Week at Exposition.

The most important coming event of the year to builders is unquestionably "American Builders' Week" at the Panama-Pacific International Exposition in October next, from the 18th to the 23d. Indeed, it is doubtful whether any event in the history of the United States can possibly have any greater significance to builders and the allied trades.

The importance of the builder, as an individual as well as collectively, his intimate connection with all industrial and national progress, is at once manifest when we recall the fact that forty per cent. of the entire population of the United States is directly or indirectly dependent upon the building industry and its success. No one line of business has more to do with progress than the builders of homes, of cities and towns and those public utilities upon which the comfort, health and happiness of our people depend.

No such opportunity as American Builders' Week, of promoting harmony among the building fraternity of this great nation, has ever occurred before, nor could a more appropriate place or season for such a gathering have been selected.

The assembling of many thousands of builders from every city and corner of the country to participate in such a builders' celebration cannot fail to promote and foster an interchange of progressive thought upon technical and business matters or to more firmly establish good fellowship, educational and social intercourse.

We learn that a strong general committee, embracing representatives from all branches of the building business in San Francisco, with numerous sub-committees, are actively engaged in making the necessary arrangements to insure the success of this great celebration of builders. Invitations to attend are being sent to every Builders' Exchange and similar organizations in the country and to the building press.

It may be mentioned that the San Francisco builders are receiving the cordial co-operation of the exposition authorities, who join in extending a special invitation to builders to attend the expostion during American Builders' Week.

It may also be stated that the leaders in every trade connected with the San Francisco building industry, the local building material firms and supply houses are all heartily cooperating with the builders in this movement.

By no means the least attractive feature of the gathering in October will be the attendance of the large number of ladies who will accompany the visiting builders from every state in the Union. These ladies will be welcomed by committees of ladies prominent in San Francisco society.

It is suggested that those builders who already contemplate visiting the exposition either before or after the period between the 18th and 23rd of October next, now try to make it convenient to visit the exposition during American Builders' Week, as a special daily program of particular interest to visiting builders is being arranged.

We are asked to state that additional information may be obtained by addressing the "Publicity Committee, American Builders' Week, care General Contractors' Association, 110 Jessie street, San Francisco."

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION.*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXIV. AUGUST, 1915. No. 2.

## CURRENT COMMENT.

The story of brick is a good one to tell while on your vacation, and afterwards, too.

* * *

The building of good roads is one of the best things this country could be doing just now.

* * *

It is so blamed easy to find fault that there is nothing strange about so much of it being done.

* * *

San Francisco has been something of a "Golden Gâte" this year, both in opportunities and gate receipts.

* * *

The biggest item in our export food products last year was wheat, which brought a total of $332,868,498.

* * *

The best news we have about the Lincoln Highway is when we are told about some additional stretch to be paved with brick.

* * *

The building brick business being largely a home trade matter is pays to work the field well with lots of local advertising.

* * *

If every brick yard had burned clay roofing tile for sale there would be more of it used and better roofing would be the order of the day.

* * *

There is a big future before both building brick and paving brick. Also the more we boost the game the bigger it will be and the sooner it will come.

* * *

Up in Alberta, where we have the famous and aggressive town of Medicine Hat, from which we used to claim lots of the bad weather came, the clayworking industry has done a fair share of developing. In the province of Alberta are about 33 active plants producing annually approximately 70 million common brick and 24 million face brick.

* * *

War makes employment, but there are other kinds of employment less hazardous and more desirable.

* * *

If there is no such thing as luck, how is it that so many people get so many things they don't deserve.

* * *

The home builder has been a sort of saving grace to the brick industry this year, and likewise the use of brick is proving beneficial to the home builder.

* * *

It is easy enough for us to see why the returns from the income tax law have been disappointing. There are too many of the incomes themselves which have been disappointing.

* * *

It was the dog days last year that turned loose the dogs of war, but at this writing there is no assurance that they will be chained up again at the end of the dog days of this year.

* * *

N. B. M. A. day at the Panama-Pacific Exposition, San Francisco, originally set for August 26, has been postponed till October 20, as the reader will see by announcement on page 165.

* * *

If this great country of ours known as the United States of America is not the salt of the earth it comes mighty close to it, because the salt production here is the greatest on record, running up to a nice total last year of 34,804,683 barrels of 280 pounds each.

* * *

Calling those A. B. C. countries into conference with the United States in connection with the Mexican muddle is about the best move in the right direction that could be made, and we feel like it means the beginning of the rejuvenation of that war-torn country.

* * *

Even Uncle Sam is now recognizing the merits of the brick paved roadway. The Department of Agriculture has recently issued Bulletin No. 246, which predicts a rapid increase in brick roadways in this country. And why not—the brick roadway is the best, and in the end the best is the cheapest.

## BOMBS AND BOMBS.

The term bomb sounds dangerous, especially these days, but in the standardization of bomb calorimeters the Bureau of Standards doesn't mean what you are probably thinking about, because it has to do with calibrating and using bomb calorimeters for determining the amount of heat available in a given weight of coal or coke or other combustible material. The instrument used for such tests consists essentially of a steel shell or bomb in which a small weighed sample of the fuel can be burned in pure oxygen gas. The bomb is immersed in a known quantity of water before the sample is ignited and the heat produced warms the water and it is from this that the heat calculations are made.

## THOSE LOCAL FAIRS.

Just about as regularly as we talk patriotism on the Fourth of July and peace and good will at Christmas season, we figuratively take our pen in hand when the county fair season arrives and have our little say about exhibiting brick at the local fairs. Somehow we just can't get away from the subject, or rather can't keep away from it, at this time, because we are very much concerned with boosting the building brick game, and a good place to reach the people and do local exploitation should be at county fairs.

Some of our good friends have taken exception to this proposition and have raised objection on the ground that county fairs have come to be too much like the circus with a lot of hurrah and fake shows and a good time generally without enough serious thought being given to anything. If this is true the county fair needs reforming. It has run away from its original purpose and is not a fair any more, but is a sort of combination picnic and circus day.

Some of those who have voiced this objection to the fair have mentioned the development of chautauquas and suggested that a better proposition at exploitation than local fairs would be to have the subject of ideal home building covered at the annual chautauqua in an impressive way. That is undoubtedly a good idea, too, and there is more than a hint in it to those brick manufacturers who are located in communities that have taken up the chautauqua habit. There is a chance to get busy, get a good man on the program who will talk brick for home building in the right kind of a manner to be impressive without taking on too much of the ear marks of advertising pure and simple.

We still cling to an element of faith in the county fair, however, and believe that the concentration of more interest in the serious phases of home life and in community development in connection with county fairs will make them both more popular and beneficial. We believe it is a good place to show clay products and to talk clay products including everything from brick for the walls of buildings to the sewer pipes for the drains, and that the brick man should look into this in his home county and see what can be done. If the fairs have become too frivolous, get hold of other good business men and see what can be done to reform them, and meantime see to it that brick and other burned clay products are brought to the front when the fair is pulled off.

## BRICK STATISTICS.

There are several interesting features about the preliminary report of the clayworking industry for 1914. One of these that needs particular attention right now is that of the comparison between common brick and paving brick.

Common brick is the principal clay product, representing a little more than a third of the total of all clay products, and the common brick industry showed quite a slump in 1914.

On the other hand the production of vitrified paving brick, which represents a little less than 10 per cent of the total of all clay products, was the only important item in the clay products list which showed an increase in the value of the output in 1914. The increase over 1913 in paving brick was $362,645. In common brick there was a decrease in the total value of $6,365,233 as compared to 1913.

When one studies these two items and then considers the circumstances surrounding them during the past two years there is no dodging the proposition that active exploitation has saved the day with the paving brick industry and made it show an increase, and one can hardly escape the conclusion that it was lack of this same order of exploitation that caused common brick to lose ground. Of course, we can see that the war in Europe and the upset in financial and industrial affairs was a factor in building operations. It was also a factor in paving and the point is this, had the common brick people started a year or two earlier and developed a boosting organization on a par with that in the paving brick industry, and had it working well at the beginning of the past year the answer should have been different because it would have made it practical to obtain a greater percentage of brick used in the building operations that were conducted. In other words there is a strong sermon in this in favor of active support of the Building Brick Bureau to boost the great industry of common brick and get back that more than six million dollar slump.

Between the lines of this preliminary report on the clayworking industry for 1914 there are several other points worthy of earnest consideration. Another that might be mentioned is that of the depressing effect of strikes. There is no general industry in the country more concerned with industrial peace, especially in the building trades, than the clayworking industry. Therefore, it behooves every one interested in the welfare of the industry to join in whatever practical movement presents itself to insure comparative freedom from strikes.

However, the most striking feature of the whole report is in that slump of common brick, while at the same time paving brick showed an advance. This is a thing that shouts loudly for brick boosting and for active support of the Building Brick Bureau.

## BUILDERS' PAGES IN DAILY PAPERS.

One of the interesting features of the daily papers of the country, which has been developing considerably the past year or two, is in the builders' pages, the devoting of a full page more or less to matter of special interest to building contractors and home builders. Of course, the underlying purpose of these is to help develop advertising from material men, contractors and others catering to the home builder. Incidentally, however, it helps develop an interest in home building and for this reason we are glad to see these builders' pages, especially when brick and clay products are shown conspicuously thereon.

An interesting example of builders' pages may be found in the Dayton (Ohio) Journal, which has been reprinting full pages of the expressed ideas of George W. Perkins and distributing them to business organizations throughout the country.

On the back side of the latest one of these Perkins pages to be received is a builders' page, which is really as interesting in its way as the Perkins propaganda. It contains a picture of a home in the center with a sketch of the floor plans and this constitutes a splendid centerpiece and about our only objection to the whole proposition arises from the fact that it is a stucco and frame house displayed and there is only one advertisement of brick on the entire page, while there are 25 other advertising cards including paint, insurance, hardware and practically everything else. The Crume Brick Company of Dayton advertises their Hytex facing and sand-lime common brick. We would like to see that "Build with Brick" slogan a conspicuous feature in all of these builders' pages so that every man who is inspired to build will investigate the subject and learn the best and cheapest home must be built with brick.

## THE ADVERTISING FUND.

One of the questions before the brick industry receiving considerable attention right now is that of the advertising fund, of what amount each man ought to spend in advertising and exploitation as compared to the quantity or value of his output.

Interesting light is thrown on this subject by what other lines are doing, what they are contributing in the way of advertising fund as compared to quantity and value of the product.

We are informed that cement manufacturers contribute 5 cents a barrel for advertising purposes. The value of a barrel of cement is just a little less than a dollar. Figuring the average value of common brick at a minimum of $5 per thousand, and taking the same ratio for advertising fund, the building brick industry should spend 25 cents a thousand in advertising.

This would make a good fund when we take the entire brick product of the country, a fund the greater part of which perhaps would be used by the individual manufacturers in their own territory. It will not require more than 10 per cent. of this, which would make 2½ cents per thousand, to furnish an abundance of funds for the Building Brick Bureau, and this would be just equivalent to the 10 per cent. big advertisers pay to advertising agencies for expert counsel and advice in handling advertising.

If brick people the country over would contribute 2½ cents per thousand to the Building Brick Bureau and spend 22½ cents per thousand for exploitation in their own territory, with the advice and counsel of the Building Brick Bureau, it would mean such a boost to the building brick business that in a very short time the problem would be how to supply the demand and not how to find a market for the product.

## THE MARSH-CAPRON GROUTER.

"Most mixing—least fixing" is the motto appearing frequently in the Marsh-Capron's latest booklet devoted to their grouter. This grouter will cover a great amount of surface daily, being a thoroughly dependable machine for its purpose. It is highly recommended by its users as well as its manufacturers. Its construction is simple, honest and rigid, giving it the substantial backbone for hard work. Engineers and contractors who wish to facilitate their work in the grouting of brick pavements should employ the Marsh-Capron grouter. Write them for their latest catalog. Their address is, Marsh-Capron Mfg. Co., 466 Old Colony Bldg., Chicago, Ill.

## AMERICAN BLOWER COMPANY IN A CLASS BY ITSELF.

The twelve largest manufacturers of the world in their respective lines are pictured in an attractive souvenir of Detroit's largest industries. It is needless to say that the American Blower Company, famous for its Sirocco fans, is one of the world's largest. They are manufacturers of heating, ventilating and air conditioning apparatus, and a view of their plant is contained in this souvenir folder, for it is one of the plants that has made Detroit famous. Thousands of schools, churches, public and industrial buildings, both at home and abroad, are equipped with the American Blower Company's apparatus. Their products are scattered over the world. We were not surprised, therefore, on perusing the souvenir to see the plant of the American Blower Company given conspicuous location. It is an interesting folder and should please many of our readers. If you desire one, or are interested in any ventilating or circulating fans and equipment, write the American Blower Company, Detroit, Mich.

## AN UNUSUALLY ATTRACTIVE LEAFLET.

The American Pulverizer Company, of East St. Louis, Ill., show their progressiveness in their latest leaflet setting forth the merits of their pulverizers. The orange-colored cover is an imitation alligator skin effect, while the body of the booklet is of substantial paper with well-printed illustrations and descriptive matter pertaining to their product. The plant of the Decatur Brick Manufacturing Company, of Decatur, Ill., and the National Sewer Pipe Company's works at Webster City, Iowa are shown together, with the pulverizers in operation, and letters from the purchasers highly recommending them. Specifications, approximate tonnage per hour, sectional views of the machine, and also views of their non-breakable manganese steel grate bars and rings, appear in the leaflet. If you are contemplating installing a pulverizer or crusher, write to the American Pulverizer Company, East St. Louis, Ill., for their catalogue No. 12, mentioning The Clay-Worker.

There have been enough sea tragedies this year to put something of a damper on the American weakness for globe trotting.

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**"GETTING THE MOST FOR A DOLLAR,"**

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy Engineering Company.**

[See page 222.]

## THE RETURNS.

Every man is interested in the matter of what he may expect in the way of return for money properly invested in exploitation.

A good answer to this is contained in some of the correspondence coming to the writer from time to time. For example, there is a letter in hand today from a brick manufacturer, telling of the switching of several new residences to brick after plans had been drawn for lumber.

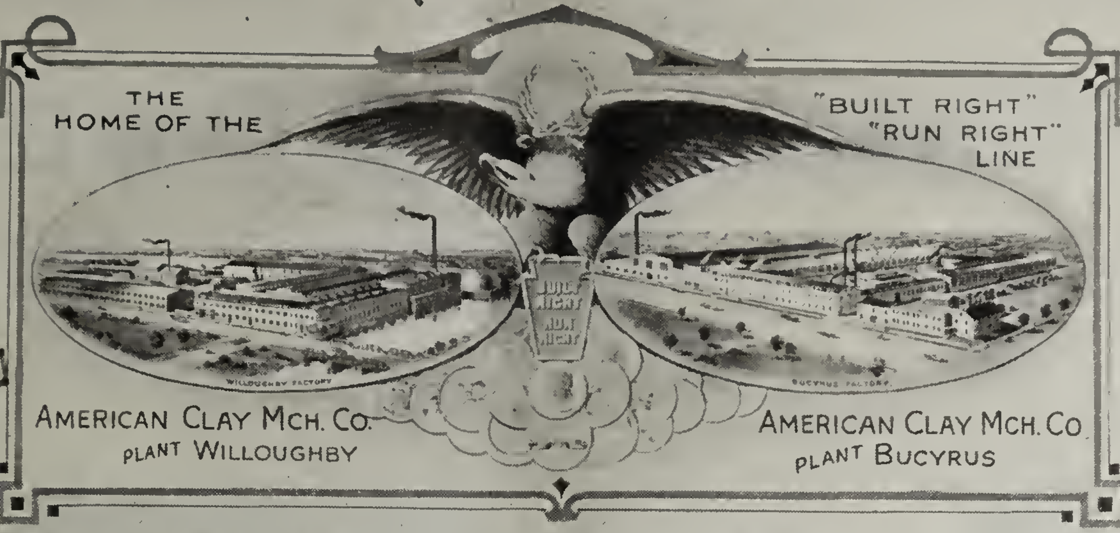
One of these, a handsome brick bungalow, was planned and originally figured as a frame to cost $6,300. The brick man demonstrated to the owner that he could use a high-class mat, face brick for the exterior walls and build his house of brick for $7,000. With these figurs before him, the owner was glad to make the change.

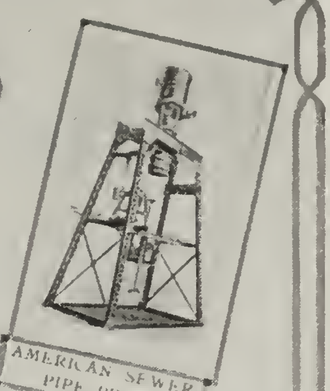
Another man in the community who had made plans for a handsome frame residence, when shown the figures of cost for brick as compared to frame and the indisputable arguments to be offered in favor of brick, made the change to brick and is highly pleased with the results.

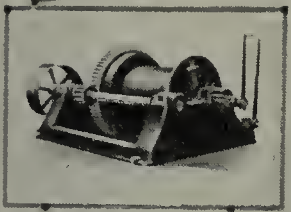
This is what is actually being done by enterprising members of the trade and it is illustrative of what can be accomplished in the way of results all over the country by brick manufacturers joining the Building Brick Bureau and taking up, through its assistance, the work of active exploitation of brick for home building.

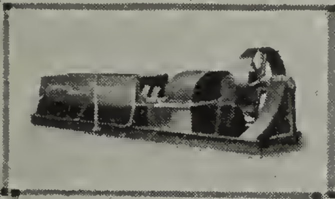
Much the Largest Manufacturers of Much the Best Clayworking Machinery.

AMERICAN No. 292 REPRESS


THE HOME OF THE
"BUILT RIGHT" "RUN RIGHT" LINE
BUILT RIGHT RUN RIGHT
WILLOUGHBY FACTORY
BUCYRUS FACTORY
AMERICAN CLAY MCH. CO. PLANT WILLOUGHBY
AMERICAN CLAY MCH. CO PLANT BUCYRUS


AMERICAN SEWER PIPE PRESS


AMERICAN No. 245 WINDING DRUM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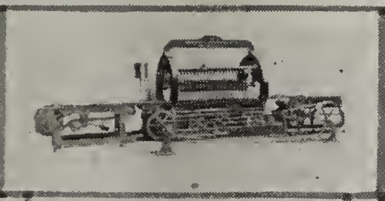
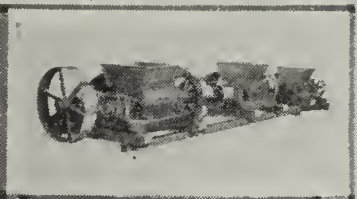
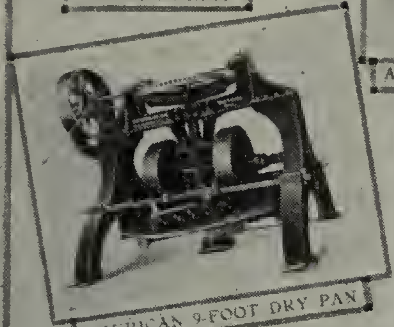
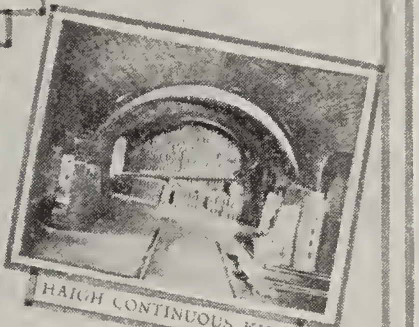

AMERICAN No. 20 ROTARY AUTOMATIC CUTTER


AMERICAN DISINTEGRATOR

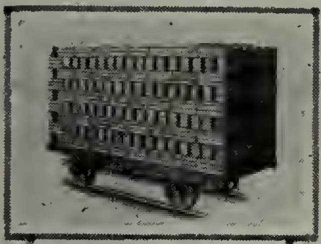
AMERICAN CLAY CAR

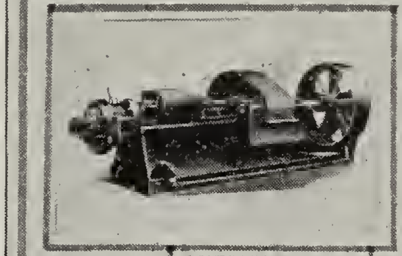

AMERICAN 9-FOOT DRY PAN

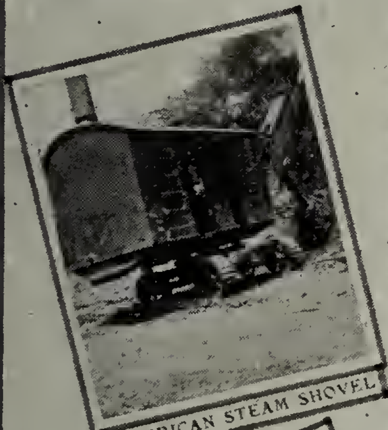

HAIGH CONTINUOUS KILN

AMERICAN No. 233 AUGER MACHINE

AMERICAN WASTE HEAT DRYER


AMERICAN DRYER CAR


AMERICAN No. 290 AUGER MACHINE


AMERICAN STEAM SHOVEL

AMERICAN STEEL FRAME FOR PUG MILL

# THE ALLIES and the KAISER

Had the Allies and the Kaiser figured it out ahead of time, the present daily sacrifice would possibly have been prevented. Preparedness is a great thing. Loss prevention is another.

This does not apply to war alone. It applies to your business. You don't need to listen to us now—but it's better if you do.

We can make you prepared to prevent losses.

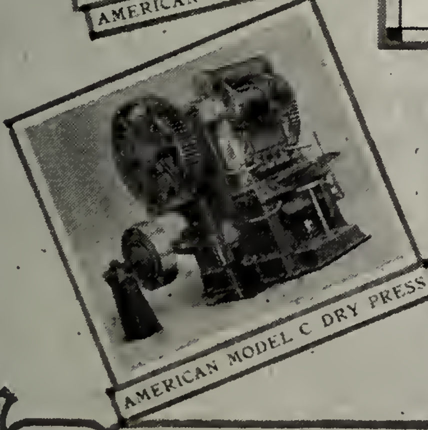
In the manufacture of your product we can give you the shortest cut to cost economy.

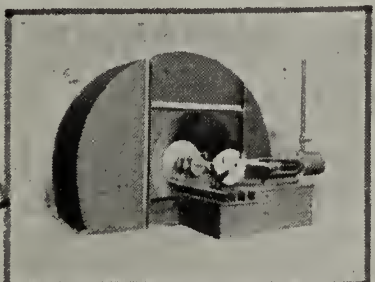
In burning we can cut your fuel bill in two.

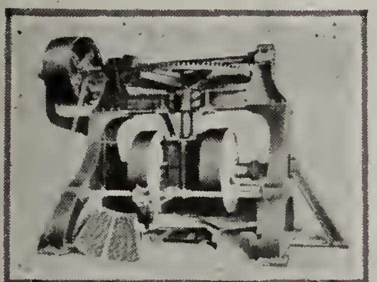
We are conducting a war against the cost of production and want to show you where the American Machinery and the Haigh Continuous Kiln will win the battle for you.

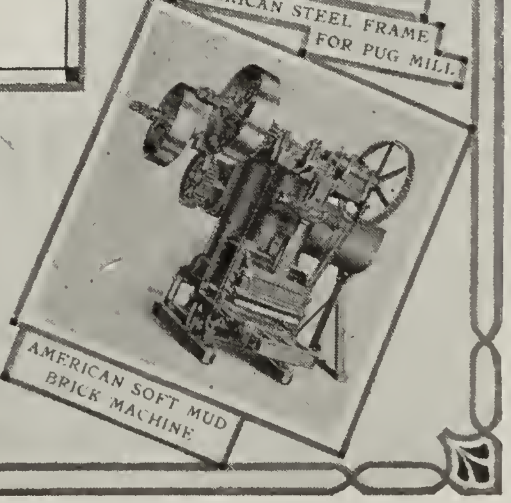
Your inquiries for large or small wants will be given immediate and careful attention.

**The American Clay Machinery Co.**
**Bucyrus, Ohio**


AMERICAN MODEL C DRY PRESS


AMERICAN WASTE HEAT FAN


AMERICAN No 57 DRY PAN

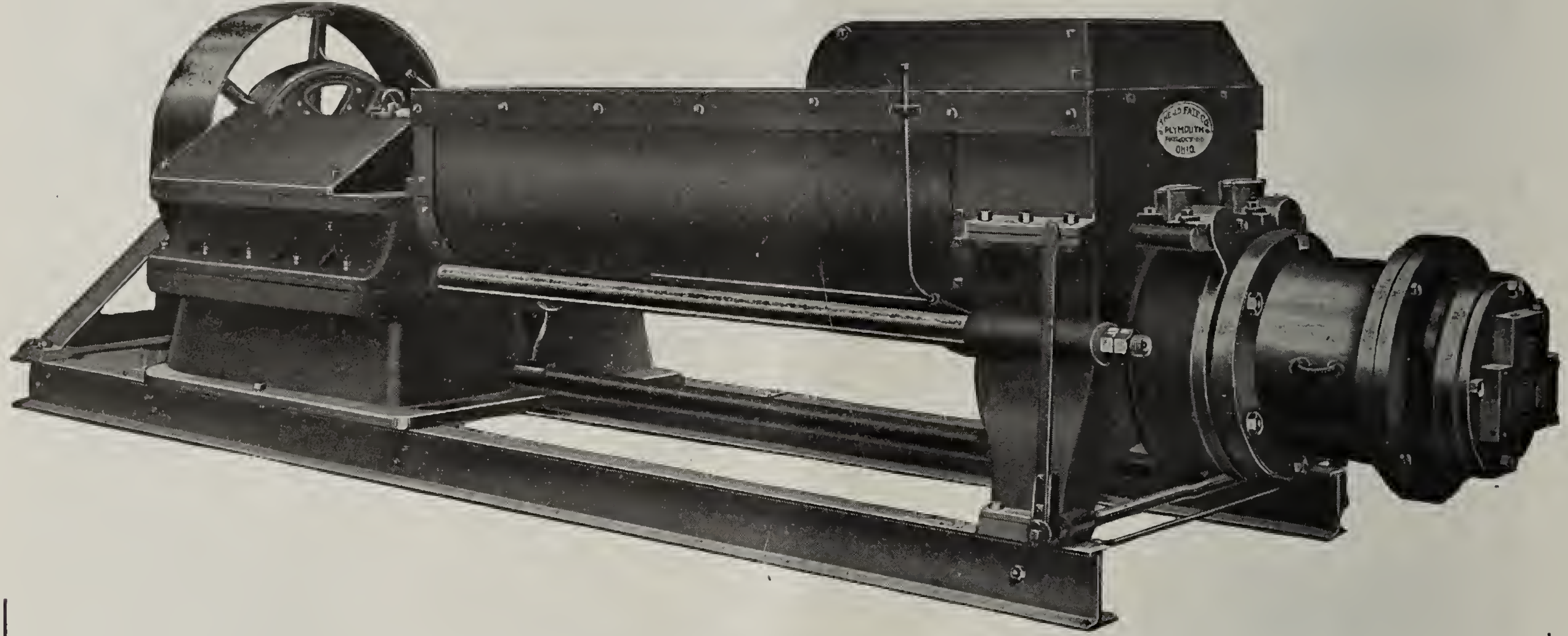

AMERICAN SOFT MUD BRICK MACHINE

We Build Every Machine and Appliance Needed in the Clay Trade.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

*These factors enter into the product of the House of Fate.*



SPECIAL PREMIER HOLLOW WARE MACHINE

Just as hollow ware has become recognized as a real and here-to-stay building material—so has the above machine established itself as the Premier of Hollow Ware Machines.

*It has met some very Formidable Foes in the way of Stubborn Working Clays and Fought vs. Great Odds, since it Championed the Cause of the Clayworker in his attempt to produce Merchantable Hollow Ware at a living Profit. However, it still stands today as the "Premier" of Hollow Ware Machines and ever ready to continue its Campaign for the Relief of the Distracted Clayworker.*

It is a splendidly built Machine, embodying the mechanical principles and ideas necessary in a successful machine, one that will produce a Good Capacity of Good Ware. That is what it has done where others have failed.

Our entire line of Clayworking Equipment is in keeping with the Special Premier. It is to Your Interest to write us if you contemplate purchasing anything new.

## The J. D. Fate Company

**Plymouth, Ohio**

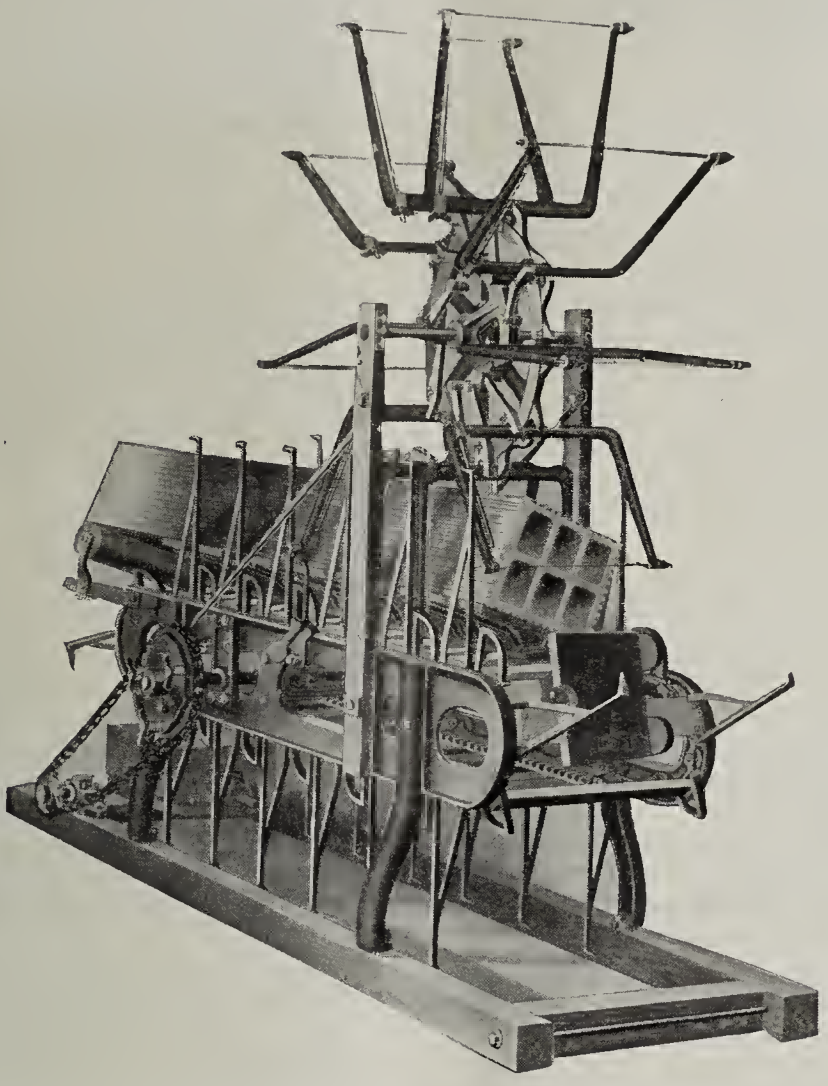
Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent

See pages 238 and 239 for other advertisements.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

*These factors enter into the product of the House of Fate.*



SPECIAL AUTOMATIC HOLLOW WARE CUTTER

This Table is only one of a large variety that we can supply for cutting all different kinds and shapes of hollow ware—hollow tile, hollow brick, silo blocks or drain tile. On all of these classes of wares, our automatic tables have proven themselves the most successful in all ways of any table yet built. All of our hollow tile and drain tile tables can be equipped with our cam reel which has proven to be a great improvement on the tables which were considered very improved even without this.

Our line of automatic tables for either end-cut or side-cut brick is also very complete and with the improvements we are making on them, they are being specified for new equipment more and more as their good qualities are found out. Tell us your needs and we will furnish you a table to fill them.

## The J. D. Fate Company

**Plymouth, Ohio**

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
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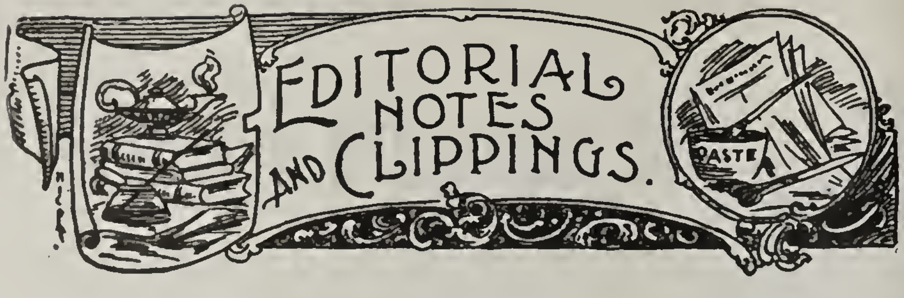

# EDITORIAL NOTES AND CLIPPINGS.

Frank Nicholson, of Iola, Kansas, is interested in the erection of a brickmaking plant at Henryetta, Okla.

The New Orleans Silica Brick Company has been incorporated and will erect a large sand lime brick factory at New Orleans, La.

The Toronto Fire Clay Company, Toronto, Ohio, has completed the installation of an electrical apparatus used for hauling clay out of their mines.

During a terriffic electrical storm, recently, the office of the Atlantic Brick Manufacturing Company, at May's Landing, N. J., was struck by lightening and slightly damaged.

The Plymouth Clay Products Company, Fort Dodge, Iowa, recently booked a contract for drain tile for a drain forty-four miles in length. The value of the contract is said to be $165,000.

The United States Clay Products Company will make a number of improvements in its plants at Uhrichsville, Ohio. It is estimated the company will spend about $95,000 on improvements.

Thomas W. Green, of Sioux City, Ia., will erect a large brickmaking plant at Correctionville, near Sioux City. Mr. Green is an experienced brick man and will undoubtedly make a success of his new undertaking.

The Calexico Brick and Tile Company has been incorporated and will operate a plant at Colexico, Cal. The plant will have an initial output of 35,000 brick per day, which is anticipated will be used in the local market.

The plant of the Aetna Brick Company, at South Windsor, Conn., was badly damaged by fire recently. Employes thought they could subdue the flames with a bucket brigade, but were compelled to call on the fire department for assistance.

The plant of the Indiana Drain Tile Company, at Brooklyn, Ind., was damaged by fire recently, when the roof of some of the kiln sheds caught fire from an over-heated kiln. Fortunately, the damage is slight, for the company carried no insurance.

C. L. Leiby, of New Cumberland, and C. G. Landis, of Brownsville, Pa., have organized a company and purchased a ten-acre tract of land on which they will erect a 50,000 daily capacity brick plant. They expect to have the plant in operation October 1.

Claiming that her husband, George Cosner, became mentally unbalanced as the result of injuries sustained in a cave-in at the clay plant of the Iowa Pipe and tile Company, Des Moines, Ia., Mrs. Lua Cosner has brought suit against the company for $20,000.

Construction of the new building of the J. B. Owens Floor and Wall Tile Company, at Metuchen, N. J., was begun late in July. The main building will be 500 feet long and 125 feet wide and eighteen kilns will be erected. It is expected that employment will be given to 500 hands.

C. W. Page advises us that he is interested in the movement to erect a stiff-mud brick plant at Shreveport, La., of 40,000 daily capacity and would be glad to correspond with parties who would be able to take charge of constructing the plant and managing same after it was completed

Samuel G. Davis, L. D. Hewitt and W. S. Worthington are interested in a new company to be known as the Pennsylvania Vitrified Brick Company, which will establish a brickmaking plant at New Hope, Pa., having an output of 100,000 daily capacity. The plant, on which work will be begun in a very short time, will be fire proof throughout and be equipped with modern machinery and appliances.

J. A. Dailey, formerly of Terre Haute, Ind., writes that he has located at Chillicothe, Mo., where he has built a brick making plant which is being operated under the name of the Shale Hill Brick and Tile Company. The plant was started for the first time July 29. The company will manufacture vitrified paving and building brick, fireproofing and drain tile. Mr. Dailey says he has the greatest hill of shale imaginable and will be very glad to welcome old friends and new, in his new location.

Benjamin Curtis contemplates the construction of a plant at El Paso, Tex., for the manufacture of hollow silo tile.

The Jackson-Eagleton Brick Co., has been organized at Marysville, Tenn., and will build a plant of 50,000 daily capacity.

The Greenbrier Shale Mfg. Co., incorporated some time ago, will erect a plant at Pence Springs, W. Va., for the manufacture of brick.

M. J. Greeg and T. H. McMichael are interested in the establishment of a brick manufacturing plant at Tuscaloosa, Alabama.

The German-American Clay Company, of Muncie, Ind., has been incorporated with $10,000 capital stock, by C. O. Grafton, C. J. Gill and J. H. Gill.

The Cincinnati Clay Company, Cincinnati, Ohio, has been organized with 50,000 capital stock. Those interested are Eugene, T. J., Jr., and T. J. Evans, Sr., and S. G. McClave and Paul Reed.

The First Avenue Brick and Tile Company, Evansville, Ind., of which Mr. H. C. Kleymeyer is general manager, is making extensive improvements in the plant, including the erection of a continuous kiln.

The Key James Brick Company, of Chattanooga, Tenn., the last week in July, closed contracts for over a million brick to be delivered to out-of-town points, including Atlanta, Albany, Ga., and Charleston, S. C.

It is rumored that Pittsburgh, Youngstown and Cleveland capitalists are forming a $1,000,000 corporation to erect and operate a fire clay plant in connection with the Loveland coal mine, at Loveland, southeast of Canfield.

G. C. Landis advises us that he expects to establish a brick plant at Harrisburg, Pa., and is in the market for both new and second-hand machinery. Interested parties should address Mr. Landis at 1600 State street, Harrisburg, Pa.

The capital of the Harris Brick Company, at Zanesville, Ohio, has been increased from $50,000 to $150,000. The increased capital will be used for the purpose of enlarging the plant, owing to the increased demands for the company's products.

The four fire brick plants of the Harbison-Walker Refractories Company, at Mill Hall, Flemington, Farandsville and Monument, Pa., are now being operated two shifts each, and it is expected that this condition will maintain until late in the winter.

George W. Ogan, of Danville, Ohio, has just been granted a patent for a continuous kiln for the burning of brick and other clay products. Mr. Ogan estimates that, with his system, more than half the amount of fuel now used in continuous kilns will be saved.

Operations in the sewer pipe department of the Crown plant of the Robinson Clay Products Company, at Parral, Ohio, has been suspended for the purpose of making repairs and installing new machinery with the view of increasing the capacity of the plant. It is expected the repairs will take three months or more.

The big plant of the Murphysboro Paving Brick Company, at Murphysboro, Ill., which was shut down for two months, resumed work July 28, with one hundred men on the payroll. When the company closed down the yard was full of brick, which have been shipped and orders are now coming in at such a rate that the plant will be kept going full time indefinitely.

W. E. Dunwoody, president of the Standard Brick Company, of Macon, Ga., is one of the live wires of that section. He is constantly adding to the product handled by his company and in addition to being the largest manufacturer of common building brick in that vicinity they are now handling a line of impermeable wall coping and impervious "Cravanette" face brick and have just recently added a high grade "ruff" texture brick, known as "Ratine."

Fire discovered on the roof of the drying shed of the Kittanning Face Brick Company, at Kittanning, Pa., partially destroyed the shed and damaged the plant to the extent of about $1,500. For a time it was feared the entire plant would be destroyed as the only means of fighting the flames was by bucket brigade. The Templeton fire department was summoned and did excellent work in preventing the spread of the

(Continued on page 206.)

*Chillicothe Street*
*Portsmouth, Ohio*
*Pitch filled*

1895

*Main Street*
*Butler, Pa.*
*Paved*

1891

*Euclid Avenue*
*Cleveland, Ohio*
*Laid*

1883 or 1884

*East Rich Street*
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*Pitch filler finished June 22,*

1892

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*Newport, Ky.*
*Paved*

1894

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## EDITORIAL NOTES AND CLIPPINGS—Continued.

flames. The damage done will not handicap the work of the plant to any great extent.

J. E. Pankhurst, of Pine Bluff, Ark., is interested in establishing a Pottery at Dexter, Ark.

Benjamin Curtis has under contemplation the construction of a plant in El Paso, Tex., where he will manufacture hollow silo tile.

The yard men at the plant of Cochocton Brick Company, Coshocton, Ohio, went on strike recently, demanding $2.00 a day instead of $1.75.

F. R. Carter, Peoria, Ill., is in the market for some automatic side-dump clay cars, and will be pleased to receive catalogues and quotations.

The Union Coal & Fire Clay Co., of Dennison, Ohio, is investigating the merits of steam heat dryers, and will be pleased to receive catalogs from manufacturers.

Fire of unknown origin damaged one of the buildings of the Imperial plant of the Metropolitan Brick Co., Canton, Ohio. The loss, which is but slight, is entirely covered by insurance.

The plant of the Champlain Brick Company, at Troy, N. Y., which was destroyed by fire May 27, is being rebuilt and is very nearly completed. The plant will be fireproof throughout, and will be electrically driven.

Chief among the organizers of the new company are officers and stockholders of the American Fire Clay Company, owners of the Loveland mine. Work on the plant will be started as soon as the incorporation is completed.

The Earl Park Clay Products Company, Earl Park, Ind., is making an excellent grade of drain tile and hollow building block, and will be glad to correspond with sales agents desiring to handle their product, either in part or in whole.

Wellington Blount, secretary-treasurer of the Wellington Brick Company, Richmond, Va., expects to build some round down-draft kilns and would like to get in communication with builders of this character of kiln.

The Mansfield Clay Products Company, Mansfield, Ohio, which has heretofore turned out only common building brick and drain tile, recently burned its first kiln of face brick, and will, in the future, turn its attention, to a large extent, to the face brick business.

A number of improvements have been installed at the plant of the Oskaloosa (Iowa) Brick and Tile Company's plant including a Brown's Electric Pyrometer and a pug mill. This company is turning out a shale paving brick which is steadily growing in popularity.

Mrs. William H. Hoagland, wife of William H. Hoagland, general manager of the Claycraft Brick Company, Columbus, Ohio, died in Chicago, July 10, where she had been for some time, on account of ill health. Besides her husband she is survived by two daughters.

The Twin City Brick Company, of St. Paul, Minn., has opened up an office in Sioux City, Iowa, which will be under the direction of C. C. McComb, assistant sales manager of the company. Mr. McComb will install a display of brick manufactured and handled by the Twin City Brick Company.

Marion W. Blair, for a number of years superintendent of the Kushequa Ceramic Company, at Kushequa, Pa., has resigned to take charge of the Thornton Fire Brick Company's plant at Thornton, W. Va. Mr. Blair was very successful at Kushequa, where a high grade of promenade tile are manufactured. We wish him all the success he deserves in his new undertaking.

John C. Boss, president of the John C. Boss Company, Elkhart, Ind., has recently been granted a patent on an improvement on a brick dryer, which was originally patented by him, several years ago. Mr. Boss has given us the following description of his patent:

"My invention did away with the old style brick drying, which was by means of a stack to draw heat over the bricks in an air-tight tunnel. The trouble with this old style was that it allowed the moisture to form back on the bricks, often breaking them. My original invention was a movable 'curtain,' which could be moved up close to the sides of the brick stacks, and which allowed the bricks to be heated upward from the bottom, instead of crosswise, on the top.

"The improvement which I have patented calls for another flat 'curtain' on the top of the brick stack, which does away with the necessity for the movable side 'curtain'."

Written for THE CLAY-WORKER.

## AMONG PHILADELPHIA BRICKYARDS.

PHILADELPHIA BRICK manufacturers report business as having been of a seasonable volume during the past six weeks, particularly with regard to the building brick industry. Building operations during July continued at the record rate set by the first six months of this year, during which period Philadelphia maintained its reputation as "the city of homes," by building 5,396 two and three-story dwellings, at an estimated cost of $11,849,850.

The amount of money expended in the erection of brick dwellings in this city during January, February, March, April, May and June of this year is the heaviest for any first six months of any preceding year since 1906 and exceeds the record of any intervening year, with the exception of 1911, by from $1,000,000 to $4,000,000, while it is an increase of 30 per cent. over this same period of 1914.

Not alone is this extraordinary advance in dwelling erection taken as proof positive of a healthy financial condition in this city by the brick manufacturers, but by local business interests in general, who consider the present willingness of trust companies to advance loans to float such building operations and that the public can absorb the properties quickly enough to permit or rather insure a satisfactory profit to the builders, startling evidence of a period of marked prosperity.

Conditions current in the business being conducted by the vitrified brick manufacturers have improved materially during the month and the local plants are being operated to capacity in a majority of instances. There is reported a sufficient volume of business now on hand to keep the present activities moving along smoothly for some little time to come, while indications for the possibilities of the business future are looked upon as warranting a retention of former optimistic views.

The sad news of the death of Henry Keiderling, who had for a period of many years been affiliated with the plant of the Ross Brick Company, of Plainfield, N. J., in various capacities, has been received in the local trade. Mr. Keiderling was a resident of Somerville, N. J., at the time of his death, which occurred on Friday night, August 6, and was seventy-two years old. The deceased was a member of the G. A. R., and served throughout the Civil War, with honors. He is survived by two daughters and seven sons, and was widely known throughout the trade of this and that vicinity.

Operations were resumed at the plant of the Speeceville Brick Works, at Speeceville, Pa., on August 9, after a temporary shut-down for about ten days, which was necessitated owing to certain repairs which had to be made.

The Leuten Brick Co., Inc., situated at the southwest corner of Twenty-fourth and Passyunk avenue, this city, has purchased an additional plot of ground at the southeast corner of Twenty-fifth street and Passyunk avenue, which adjoins a five and one-half acre tract previously owned by the company. The new lot has a width of 555 feet and an irregular depth, and is a part of a thirty-acre tract owned by Jonathan Pritchard.

Business conditions are said to have undergone a steady improvement with the firm of H. M. & C. B. Siner, at Church and Tacony streets, Frankford, this city, within the past few months and are now of a highly satisfactory nature. Orders being received by the firm have increased in numbers and inquiries have been somewhat more numerous than for some time past. Indications for a continuance of this healthy state of affairs are said to be most encouraging.

A suit on contract was filed by the Hydraulic Pressed Brick Company, of the Real Estate Trust Building, this city, against Frederick C. Michaelsen, the builder who mysteriously disappeared from his home at 501 North Fifty-second street, and whose body was afterward found showing self-inflicted wounds, in Common Pleas Court No. 1. Papers which were filed did not disclose the nature of the suit, merely a number being given for the future filing of the necessary papers to the suit.

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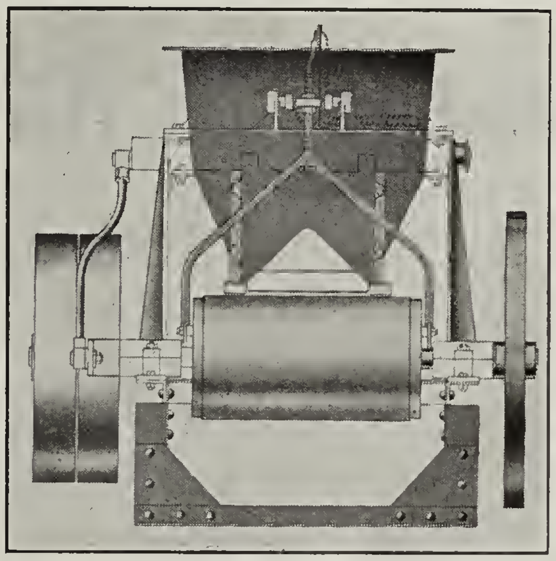

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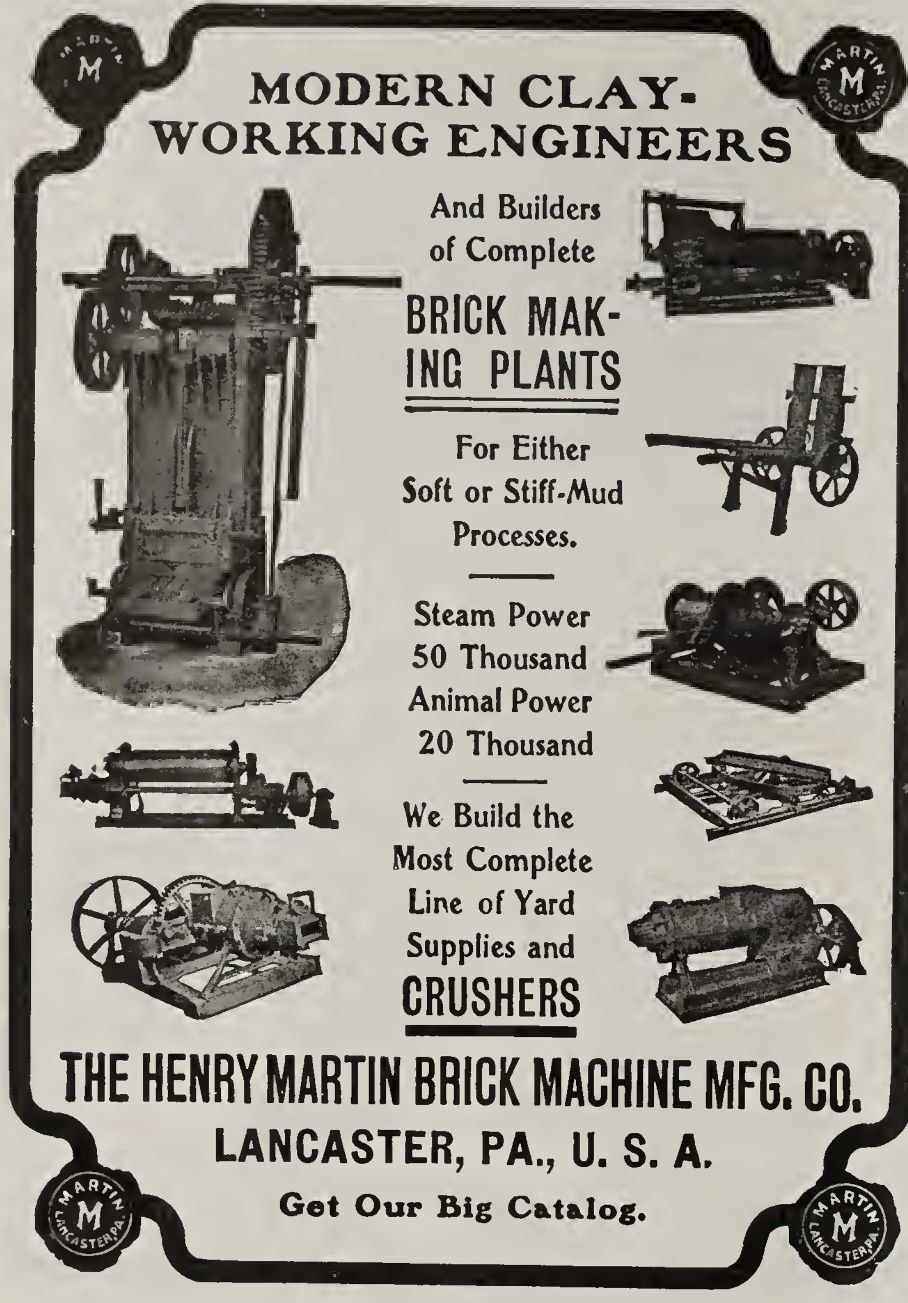
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Written for THE CLAY-WORKER.

## WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.

THE PITTSBURG BRICK TRADE and allied industries report that they are just as busy as they were this time last year. There has been a slight falling off in building operations, but the wholesalers in various lines of building material say that there is plenty of building to warrant a stocking up for the fall trade. There were 377 permits issued during the past month by the Pittsburg building inspector for structures to cost $1,212,472, as compared with 363 permits and a total investment of $1,510,212 during the corresponding period of 1914. The trade reports that there is an unusually large number of really big structures going up at various points in and about the city this year. As brick is being used in the majority of these buildings, the demand has shown no falling off up to this time. Most of the brick plants in and about the city seem to be operating at their normal capacity.

As so many cities in the western part of the state are using brick for extensive paving, the demand for paving brick is especially strong. All the brick pavements laid in and about Pittsburg last year are giving the best satisfaction and are expected to result in further contracts in this line.

The Pittsburg trade was very well pleased and took great interest in the fact that the interstate commerce commission recently handed down a decision ordering railroads to cancel tariffs proposing a "spotting" charge of five and a half cents a ton, with a minimum of $2.00 a car.

At a meeting of the officers of the Shenango Pottery Company, of New Castle, Pa., last month, in the office of that company, a resolution was passed, raising the price of the stock from $50 per share to $100 per share. This was done by exchanging two shares of the $50 stock for one share of the $100 stock. The by-laws were also amended so that the board of directors could elect the president of the company. The following officers were elected: J. M. Smith, president; E. W. Beadel, vice president, and J. C. Leohner, secretary. The following board of directors were also elected: Andrew B. Berger, A. C. Hoyt, R. C. Patterson, E. W. Beadel, W. H. Shipler, Jacob F. Genkinger and James M. Smith.

All the face and common brick and tile used in the building of the exterior walls of the Hotel Fort Stanwix were manufactured at the plant of the Johnstown Face Brick Company, located at the summit of Green hills, at the head of Main street, on which the Fort Stanwix hotel is located. The distance from where the shale and clay were mined and manufactured into building blocks is not more than one-half mile distant from the place where the hotel now stands. Both hotel and brick plant can cast an encouraging eye on each other.

Pennsylvania, with twenty-three potteries reporting, ranked fifth among the pottery producing states of the Union in 1914, according to figures given out recently at the geological survey. The four ahead of Pennsylvania, in the order of their rank, are Ohio, New Jersey, West Virginia and New York.

The total pottery output of Pennsylvania for 1914 was valued at $1,740,501, or 4.93 per cent. of the total output of the country. Stoneware and red earthware were the largest items going to make up the state's total production.

Fire, caused by an overheated furnace in a dry-shed, did $25,000 damage in the Kittanning Face Brick Company's plant, near Kittanning, Pa., last month. Valuable machinery was destroyed. The blaze was prevented from spreading by the excellent work of the volunteer fire company of Templeton.

The sale of the Columbia Tile Company plant, valued at

$150,000, which was to have been made by a receiver in bankruptcy, this week, has again been postponed, because only $125,000 was offered. Some big manufacturing concerns are now negotiating for the property and are expected to take the plant and operate it.

The contract for the terra cotta for the new Liberty Theater, on Penn avenue, near Frankstown avenue, East Liberty, has been let by the East Liberty Theater Company, to the New York Architectural Terra Cotta Company.

It does one good to hear such business reports as the following: "The Sharon Clay Products Company recently received the contract for fifteen carloads of paving block. The block will be used in the paving of Franklin avenue, in Niles, near Sharon, Pa."

Contracts have been awarded by the Allegheny county commissioners for the improvement of six roads in this county. They are as follows:

Noblestown road, No. "0," within the borough of Carnegie, a distance of 500 feet, to J. Tener Barr, who bid $2,011.15. The road is to be built of brick.

Braddock and Ardmore road, 0.31 miles, in Braddock township, brick, McCrady Brothers, $7,085.50.

Newton and Rodi road, from the Turtle Creek borough line to County Bridge No. 3, in Wilkins township, 0.94 miles, brick, James Sweeney, $25,568.30.

William J. Payne, Jr., Company were awarded the contract for the brick improvement of the Miller's Run extension road, two miles long, in South Fayette township. The bid was $42,473.40.

Following the discovery of a 10-foot vein of excellent fire clay in the Loveland coal mine of the American Fire Clay Co., situated southeast of Canfield, Mahoning county, Ohio, a corporation to manufacture clay products is being organized by Pittsburg, Cleveland and Youngstown interests, with a capital of a million dollars. The American Fire Clay Co. purchased the mine about nine months ago. From six to eight carloads of clay have been shipped by the company since the recent discovery, and it was decided to organize a separate corporation to handle this branch of the work. A plant for the manufacture of fire brick and clay products will be erected at a cost of $100,000, as soon as the new company has finished organizing. A. SMOKER.

## VISCOSITY OF PORCELAIN BODIES HIGH IN FELDSPAR.

In these tests at the Bureau of Standards, Department of Commerce, the degree of softening of previously fired porcelain bars subjected to a tensile stress of 14.5 pounds per square inch, at a series of temperatures between 1,275 degrees and 1,380 degrees Centigrade, was determined by measuring the elongation. In a paper on this subject it is stated that the object of these tests was to obtain data for selecting compositions showing the greatest rigidity at the highest kiln temperatures for the purpose of selecting bodies causing least loss in manufacture due to deformed ware.

Higher contents of feldspar increase the viscosity of low-clay compositions markedly. In a 45 per cent kaolin-clay body 35 and 40 per cent of feldspar are most effective in decreasing the viscosity, but higher percentages again increase it. Still higher clay contents cause the softening effect of feldspar to diminish decidedly. Flint, in high feldspar bodies, does not seem to be an important factor in governing the viscosity. For high-temperature porcelains high-clay content is essential. High-clay bodies having feldspar as the only other constituent show very great viscosity.

The function of viscosity is not a continuous one. After attaining a certain degree of softening, a well-defined rigid state ensues, which does not tend to approach further softening until a temperature of 1,345 degrees has been reached. Beyond this point the second stage of decided softening is entered upon. Although showing the same degree of viscosity at 1,388 degrees, bodies may be divided into several classes according to the degree of softening observed between 1,300 degrees and 1,345 degrees.

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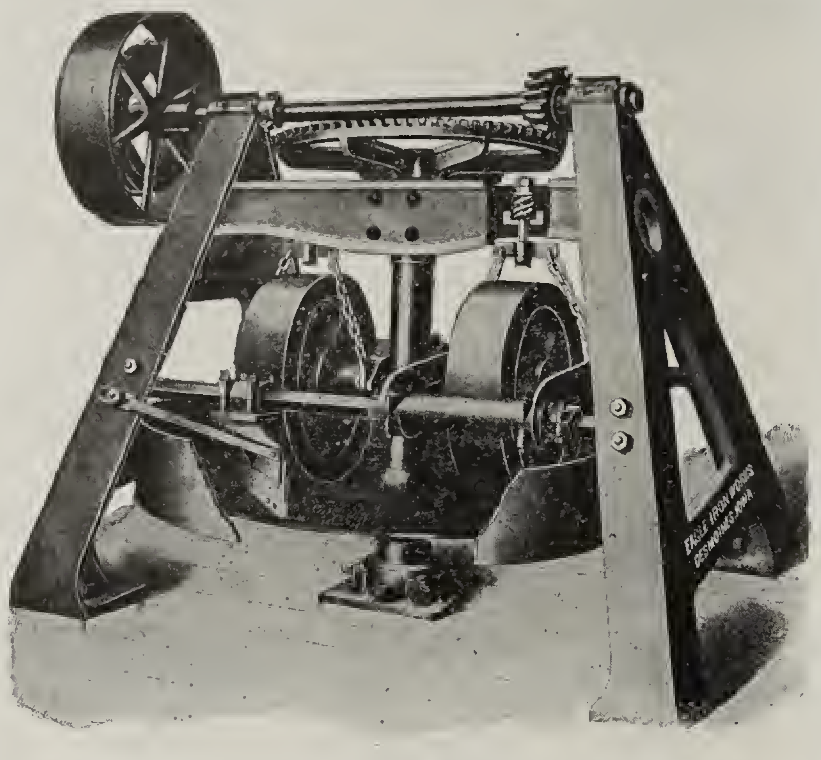

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Written for THE CLAY-WORKER.

## FAR-WEST CLAY NOTES.

THE MID-WEST clayworking industries, comprising the Northern Rocky Mountain States are in good shape, and are more or less running full time with plenty of orders on hand. The activities in the metal mining and also in the wheat sections are responsible to a great extent for the fact that everybody is busy.

The building in the cities in this section are all holding its own, and do not show the falling off like some of the Eastern and Far West Coast cities. It is generally admitted that building in smaller cities is always of a more healthy nature than in large metropolitan cities, and this indeed, is a fact in the Mid-West States.

The Sheridan Press Brick and Tile Co., of Sheridan, Wyo., are busy on their two million-brick order for the new sugar beet factory to be erected at that place. They are also succeeding in getting railroad switch connection now, with the Burlington Route, which will greatly help them in making outside deliveries.

The Ogden Pressed Brick and Tile Co., of Ogden, Utah, have taken over the plant of Leek Brick Company, and will operate same in connection with their Harrisville plants.

The Western Clay Manufacturing Company, of Helena, Mont., through their general manager, Mr. Charles Bray, has just secured a contract for some $15,000 special brick for the Anaconda Copper Mining Co., at Anaconda. Mr. Bray is keeping his plant busy, and has several other large contracts on hand for Denison interlocking tile, hollow partition tile and sewerpipe. They secured the contract for all clay products to be used in the new High School for Butte, Montana, and also for a large building in Great Falls.

The Great Falls Sewerpipe and Fire Proofing Co., of Great Falls, Montana, are now building their first unit of three large down draft kilns for their new sewerpipe plant. Mr. Overpeck was in Chicago recently, buying equipment for their new plant, and oil will be used in burning their product. Mr. Overpack has discovered some new plastic white burning clay, some thirteen miles from Great Falls, and will develop this clay deposit for making face brick and fire clay products.

The brickyard at the Montana State Prison, Deerlodge, Mont., is now in full operation. Mr. Frank Conley, the Warden, states that it is one of the best equipped brickyards in the State. It is built entirely of brick. The plans were drawn by the Geijsbeek Engineering Co., of Portland, and the equipment was furnished entirely by the J. D. Fate Company, of Plymouth, Ohio.

The North Dakota Press Brick Co., of Dickinson, are now making hollow tile. They installed a second-hand equipment which was formerly in use in Rapid City, S. D. In connection with their tile business, they are now also making mudface brick in place of drypressed brick as made heretofore.

The Butte Sewerpipe and Tile Co., of Butte, Montana, started operations again early in July. This firm makes a specialty of fire clay blocks, and recently shipped a car load of coke oven blocks to Belmount, Washington.

Mr. W. E. Dowling, of Billings, Montana, who is operating yards at Billings and Niles City, has bought all interest in the brickyard of William Lavelle. As the demand for common brick is increasing again in and around Billings, Mr. Dowling has started his large yard east of town.

Mr. A. R. Batley, formerly manager of the St. Louis Fire Brick and Clay Co., of Los Angeles, Cal., has bought the Eugene Brick Works, and will operate under the name of the Eugene Clay Products Company. Mr. Batley expects to make principally firebrick, and has tested the local clays and is well satisfied with the results.

Hidden Brothers, of Vancouver, Wash., have started up their yard and will make about 800,000 brick this summer. They employ fifteen men and have some large contracts for brick around Portland.

MID-WEST

# REFRACTORY EFFICIENCY ENGINEERING.

THE ABOVE is the title of a most interesting booklet written by Mr. J. D. Ramsay, president of the Elk Fire Brick Co., with general offices at St. Marys, Pa. The subject matter is divided into two parts, the first giving a great amount of information on the matter of fire brick, while the second is devoted to information relative to the Elk Fire Brick Co.'s product. We reproduce herewith in full the first part of this splendid booklet, which those of our readers interested in the manufacture of fire brick and refractory products will no doubt read with much interest.

### Definition.

Refractory efficiency engineering is that branch of ceramic engineering which deals with the manufacture and correct use of fire brick and other refractories, as they are effected by chemical, metallurgical and mechanical application.

### Introduction.

In presenting this booklet to the fire brick trade, we will endeavor to bring a few facts to the attention of the consumer which, we hope, will prove beneficial to all concerned. We do not propose to do more than draw attention of users of that article to the benefits and necessity of refractory engineering. The subject is too broad to dwell at length on any one phase of the matter, or to enter into details with relation to the manufacture or use of fire brick.

We will present a general outline of the manufacture of all kinds of fire brick and show why it is to the best interests of the consumer that the engineering phase of their operation be given more attention than has been the custom in the past.

We will, therefore, give herein a brief description of the manufacture of fire brick from the mining of the fire clay to the selling and loading of the products. We will also show why the best results are not obtained in many cases and suggest a remedy for all such defects.

### Fire Clay.

Fire clay is a material which is found in various sections of the country, which, when properly prepared, will withstand high temperatures and thus form a lining for all places where heat is produced. It is found in parts of Europe and various districts in the United States, but differs in many respects one vein with another. It invariably occurs in veins and in that respect somewhat resembles coal and other minerals and nearly always lies in horizontal layers. Sometimes these strata occur close to the surface and then the material is removed by stripping the covering, but more frequently it is mined by tunnels in the same manner as coal.

The fire clays found in the United States consist of two distinct kinds, viz., plastic, or soft clay, and flint, or hard clay. Flint fire clay, as the name suggsets, is very hard and flinty like and has no bonding power within itself. When exposed to the weather it will disintegrate and become smaller particles similar in structure to the original size. Plastic fire clay has a soapy appearance at all times and when exposed to the weather it will lose its original solidity and become one formless mass of material. The nature of flint clay is such that it will open up the pores of the fire brick and thus allow them to become rapid conductors of heat. Other material must be added to bond the flint clay and the best known substance for this purpose is the plastic clay, which holds the hard particles intact and consequently the brick is made to hold together. When the flint clay is used it is, therefore, evident that the plastic must be added in a greater or smaller quantity to make the shape desired.

Both of these clays are taken from the earth and transported to plants for further treatment. They are usually taken out in blocks, sometimes as large as one man can handle. The mining of this crude material forms a large part of the cost, as much care must be given to the selection of the clay both at the mines and works. Fire clay differs in many ways, however, especially as to chemical analysis, and it is very doubtful if one can find fire clay taken from two

(Continued on page 212.)

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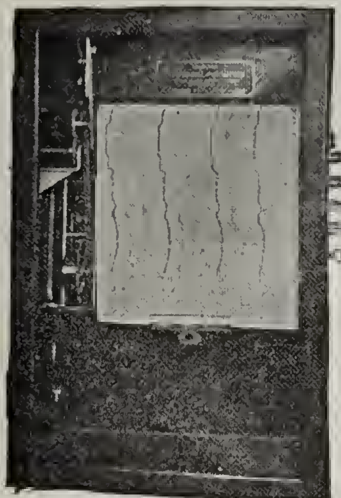

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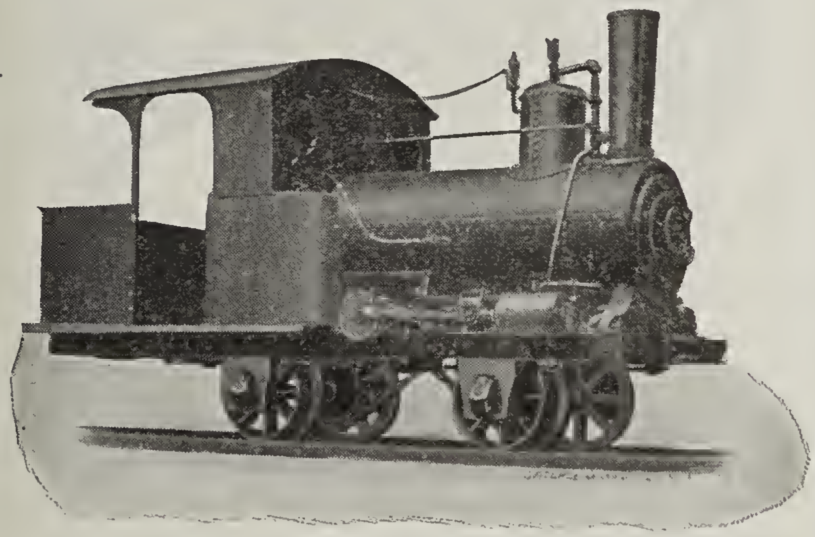

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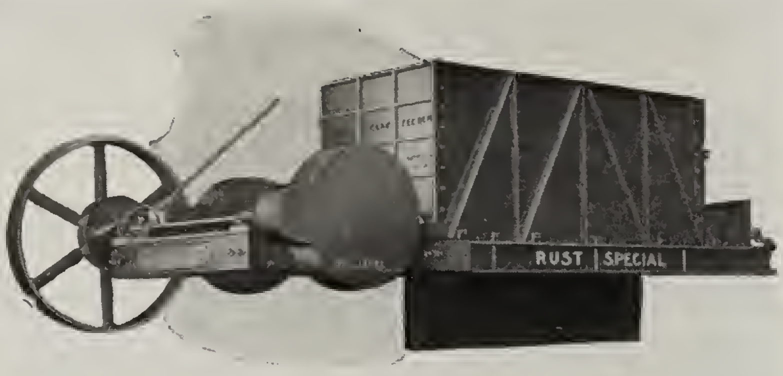

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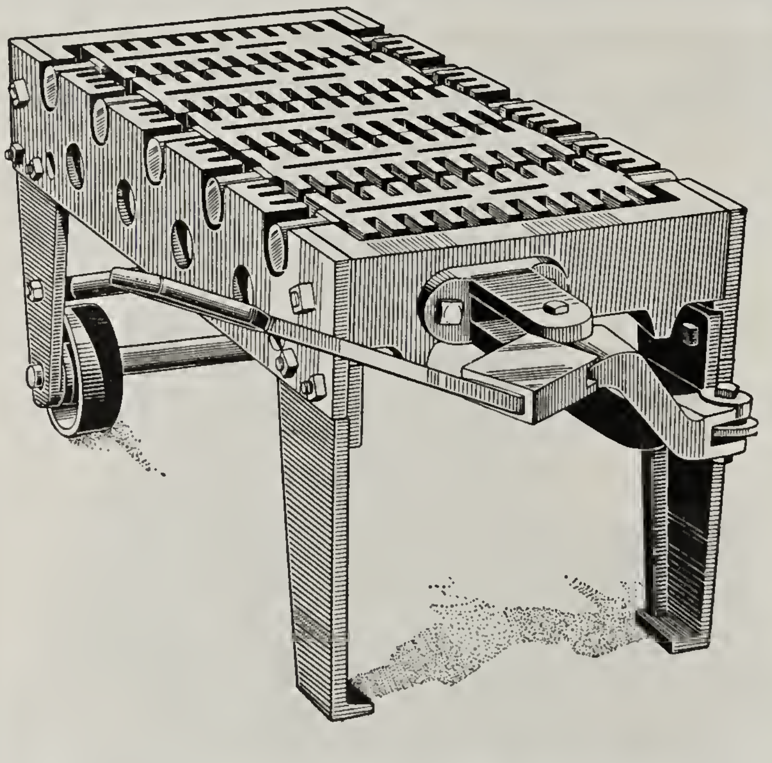

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## REFRACTORY EFFICIENCY ENGINEERING.

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mines in the same district to be identical in chemical composition. In fact, it has been found that they vary to a great extent in the same mine and from clay removed the same day. The best fire brick manufacturers of today must of necessity use the greatest care in sorting out the proper clay and throw the refuse and impure grades over the dump. Too much care cannot be given to this end of the work, for it is a prime requisite to insure the best service to be obtained from the use of the fire brick. It will also be noted that it is just as important that both the soft and flint clays be of the proper grades when both kinds are used together. Allowing some fire clays to remain in the weather for a period of time before making it into brick often improves the products, as some of the impure particles are washed away by this process, but it has been shown in some instances that method is not always necessary to get the best products. Calcining or burning fire clay before making it into brick is often of the utmost importance to some clays, especially for the manufacture of refractories for certain classes of service.

### Preparation of Clays.

After having been delivered to the mill the clay must be prepared for making it into bricks. For this process many different kinds of crushing and grinding equipment are used. For the first method of reduction to smaller particles, mammoth stone crushers have been installed, but this is not always practical. It is obvious that by this practice much impure material will be added to the brick, which should be eliminated. The safest way thus far discovered is to have the large pieces broken with a hammer or sledge to such fineness as will allow its use in pans or pulverizers. In this manner many impurities will be detected and discarded. This is expensive, but it must be noted at once that great care should be exercised at this point of manufacture, for it is a well-known fact to all fire brick manufacturers that large pieces of clay often contain hidden fluxes not observed at the surface.

After having thus been reduced to small particles, about the size of an apple or smaller, the clay is ready for final preparation. Grinding pans and pulverizers are used for this purpose. The latter is not in common use, but the former seems to be very practical. The pulverizer merely reduces the material to a fine state by rapid revolutions of a machine somewhat similar in construction to a crusher. The grinding pans are usually equipped with rollers which turn as the pan revolves and thus the clay is reduced to the desired degree of fineness and made ready for brick manufacture. Two distinct types of pans are used, one called the "dry" pan and the other the "wet" pan. In the former the bottom of the pan is perforated and as fast as the clay is reduced to proper size it falls through and passes on to be screened and mixed. The wet pan process means that the bottom of the pan is solid and each charge must be properly mixed and fed after which the water is added and the material is thus ground and tempered to proper degree of strength to mold into the shape desired. Sometimes both processes are used and it has been found that they are both beneficial to get the best class of brick for some kinds of service. Various methods are used for mixing the different kinds of clay, such as bins, measures, weights and similar equipment, but it is obvious to the reader that uniformity in mixing is necessary when making the same kind of brick, as any deviation will mean a difference in the product. Each manufacturer should use the best for his particular kind of clay for no two clays act just the same under similar treatment.

### Blending of Clays.

Here lies a very important part in the manufacture of fire brick. Some fire brick made of all plastic clay is best for certain purposes. Others made of nearly all flint clay are the best for other work. It has often been found necessary to blend several different clays from different mines to get the right article, while other brick, which are made of nearly all calcined clay, give the best results. One, two or three kinds of clays are not sufficient in order to make the proper grades for all kinds of work and still give the consumer the best class of ware for his particular purpose.

### Manufacture of Fire Brick.

We are now ready to deal with the making of these brick from the clay thus prepared and in this we must be brief for the subject is too broad to dwell on in detail. Four distinct methods are employed to get the proper shape and each has its advantages and disadvantages both to the manufacturer and the brick themselves. We will describe each in a way which we hope will be clear to the reader.

### Hand Made.

This, as the name suggests, is one by which the brick are molded and sometimes pressed by hand; that is, each brick is moulded separately and carefully laid on the floor for partial drying. If they are to be pressed, this follows as soon as possible after they have become sufficiently hard enough for the pressing, which in turn means that men gather these up and press each brick separately. They are again laid on the floor for drying. In special shapes the material is tempered in a much stiffer form and they are molded piece by piece and laid on the floor for the drying process. We wish to call attention, however, to the fact that a molder will mold not more than half as much tonnage in special shapes, as in the standard 9-inch series for a day's work, and as all such work is on piece basis, it is obvious that the cost of specials must be greater, to say nothing of the extra cost of patterns and handling of the ware afterwards. Various kinds of patterns are used for making these brick and most smaller pieces are repressed, but such is not possible with large sizes. The pressing is beneficial to some kinds of fire brick, but detrimental for other purposes as it sometimes breaks the original bond and destroys the physical structure, although it always improves the appearance of the products. The intelligent fire brick manufacturer will want to know the purpose for which the brick are intended before he can say if the brick should be repressed or not and this is of considerable importance to get the best results.

### Soft Mud Process.

We will now deal with the process which makes fire brick most closely resembling hand made ware both in appearance and structure. By this method the clay is taken from the pan or pulverizer and in this dry form is tempered in some kind of a mixing machine. The machine, which is horizontal in shape, mixes the material further and molds the brick into form just as men would make them, but the top side of the brick is usually more rough than the rest of it unless the brick are carefully slicked afterward on the top side. Some fire brick made by this method have proven very good for certain classes of work, especially where a careful study has been made of conditions and the proper mixture of clays has been made. This machine, however, molds four, five or six brick at once and they are usually uniform in thickness if evenly burned, which is not always possible by the hand made process. From the machine the brick are then either placed on pallets on cars for drying or laid on the floor for that purpose.

### Dry Press Process.

By this process the very nicest appearing fire brick are made, and for some purposes the products are very superior. In fact, the very best results are obtained from the use of brick made by this method for some classes of work. In the making of such brick the clay is mixed after having been ground on a dry pan and sometimes the clay is slightly steamed to get the bond, but often a small quantity of water is used in the grinding to get the same effect. In this form the clay enters a very heavy steam press and under the excess pressure the brick are formed and pressed into proper shape so as to hold the particles together. The brick are usually dense and have smooth surfaces and if due care is taken they will be very uniform in thickness, but owing to their density such brick will not give good results for some

(Continued on page 214.)

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## REFRACTORY EFFICIENCY ENGINEERING.

(Continued from page 213.)

kinds of furnace work. From the press they are often taken direct to the kilns and set for burning, but some manufacturers are obliged to dry them first for economy in manufacture and to reduce the breakage loss when burning. This brick has an important place in the fire brick line and is fast falling into use where conditions allow their adaptability.

### Stiff Mud Process.

By this process the manufacturer has found that both horizontal and vertical machines can be used and the results are about the same. In the horizontal machine one will find considerable resemblance to an old sausage mill, which "Mother used." The clay is mixed either before entering the machine or in the machine and is thoroughly tempered by the time it reaches the mouth of the mill where the auger is located. This auger forces the tempered mixture through the die located at the front of the machine through which it passes and the material is now ready to be cut to proper length. Dies always form the shape of the brick proper, but the cutting to length is done either by wires on an automatic cutter passing back and forth through the column or by a cutter of similar construction operated by hand. These wires, it will be noted, always leave a rough side where they pass through, but such brick are sometimes pressed to make nice corners and add to the appearance of the brick generally. Such pressing makes the rough surface smooth, but it often proves detrimental to the brick for some work and seldom helps them, except as to appearance. The brick are then laid on cars to be forwarded to the drying floors or the dryers, as the case may be. Some of the very best fire brick for certain classes of work are made by this method and such brick will find many uses in the future. If the proper clays are usel and the clay will permit the manufacture by this process, it will eventually become one of the most popular methods, but the manufacturers should exercise great care in placing them so as not to "poison" the mind of the user about such process. It has its place in this field and when they fail to give results the fault lies with the "Doctor" who prescribes them for such work. The vertical stiff mud machine often called a steam press, is also of vital importance in the refractory line and within recent years brick made on that machine have displaced all others for some kinds of furnace work.

This covers the methods of the making of fire brick and, as stated, each process will make a brick better suited to some kinds of work, than the other and all methods are advantageous to the trade. Anyone who willfully endeavors to condemn brick made by any of these processes is not only injuring the consumer, but is doing a great injustice to the refractory business.

### Drying Fire Brick.

Many methods are used for this purpose, but most all have been discarded, except two, viz., hot floors and drying tunnels. The former is a concrete, stone, steel, tile or some other kind of floor under which either steam or heat of some class is used to radiate through and dry the material for burning. Tunnels are long, narrow structures into which the loaded cars of green brick are placed and dried until ready for placing in kilns. The heat for these is either waste heat from cooling kilns, heat from a furnace or exhaust or live steam from a steam engine. (In gas belts that is used and producer gas seems to be rapidly coming into use for such work.) These brick must remain in such place until the water, which was added in the tempering of the clay, has been driven off and the brick are hard enough to set. It is very important that all the brick are well dried or the ware will not be uniform and the work done with such will be unsatisfactory. Rapid drying is often very injurious to fire brick.

### Burning Fire Brick.

This is by no means the least important part of the process as the unevenness of burned brick has a lot to do

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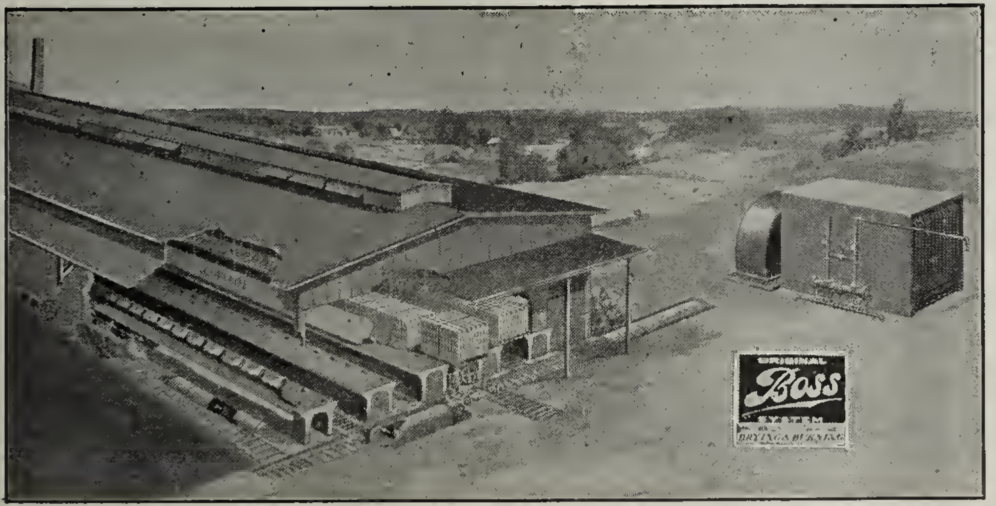

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## REFRACTORY EFFICIENCY ENGINEERING.

(Continued from page 214.)

with the results obtained. The brick are set in various kinds and types of kilns in such a way as to allow the heat to be passed through them until they are well burned into hard form. Most kilns used in this work today are what are known as "down-draft" kilns. The bottoms are perforated with tile openings and the heat is generated at sides or ends of kilns, passes up through the brick and thence down to the bottom and out through the openings and flues to high stacks of some kind. During the first few days of burning these brick are put through the "watersmoking" process until the steam quits coming from the kiln. After nothing but smoke leaves the kiln, it is known that the brick are ready to be burned although it is important that all moisture shall have been driven off before real burning begins. Kilns are then fired for several days and the heat raised from day to day until the brick are all well burned. This can be determined best by pyrometers registering the temperature at different parts of the kilns, but cones which fall at certain temperatures are found to be a good method, when pyrometers are not installed. The number of inches of shrinkage in kilns is one of the old methods used to ascertain when the burning is completed and is quite satisfactory.

### Sorting and Loading.

We now come to a most important part of the work. After brick have been burned it is well known to manufacturers that all brick in a kiln are not burned uniformly and it is a good thing such is the case. The reason they are not all evenly burned is obvious to any one when he comes to think of the difficulty in handling draft and especially in a mass of ware like five to ten carloads of fire brick. Some parts of the kiln produce hard brick, others medium, and often five to six different piles are necessary to get uniformity in burn. Fire brick are not sold on shade, but it is of the utmost importance that the selection be right. Hard burned brick used with soft or medium burned ones will not be best, as they vary in size and a mason cannot get the proper joints or lay uniform layers. Furthermore, some places require hard burned brick for the best results and other places require just the reverse. Fire brick should, therefore, be selected as to burn for the work to be performed and without such selection the results will not be satisfactory. It is, therefore, evident that in order to ship the proper kind of brick it is always necessary for the manufacturer to sort them into different burns and that the consumer should always state the purpose for which these brick are to be used. This is an important part of refractory efficiency engineering and is of great value to both manufacturer and consumer.

### Selling Fire Brick.

The brick are now ready for shipment and unfortunately here is where the great mistake is made. The average fire brick producer neglects this end of his business, which is by all means the most important point in the distribution. To market these goods he employs men who know less about fire brick than any other thing under the sun, with the possible exception of the places they are to be used. Many of them do not know the difference between a cupola and a blast furnace and they are a long way from being refractory efficiency engineers. They recommend their goods for any place and for all kinds of work without knowing whether the brick will last one day or one year. They do not know the difference between a stiff mud brick and a hand made product, although they may be good talkers and sell the goods anyhow. If they hit the mark all well and good, but if not, the brick are to blame for the results. They are the first ones to condemn the brick if the results are not the best, but they never stop to think that they recommended them for the work. If they do not know it, it is of the utmost importance that they find out before prescribing for the work. We believe and can prove that all fire brick are good, but the fault lies with the man who recommends them for the service. By placing a fire brick where it will not do the work the customer is the loser in direct results and the salesman has done a great injustice to his company in particular and the refractory business in general. Every brand of fire brick will give better results for some particular places than other brands, for one reason or another. We, therefore, contend that the selling is where the mistake is made in almost every case where fire brick do not give the best results. Any fire brick salesman who says he has the "Best fire brick on the market" and that it will answer for every purpose, is either a novice or is an apostle of the Annanias Club and he is possibly both. Most consumers have had this experience and yet they invariably place the blame on the brick. Hence the necessity of refractory efficiency engineers, who will fully investigate conditions where the material is to be used and know whether any of their products will serve the purpose in the best manner, and if not, whether it is possible for his firm to make such an article. If he cannot supply the right brand for the work then it is surely to the best interest of the consumer, as well as the manufacturer, if these brick are secured from some place where the proper kind can be furnished. Most fire brick makers desire to follow this policy, but the terrible desire of the salesman to get the order overshadows the real merits of the matter and the damage is done. One of the most injurious performances of the "Uneducated Fire Brick Salesman" is the desire on his part to meet competition. He is bound to make a sale at the sacrifice of every other consideration, and one can scarcely call this either refractory engineering or salesmanship. If he cannot give away or sell the right article he makes up his mind to offer something else, cheaper possibly than the brand which should be used, and thus he will be enabled to meet the price or undersell his competitor. In such cases, he supplies the article which will prove the most expensive to the consumer and make an enemy for his company. Such men should either be trained or driven from the business, as they are dangerous "Microbes."

(Continued next month.)

## SODIUM SALTS IN THE PURIFICATION OF CLAYS.

In Technologic Paper No. 51, issued by the Bureau of Standards, Washington, D. C., the results of some work involving the addition of small quantities of sodium carbonate and sodium silicate to clay suspensions are published. Clays mixed with water may be considered to consist of a system of fine particles varying from comparatively coarse to very fine grains 0.003 mm. and less in diameter. It is a curious fact that these fine particles are very sensitive to the influence of small quantities of alkalies, salts and acids, and hence the properties of the clays as a whole are affected to an important degree by such additions. Alkalies tend to break down the grains into still finer particles and to hold them in suspension. At the same time the fluidity of the system is increased so that a separation is possible between the particles capable of greatest dispersion (the clay substance proper) and the coarse particles which comprise the principal impurities. A method of purifying clays is thus suggested. Acids and salts act in the opposite sense, tending to coagulate the particles and to precipitate them. In the casting process employed in the manufacture of sanitary ware and other clay products the effect of the alkalies consists essentially in reducing the water content, and with it the drying shrinkage, which is essential in preventing the cracking of the ware. In this paper the characteristic effect of the alkalies upon different American clays was studied from several standpoints, particularly with reference to the viscosity of the clay suspensions, the absorption of the reagents, the strength of the treated mixture in the dried state, and the influence of time. The effect of different clays upon each other was also studied.

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8 3 cm Hooper, Neb.

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FOR SALE.

Pine Pallet Boards and Dump Carts, cheap. CHAS. BERRICK'S SON CO.
6 3 cm Buffalo, N.Y.

---

FOR SALE.

Stone crusher and engine, also two threshing engines, at one-fifth of cost; 80-acre improved farm at $100 an acre; six-cylinder auto, Studebaker electric starter, etc. Big brick and tile factory in Fairfield. E. R. SMITH,
7 2 cm Fairfield, Iowa.

---

FOR SALE ON EASY TERMS.

One 200 h. p. Corliss engine, practically new. Two 125 h. p. Schofield boilers. One 150 h. p. Schofield boiler; all in splendid condition at "war time" prices. Address,
BOX 8—GEORGIA,
8 1 d Care Clay-Worker.

---

**FOR SALE.**
**TRACTION STEAM SHOVEL.**
**Vulcan Little Giant, with 1¼ yard dipper. In good condition.**
**WICKES BROTHERS,**
**Jersey City, N. J.**

---

FOR SALE.

20,000 daily capacity press brick plant in West. Sixteen chamber continuous tunnel kiln. Electric power. Reason for selling, owners are engaged in other business. Nearest competition, 100 miles. Terms made to proper parties.

Address, BOX 8—I. D.,
8 1 c Care Clay-Worker.

---

FOR SALE.

One Monarch No. 6 soft mud brick machine and sander. This machine made less than a million brick. Was bought for experimental purposes and we have no further use for a soft-mud machine.
NILES FIRE BRICK CO.,
8 2 d Niles, Ohio.

---

FOR SALE—TILE MILL.

Entire drain tile outfit, consisting of mill, crusher, feeder, boiler, engine, belts and pulleys, dies, pallets, drier rack, etc; in fact, everything needed for making first-class drain tile. Will sell for $1,250 or its equivalent, or will sell mill and 8 27-100 acres of land for $5,500. Only plant in community, and constant demand for tile. If interested, come and see it. Ill health and other business reasons for selling. For full particulars, write WILSON,
6 3 cm Care Clay-Worker, Indp'ls, Ind.

---

FOR SALE, CHEAP.

Chambers No. 5 brick cutter, side cut, 24 feet offbearing belt. Used but few months, absolutely good as new.
STANDARD BRICK MFG. CO.
8 Furniture Bldg.,
7 3 cm Evansville, Ind.

---

FOR SALE—CHEAP.

Tile plant; excellent clay; 3 kilns, 2 sheds, double-decked; all necessary tools. Good reasons for selling.
DELTA BRICK & TILE CO.,
6 3 cm Delta, Iowa.

---

FOR SALE.

Cheap for cash, f. o. b. cars Slidell, La., Chambers No. 8 pug mill and brick machine, automatic cutter, clay disintegrator and spur-geared friction hoist. All good condition. Address,
SOUTHERN CREOSOTING CO., Ltd.,
6 3 dm Slidell, La.

---

BRICK MANUFACTURING PLANT.

For sale or lease on liberal terms, vitrified brick manufacturing plant located in the South; modern equipment; capacity, 50,000 daily; lowest rates on all southern points. Address,
WM. PANNILL, Agent,
Heard Building,
6 3 cm Jacksonville, Fla.

## WANTED, ETC.

WANTED.

An all-around good machinist for a brick plant. Must be first class. Address,
BOX 8—BRICK,
8 1 d Care Clay-Worker.

---

POSITION WANTED.

By a German kiln builder with twenty years of practical experience in the clay industry. Several years as superintendent in Germany—brickmaking school. Know how to handle machinery and am expert burner. Able to design entire plant. Address BOX C. C.,
6 3 d Care Clay-Worker.

---

WANTED.

Superintendent of every clayworking plant to write me and receive, free of cost, much valuable information on many subjects of vital interest now and in the future.

Don't neglect this duty toward yourself. Your letter will solve the mystery of this ad. A. G. FRIEND,
7 2 L Care The Clay-Worker.

(Continued on next page.)

## Classified Advertisements—Continued.

WANTED.

$25,000 for making changes in our plant, to make paving and face brick from the best deposit of shale in a radius of 200 miles; no local competition. Good position to interested party. Address, "HALE,"
7 3 cm Care Clay-Worker.

WANTED.

Position as superintendent of brick plant. Fire brick, building, paving or hollow ware. Experienced in manufacturing and selling ends. Employed but desire change. Best references. Address, BOX 8—SUPERINTENDENT,
8 1 c Care Clay-Worker.

WANTED.

First-class fire brick salesman for Chicago and vicinity. One who understands the manufacture as well as the selling of same. State experience and salary expected.
WM. E. DEE CO.,
8 1 d 30 N. LaSalle St., Chicago, Ill.

WANTED.

A thoroughly practical mechanical engineer, about 30 years of age. Must have ability, some knowledge of clay-working equipment, and be a pusher. To such a person, good opportunities will be given. Address,
BOX 8—COMPANY,
Care Clay-Worker.

WANTED.

Position as Superintendent, by young man who has had ten years experience in face brick and refractories. Can handle work in both office and factory. Can install modern office systems and task and piece work in factory. At present employed and can give best of references from both present and former employers. Do not ask any contract but am willing to let my work speak for itself. Address, BOX 8—H. G.,
8 1 cm Care Clay-Worker.

SITUATION WANTED.

By a man who thoroughly understands the clay business from pit to office, including the selling end; also thoroughly understands the manufacture of high grade face brick, fire brick, common brick, sewer pipe and fire proofing also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of fuel and the successful handling of all kinds of dryer troubles and kiln troubles; a first class handler of labor to get results. Want to get with a concern where ability will be recognized. Address,
BOX 8—TEXAS,
8 tf d Care Clay-Worker.

FOR SALE.

A GREAT BARGAIN.

An Oliver Typewriter, most recent style, just as good as new, having been used as a demonstrator only. Carries factory guarantee. Will be sold for half price for cash. Address
BOX 6—OLIVER,
Care Clay-Worker.

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Special Arrangement for "MONTHLY" Readers.

## No Reason to Worry

About that Accident or Illness
Which Might Happen---If You Hold One of These POLICIES.

| FORM "S-76" Special **Accident & Sickness** | FORM "S-75" Special **Accident & Sickness** | FORM "S-74" Special **Accident & Sickness** |
|---|---|---|
| $4.00 Yearly | $6.00 Yearly | $10.00 Yearly |
| No Dues. No Assessments. | No Dues. No Assessments. | No Dues. No Assessments. |
| Loss of life.....$1,500.00 | Loss of life.....$2,500.00 | Loss of life.....$5,000.00 |
| Loss of both eyes, hands or feet.. 1,500.00 | Loss of both eyes, hands or feet.. 1,250.00 | Loss of both eyes, hands or feet.. 2,500.00 |
| Loss of one hand or one foot.... 375.00 | Loss of one hand or one foot.... 750.00 | Loss of one hand or one foot.... 1,250.00 |
| Loss of one eye.. 150.00 | Loss of one eye.. 250.00 | Loss of one eye.. 500.00 |
| $10.00 Weekly Accident Benefit. | $15.00 Weekly Accident Benefit. | $25.00 Weekly Accident Benefit. |
| $10.00 Weekly Sick Benefit. | $15.00 Weekly Sick Benefit. | $25.00 Weekly Sick Benefit. |
| $25.00 Emergency Relief. | $50.00 Emergency Relief. | $100.00 Emergency Relief. |

Send for application blank at once to

INSURANCE DEPARTMENT MANTEL, TILE & GRATE MONTHLY
UTICA. N. Y.

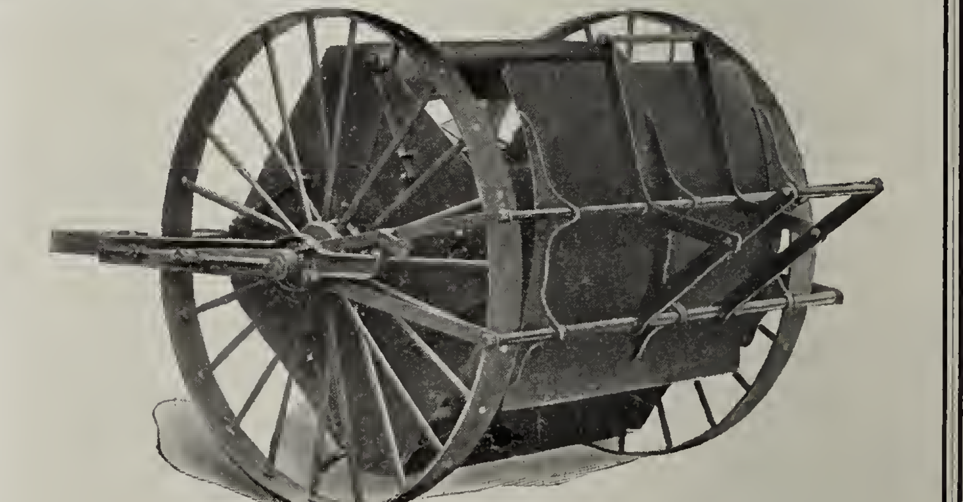
---

**$2.00** *THE CLAY-WORKER, ONE YEAR, (IN ADVANCE)* **$2.00**

---

## THE QUINCY IMPROVED GATHERER

used in connection with our SPECIAL CLAY PLOW is adapted for taking clay or shale from the surface of the field. Actual tests and testimonials from brick, tile, cement and pottery manufacturers in nearly every state in the Union verify our claim that with their use about one-half of the cost of doing this work can be saved.



**LECHTENBERG BROS.**
Successors to Central Iron Works
Quincy, Ill.

## Classified Advertisements.

# MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**
MINERS AND GRINDERS.

## Pamphlets Suitable for Distribution by Paving Brick Manufacturers

- VITRIFIED BRICK THE BEST MATERIAL FOR SURFACING PUBLIC HIGHWAYS, by Herbert S. Casson.
- BRICK PAVEMENTS AS AN INVESTMENT, by W. T. Blackburn.
- IDEAL ROADWAYS, by T. A. Randall.
- TRUTH IN NEW JERSEY CEMENT ROAD WORK.
- STANDARD RATTLER TESTS FOR PAVING BRICK.
- FACTS ABOUT ASPHALT PAVEMENTS.

Specimen copy of any one of these pamphlets sent on request. Price in lots of 100, $2.00. Will quote you prices on larger quantities.

**T. A. RANDALL & CO., Inc.**
**Indianapolis, Ind.**

## VALLEY BRICK COMPANY PLANT

**For Sale at Public Auction,**
**August 28, 1915, at Charles-Town, W. Va.**

A modern brickmaking plant, consisting of about 15½ acres of land, brickmaking machinery (Freese), dry house, five permanent kilns, etc.

The plant is located in Ranson, a suburb of Charles-Town, Jefferson Co., West Va., and is connected with B. & O. and N. & W. Railroads by belt line and switch.

For terms, photographs and further description of plant, address

**H. V. SHEETZ, Trustee,**
**Charles-Town, Jefferson Co., W. Va.**

*A man's mail will reach him where no mortal can.*

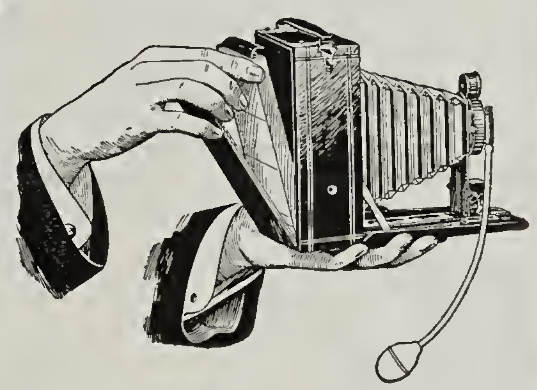
## Mailing Lists

**99% Guaranteed**

covering all classes of business, professions, trades or individuals. Send for our complete catalogue showing national count on 7,000 classifications. Also get special prices on fac-simile letters and addressing.

**Ross-Gould** 493 N. 9th St. **St. Louis**

**Open back—drop in pack—close back—that's all you do to load a**



# Film Premo

The smallest, the lightest, the easiest to load and operate of all cameras — and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

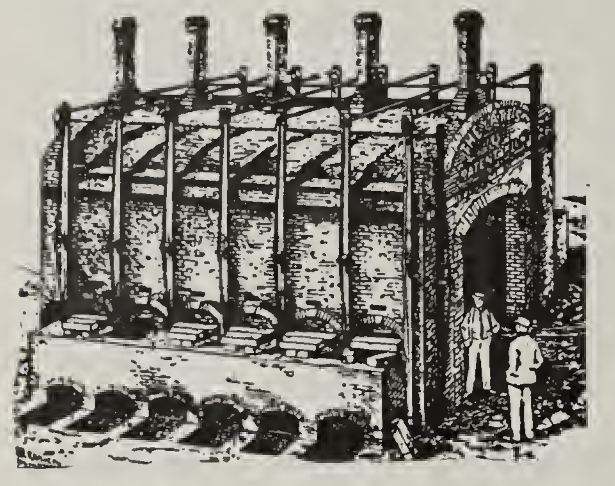
Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it today.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

**Rochester Optical Division**
Eastman Kodak Co., Rochester, N.Y.

Mention THE CLAY-WORKER
When writing to Advertisers,
Mention THE CLAY-WORKER

E. SCHMATOLLA
Consulting, Designing & Constructing
Engineer and Patent Attorney
To the Manufacturers of
Brick, Lime, Magnesia, Silica & Ceramic Wares.
150 Nassau St., New York, U. S. A.



**The Yates Patent Down-Draft Kiln Also Continuous Down-Draft.**

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

ALFRED YATES,
SHAWMUT, PA.

**If...**

**You Want to Sell or Buy...**

**Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.**

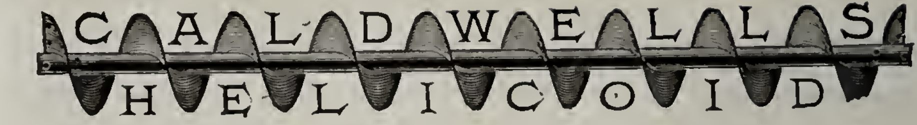
**If... You Want a Man**

**for any position or a position in any connection with the Clayworking Trades use the**

**For Sale and Want Columns of... The... Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.



HELICOID SCREW CONVEYOR is heavier stronger and better made than any other. Requires fewer repairs—no lapped and riveted joints to come apart—flight all one piece. We are the only people who actually roll a continuous flight conveyor by either the hot or cold rolling process. All other steel conveyors have sectional flights. Our No. 38 Catalogue explains the difference. Elevating, Conveying and Power-Transmitting Machinery.

**H. W. Caldwell & Son Co.,** 17th St. & Western Ave. **Chicago**
Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

TABLETS OF RECORD in Metal, Marble and Stone for Exterior and Interior of Public Buildings, Office Buildings, Banks, Churches, etc. Designed and Executed to Client's Instructions and Limit of Expense designated. Correspondence Invited.

*Illustrated data and photographs sent on request.*

J&R·LAMB
Studios, 23, 25, 27 Sixth Ave.,
New York.

OAK HILL GAS RETORT AND FIRE BRICK WORKS

**The Parker-Russell**
**Mining and Manufacturing Co.**
ST. LOUIS, U. S. A.

*FIRE CLAY AND SILICA PRODUCTS OF QUALITY FOR SERVICE---ESPECIALLY FOR KILN CONSTRUCTION.*

**Books of Interest to the Clayworker**

REFRACTORIES & FURNACES, by F. T. Harvard, E. M. Price $4.

Gives much valuable information relative to the properties, preparation and application of materials used in the construction and operation of furnaces.

CERAMIC GLAZES, price $10.00.

The book is remarkable for its systematic thoroughness, no more finely arranged charts of glazes in the way of careful gradations, coupled with extensive variations, could well be imagined.

Sold by

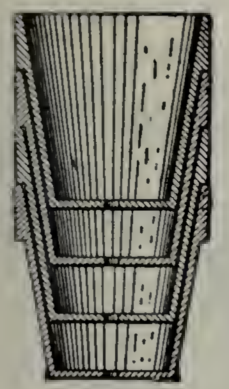
T. A. RANDALL & CO. (Inc.). Indianapolis.

**Chicago Retort & Fire Brick Co.**

**"AJAX" Fire Brick for Building Kilns**

'Phone
Wabash 6131

GENERAL OFFICE:
208 South La Salle St.
CHICAGO, ILL.



# Make Money

WITH THE ONLY SUCCESSFUL

## Flower Pot Machine

(PATENTED.)

No expert workmen required.
Capacity in 10 hours:
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "
Write for Circular and prices.

**The Rockwood Mfg. Co.,**
1801 English Ave. INDIANAPOLIS, IND.

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## New Books Which Are Being Offered To the Trade:

HOLLOW TILE HOUSE, by Fred'k Squires, Price, $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

CEMENT, CONCRETE & BRICK, by A. B. Searle, Price, $3.00.

A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

SOLD BY

**T. A. RANDALL & CO.** (Inc.) Indianapolis, Ind.

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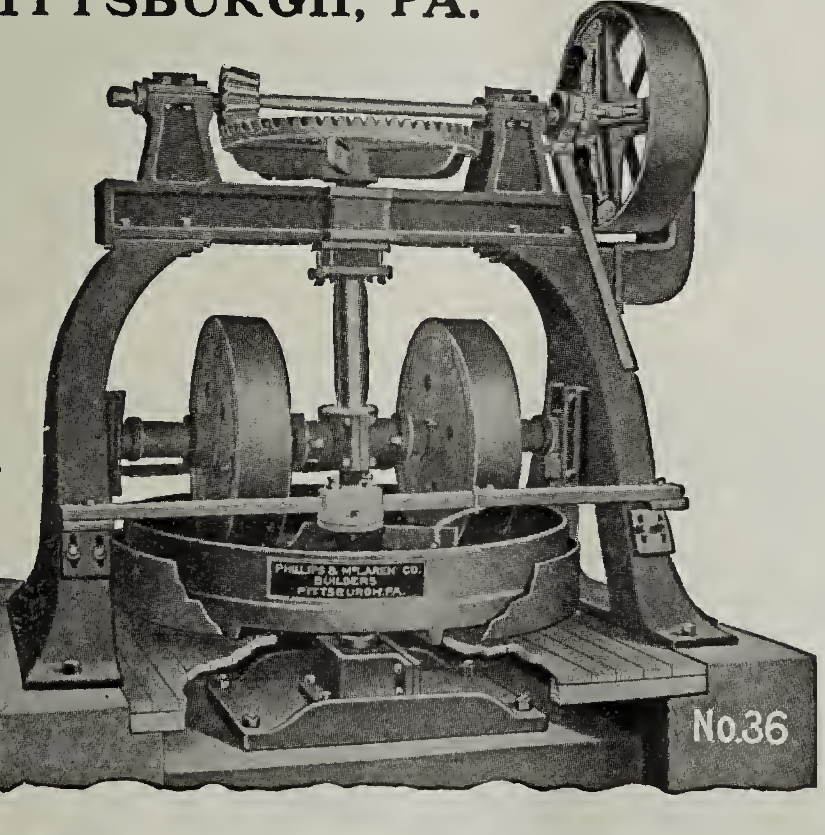
# PHILLIPS & McLAREN CO.

PITTSBURGH, PA.

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
**Stephen Girard Bldg.**
Philadelphia, Pa.



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**$2.00** THE CLAY-WORKER ONE YEAR (IN ADVANCE) **$2.00**

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# Anchor Brand Colors

For Mortar Cement and Brick.

**BROWN, BLACK, RED AND BUFF.**

Strongest and Most Durable.

Manufactured by

**C. K. WILLIAMS & CO.**
EASTON, PA., U. S. A.

**Correspondence solicited.**

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## Chattanooga Paint Co.,

Chattanooga, Tenn.
Manufacturers of

## Red Oxides for Brickmakers' Use.

**ECLIPSE MORTAR COLORS,**

**Red, Brown, Buff, Black.**

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YOU HAVE KNOWN FOR YEARS THAT

## RICKETSON'S MORTAR COLORS

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

**Why Not Insist on Having Them?**

They are the acknowledged best for all uses---Mortar, Brick, Cement, Concrete and Stone.

**Red, Brown, Buff, Purple and Black.**

**RICKETSON MINERAL PAINT WORKS**
MILWAUKEE, WIS.

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FOR SALE.

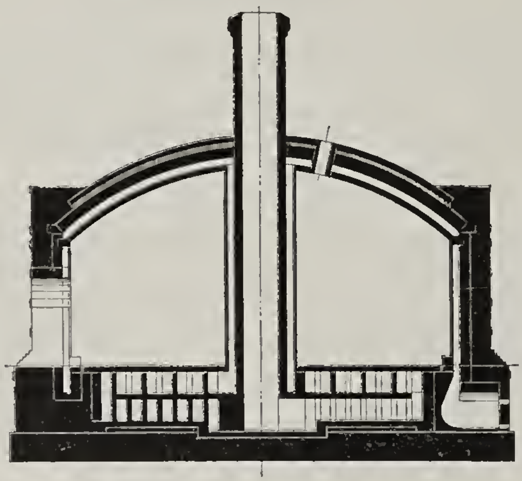
Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Clay Glazes and Enamels," $5.00; tells how to glaze and enamel brick and gives valuable recipes. "The Effect of Heat Upon Clays," by Prof. A. V. Bleininger, price $2.00; a book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent. "Analyses of Clays," $2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," $2.00; a manual for all engaged in the manufacture of articles from clays. "Clays"; their occurrences, properties and uses, with special reference to those of the United States, $5.00. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,
Indianapolis, Ind.

The
ROESSLER-HASSLACHER
CHEMICAL COMPANY
100 William Street
NEW YORK

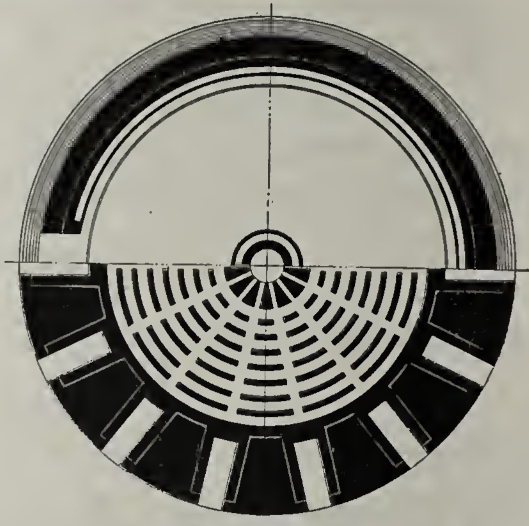
As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.



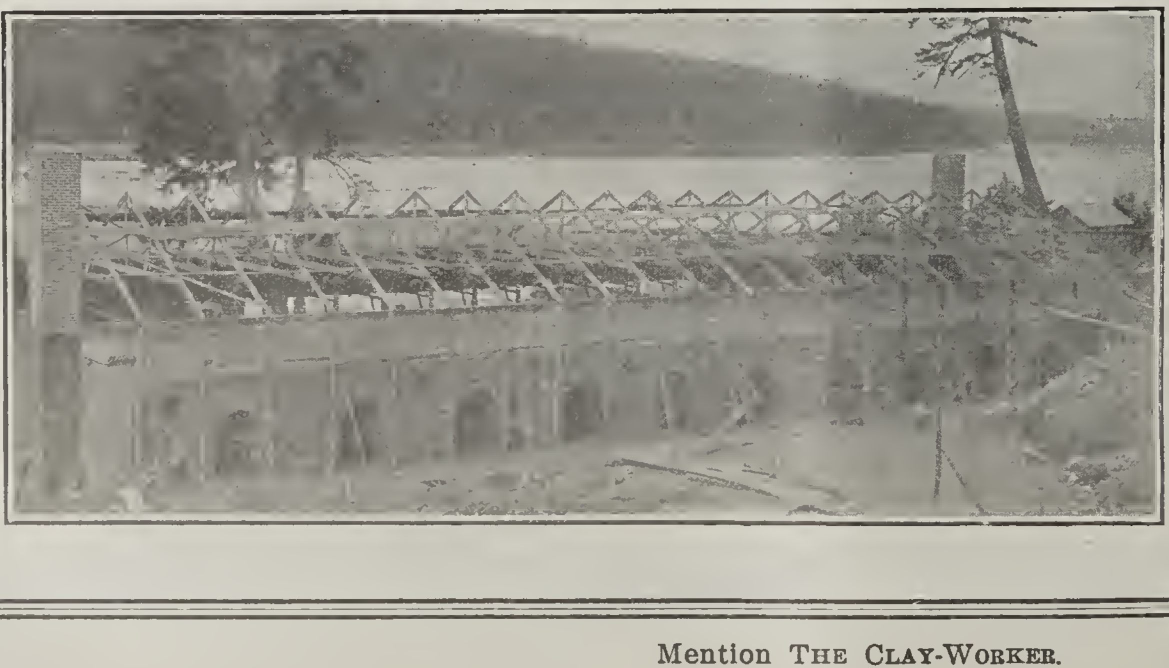
A MUFFLE KILN.

An Education
in Kilns
Continued.
The Richardson-Lovejoy
Engineering Co.
Columbus, Ohio
Consulting Engineers
for the Clay Industries



Pamphlet "Ceramic Engineering" Free.

THE OREGON KILN



A semi-continuous kiln for large and small yards. Cheap to construct, easy to operate. You have perfect control of the draft and fire at all times. For information write to

A. KLOSE
277 Hawthorne Ave.
PORTLAND, ORE.

## DO YOU KNOW

that in the BURNING OF BRICK a DRAFT GAGE is of greater advantage than a PYROMETER? We furnish both.

## DO YOU KNOW

that for many years we have made the BEST DRAFT GAGES for all styles of kilns?

Write us for information of all kinds of controlling apparatus for clayworkers.

**Ceramic Supply & Construction Co., Columbus, Ohio**

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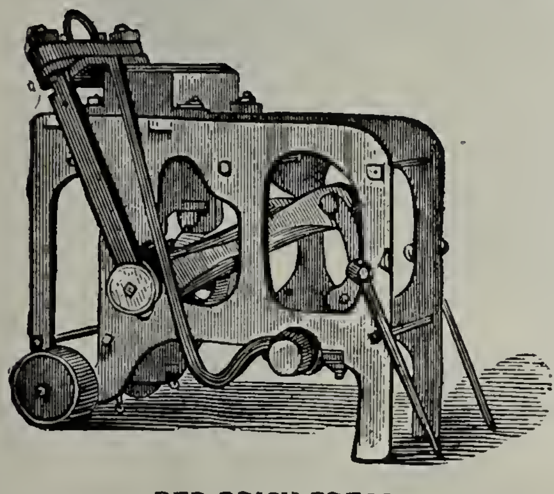
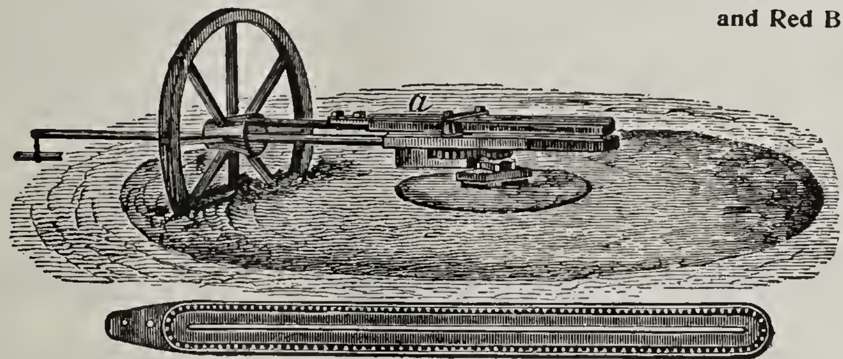
## Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



RED BRICK PRESS.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

☞ Send for Circular and Price List.

**GEORGE CARNELL,** 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

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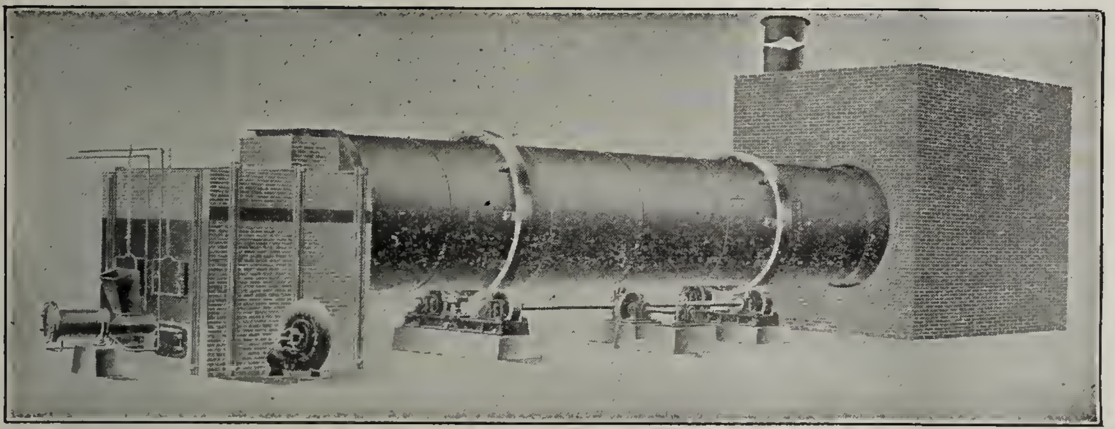

ROTARY CLAY DRYER

## DRY YOUR CLAY

AT LOW COST

YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON.

*It Assures Uniform Product.*

YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

**American Process Co.**
68 William Street
NEW YORK

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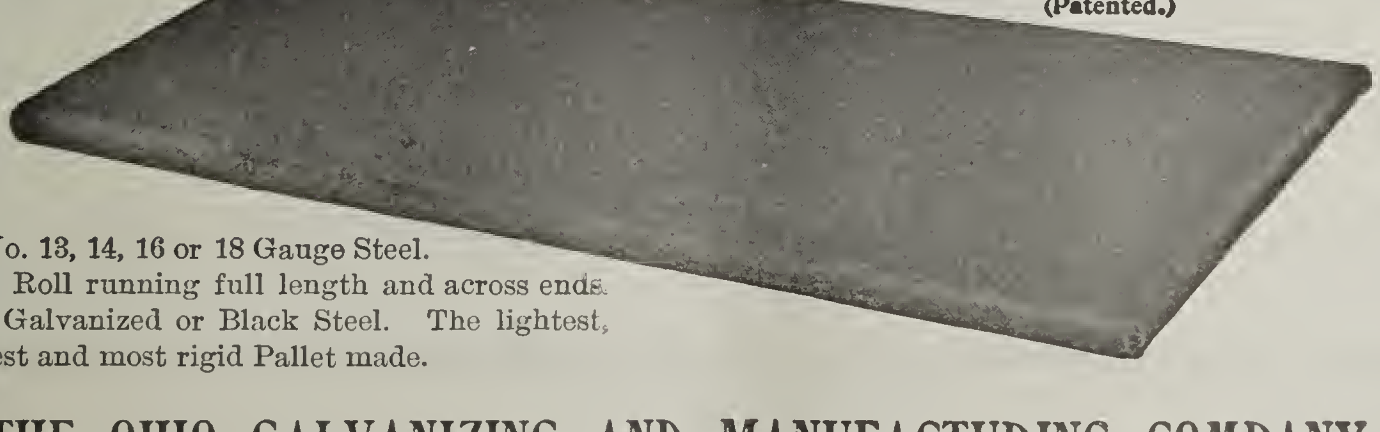
## "OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
⅝-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

**THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.**

**The Above Illustration Shows a 22-Tunnel**

## JUSTICE CLAY PRODUCTS DRYER

**Patented**

**Installed for the National Fireproofing Co., Haydenville, Ohio**

They are not only getting **dry ware now,** but are doing it at a cost that is surprisingly low. Isn't this an object lesson for you?

**The Manufacturers Equipment Co., Dayton, Ohio, U.S.A.**

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# THE HOLLOW-TILE HOUSE

By Frederick Squires, Architect.

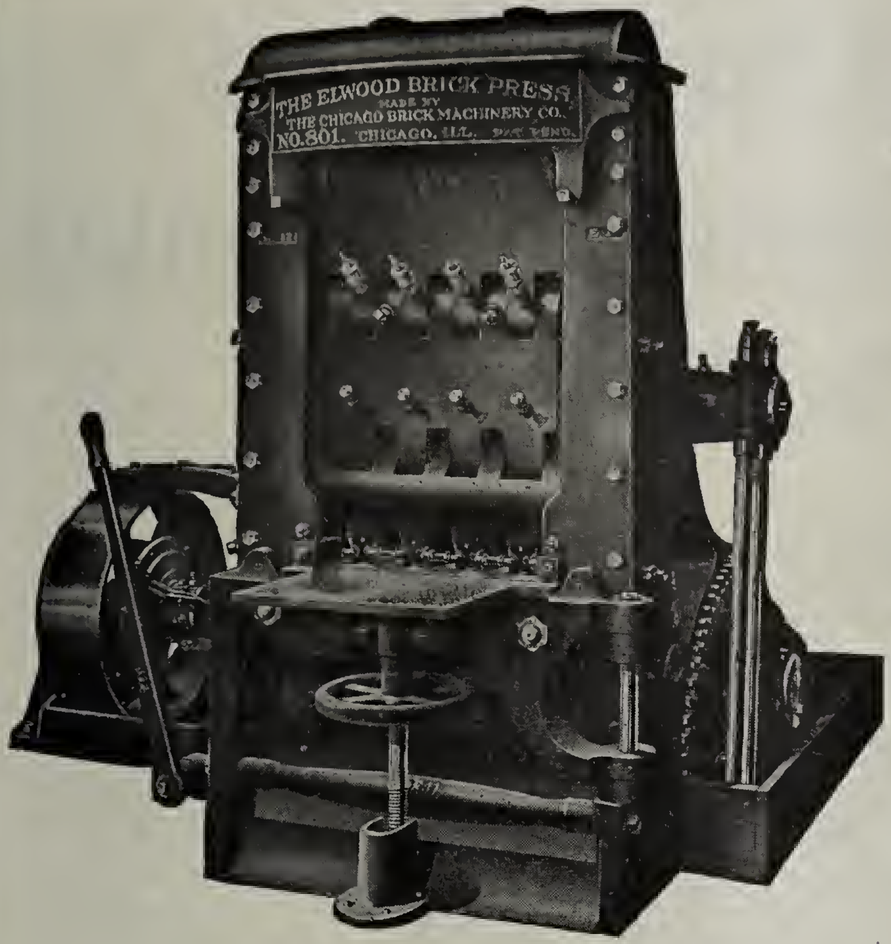
A book wherein the reader is introduced to hollow-tile in the making, is told how it is wrought into houses, and it is shown how these houses look and from what foreign ancestry their appearance is a heritage.

The book says the last word on the construction of the fireproof home, the most modern development of wall construction in "Texture-Tile," and the most recently devised systems of fireproof floor construction and architectural concrete work.

*210 pages; 215 illustrations and figures.*

Cloth 7½ x 10 inches. Price $2.50 net.

T. A. Randall & Co. (Inc.) Indianapolis, Ind.


THE ELWOOD BRICK PRESS
MADE BY
THE CHICAGO BRICK MACHINERY CO.
NO. 801. CHICAGO, ILL. PAT. PEND.

# ELWOOD PRESS

**BUILT FOR HEAVY DUTY.**
**ALWAYS MAKES GOOD.**

WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.

**CHICAGO BRICK MACHINERY CO.**

Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

**20 W. Jackson Blvd., Chicago**

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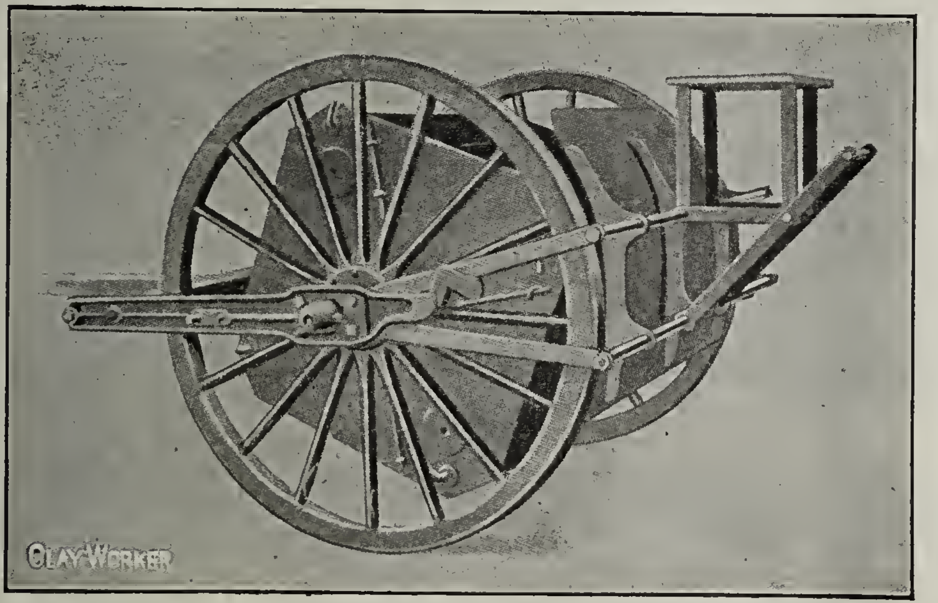
# OUR IMPROVED CLAY GATHERER



Is being used by a large number of brickmakers and all say with it they can gather clay from the field at one-half the cost of any other method. Capacity one yard.

We also manufacture a Special Clay Plow and by using the two your field is always level, well drained and free from holes.

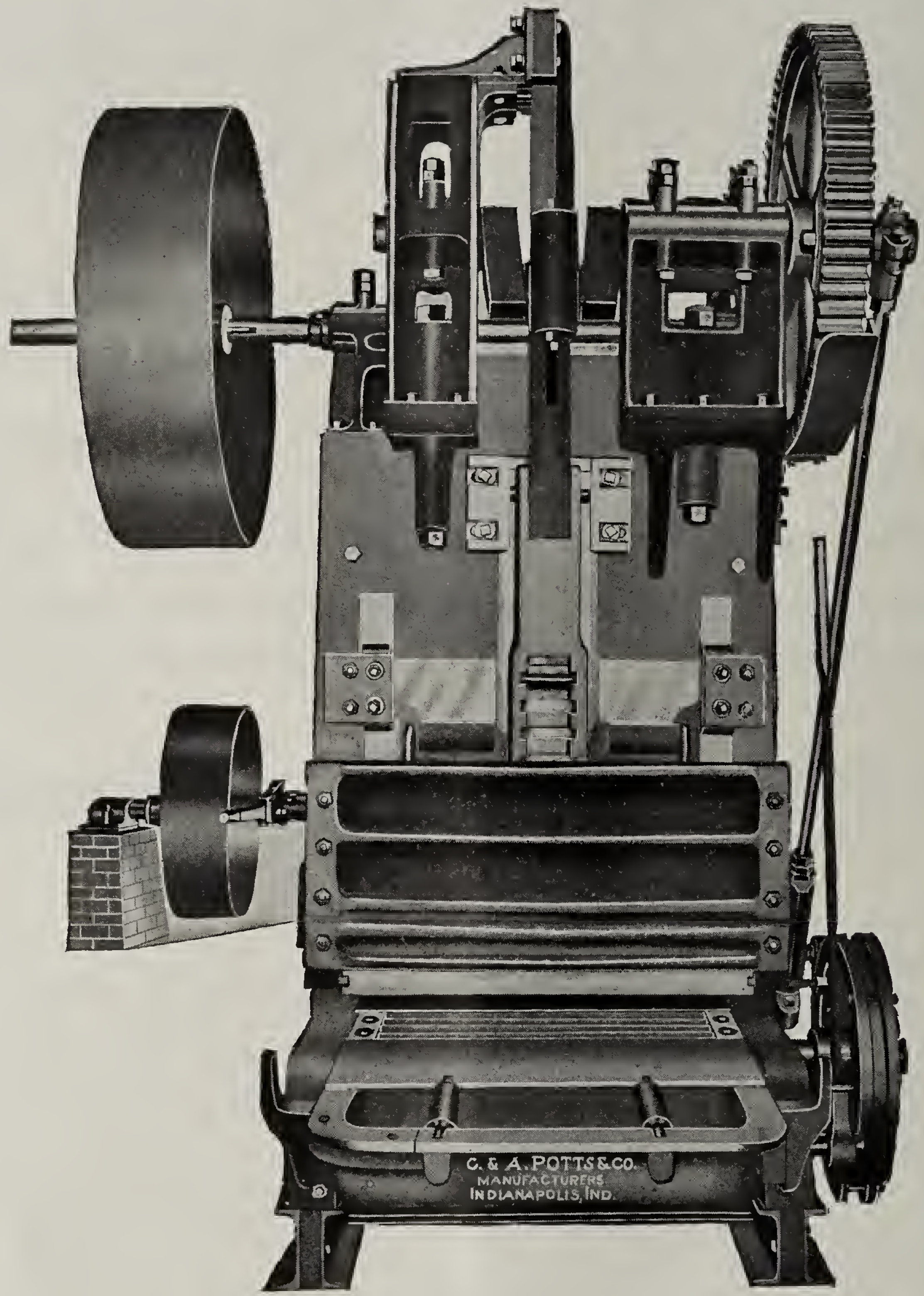
We manufacture a complete line of brickyard supplies. Write us.

**The Fernholtz Brick Machinery Co.**

Boyle and Vandeventer Aves. ST. LOUIS, MO.

# The Potts Special Soft Mud and Fire Brick Horizontal Brick Machine

Drop Forged Crank Shafts. Cut Steel Gears. Large Bearings. Heavy Powerful Press. No Light Parts Working in the Clay.



Note Heavy Construction of Press on Special Soft Mud and Fire-Brick Machine. Built for Service.

FRONT VIEW

## The Most Complete Brick Machine Ever Built

WRITE FOR CATALOGUE.

**C. & A. POTTS & CO.**
**INDIANAPOLIS, IND.**

LET US KNOW YOUR WANTS.

# BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price $2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price $5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price $5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price $5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

The Effect of Heat Upon Clays, by Prof. A. V. Bleininger. Price $2.00.

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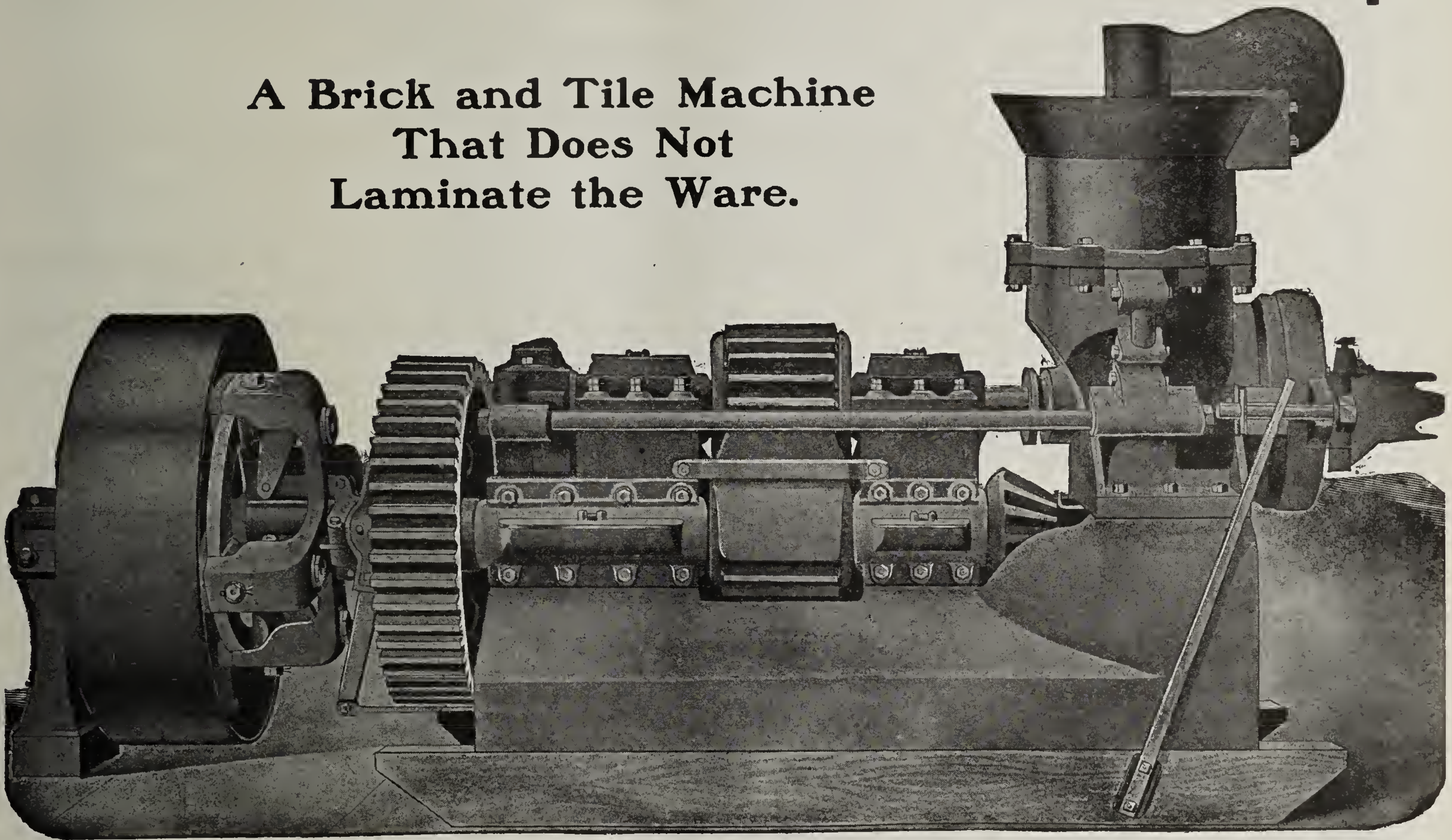

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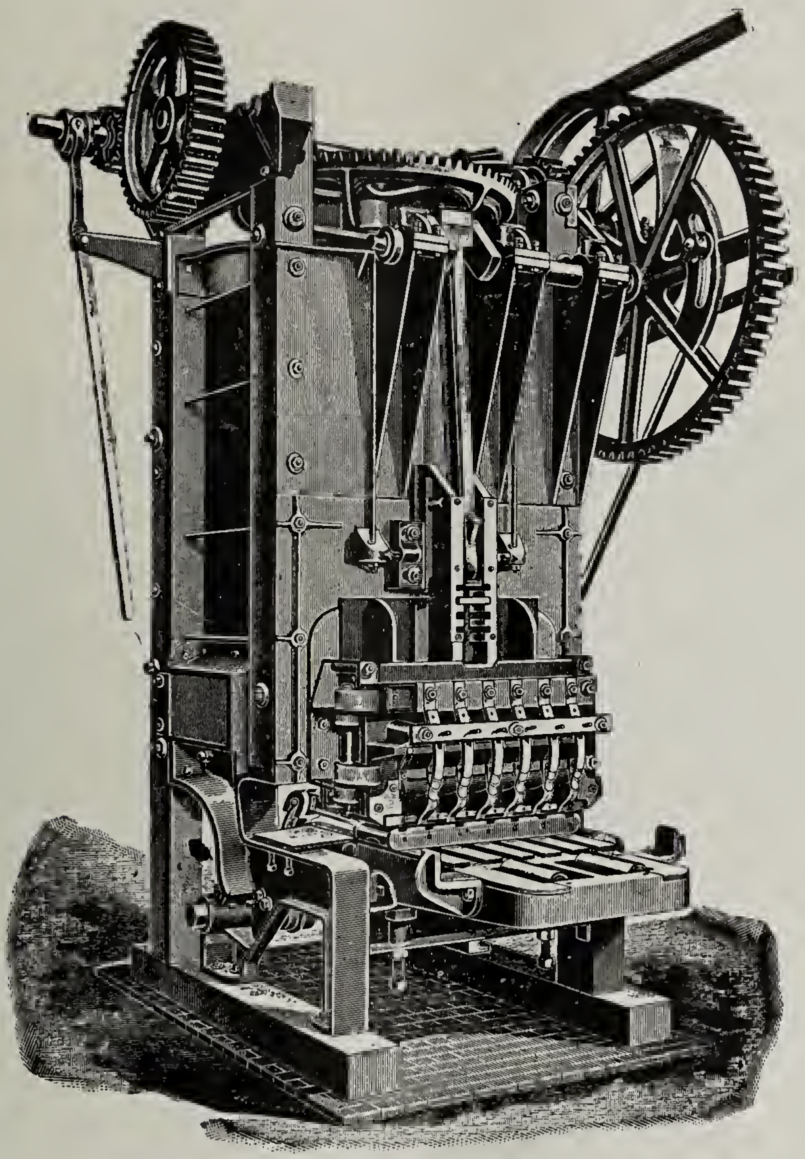

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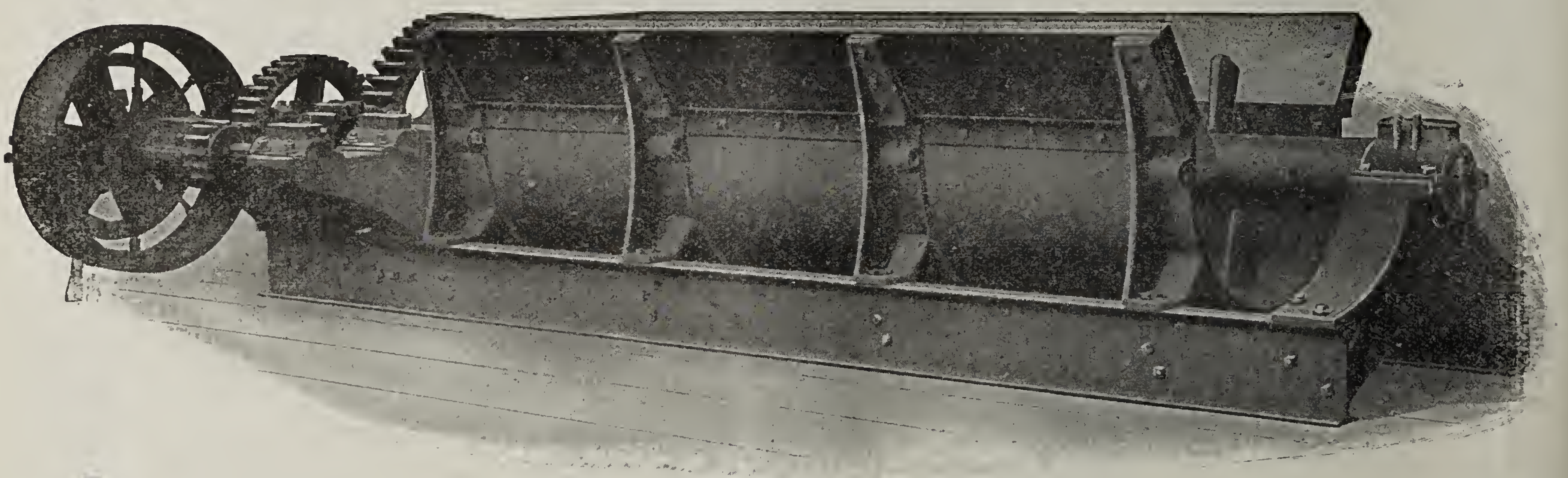
Too many plants are running without Granulators, but it isn't our fault. We have them in large, small and medium sizes, spur and bevel geared drives, pushing and pulling patterns. A Granulator to suit every plant. Something into which you may dump a carload of clay, and from which you may get a uniform delivery with large lumps reduced to a size which the machine ahead can handle.



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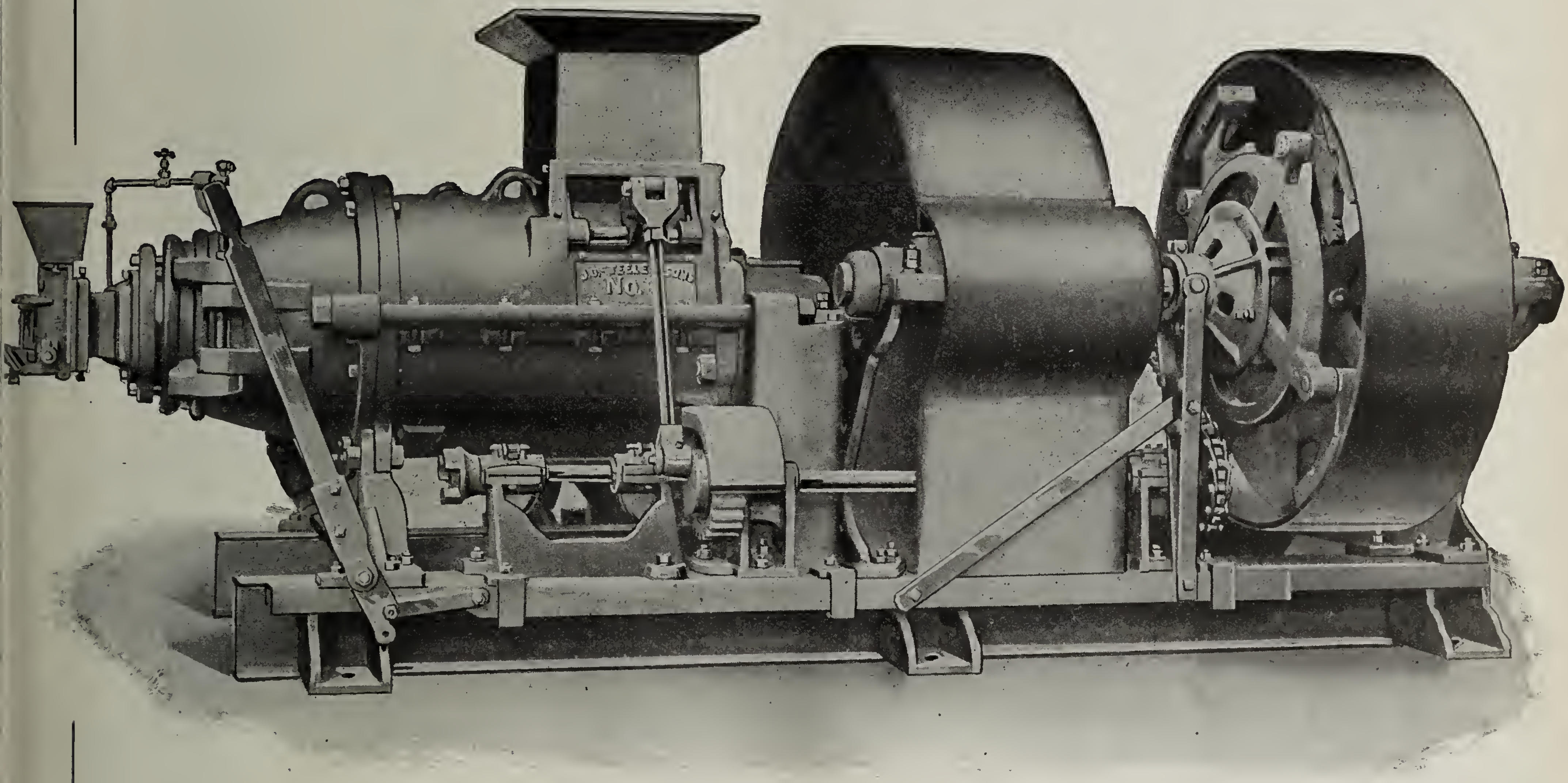

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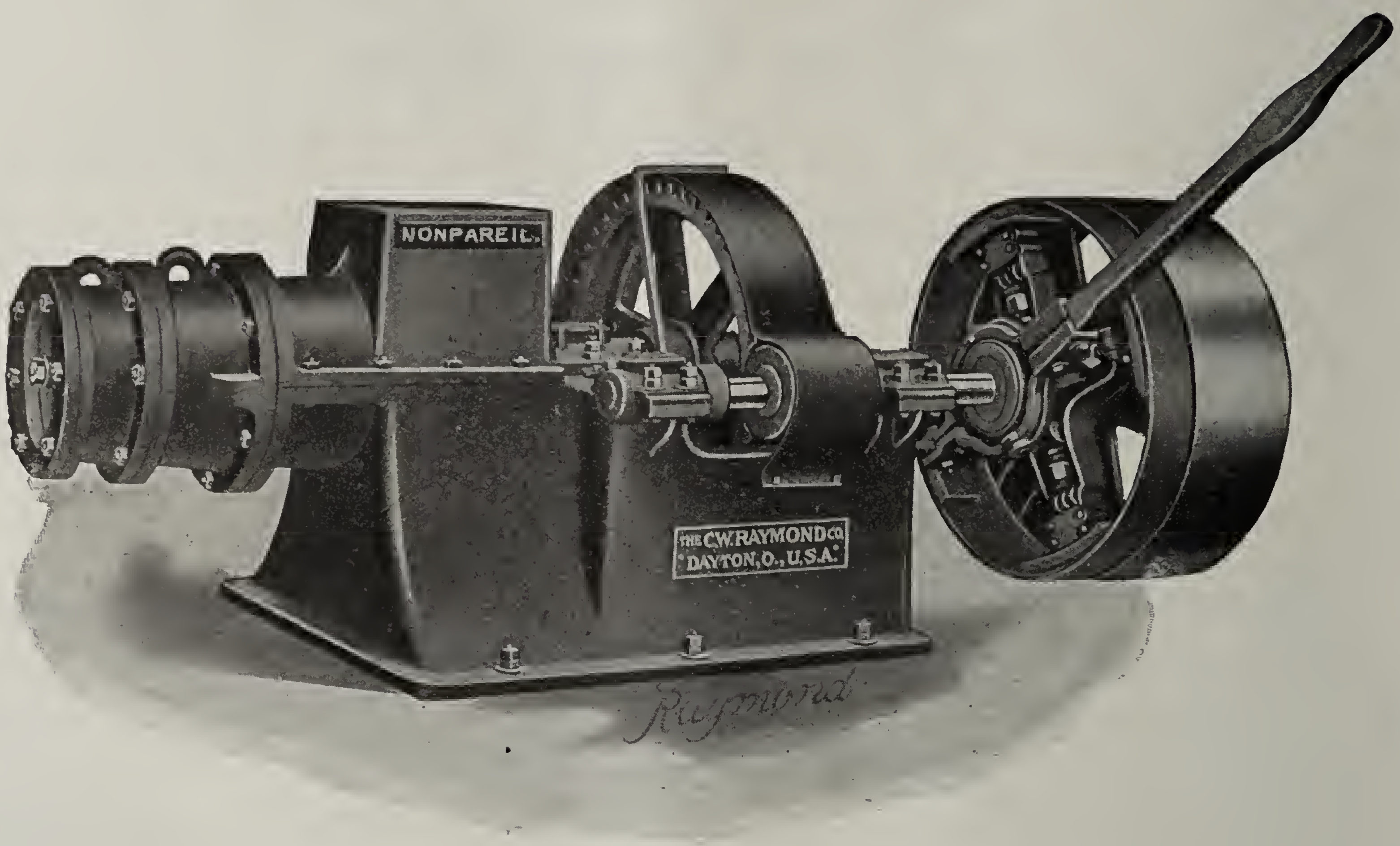

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In connection with your orders for building brick, you may have orders for holloware or hollow brick. These, together with drainage tile, can be made on the Nonpareil Holloware Machine, which, though small, has all the improvements and fine points of the large one. It is mounted on a solid base, thus being vibrationless and is also equipped with the submerged type thrust bearing. This is a very handy machine to have about. It is nearly a duplicate of the "Daytonian" No. 3 Brick Machine, which is a prime favorite with many successful clayworkers. The Nonpareil is needed as much on large plants as on more moderate ones.

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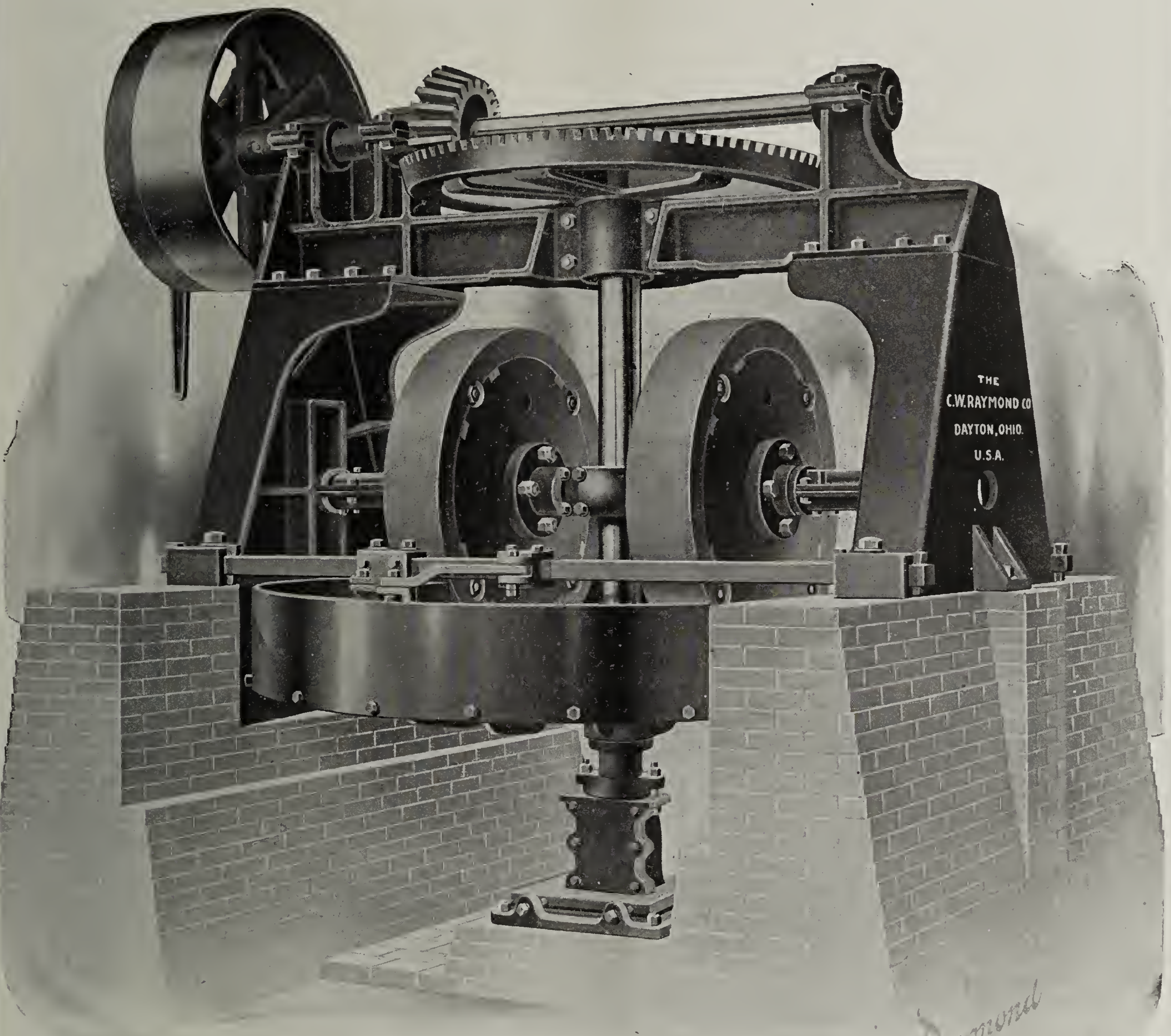

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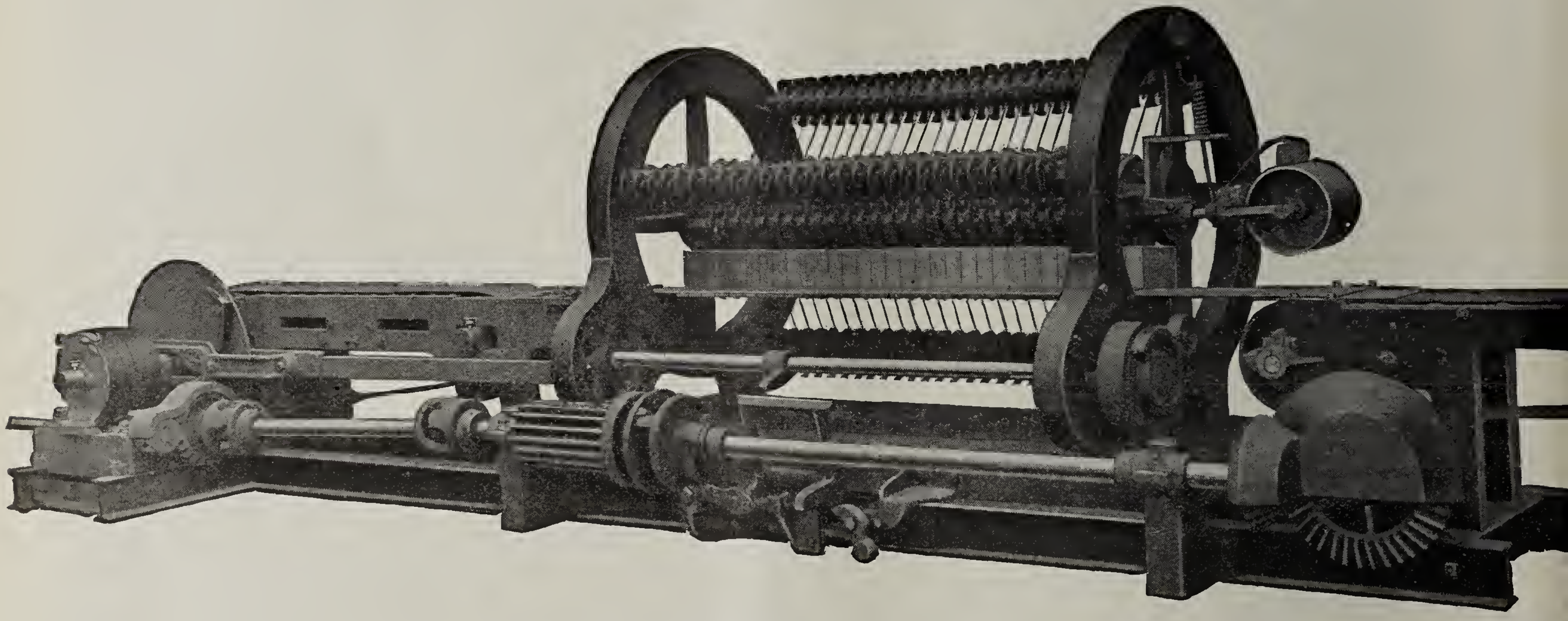

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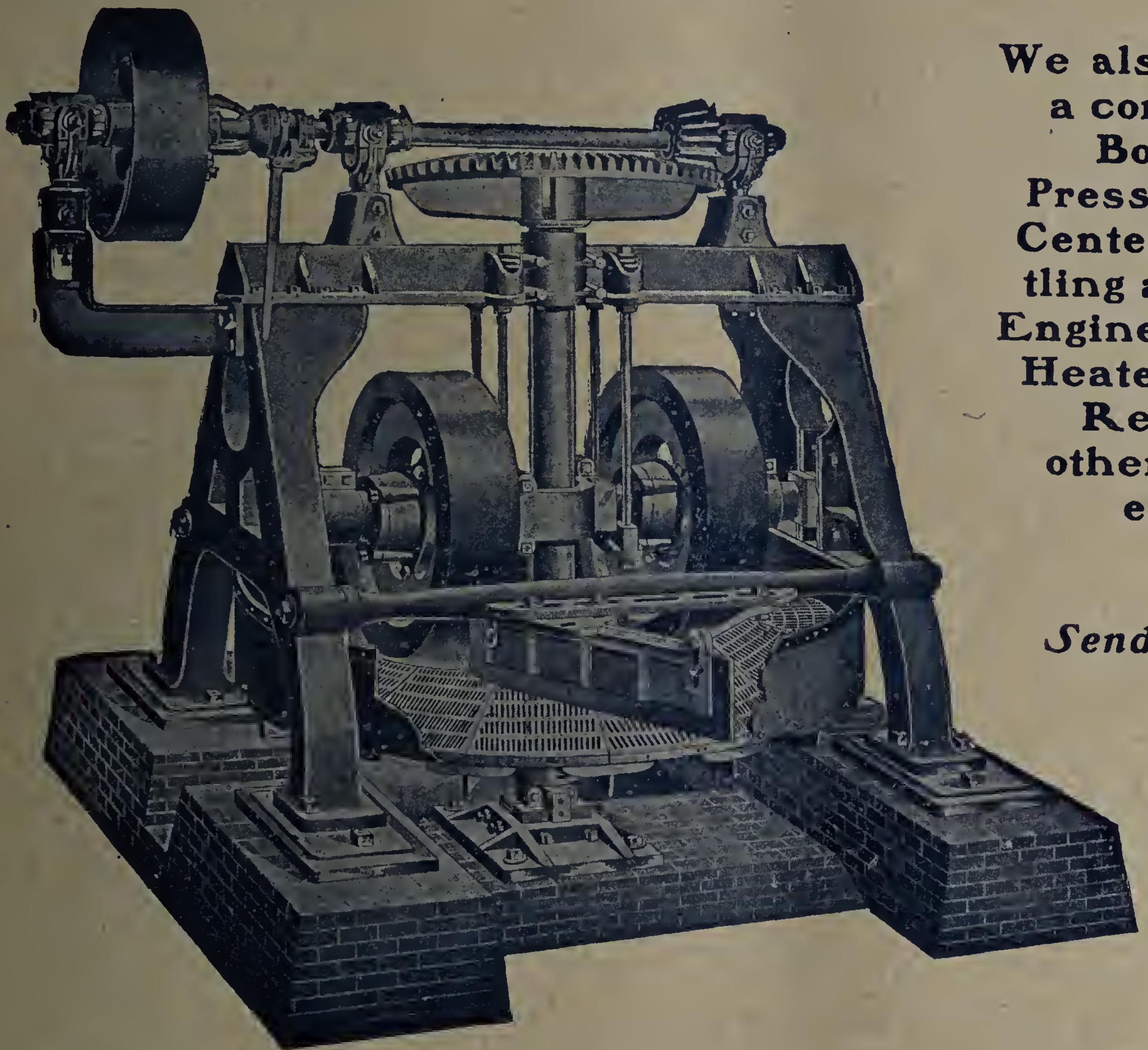

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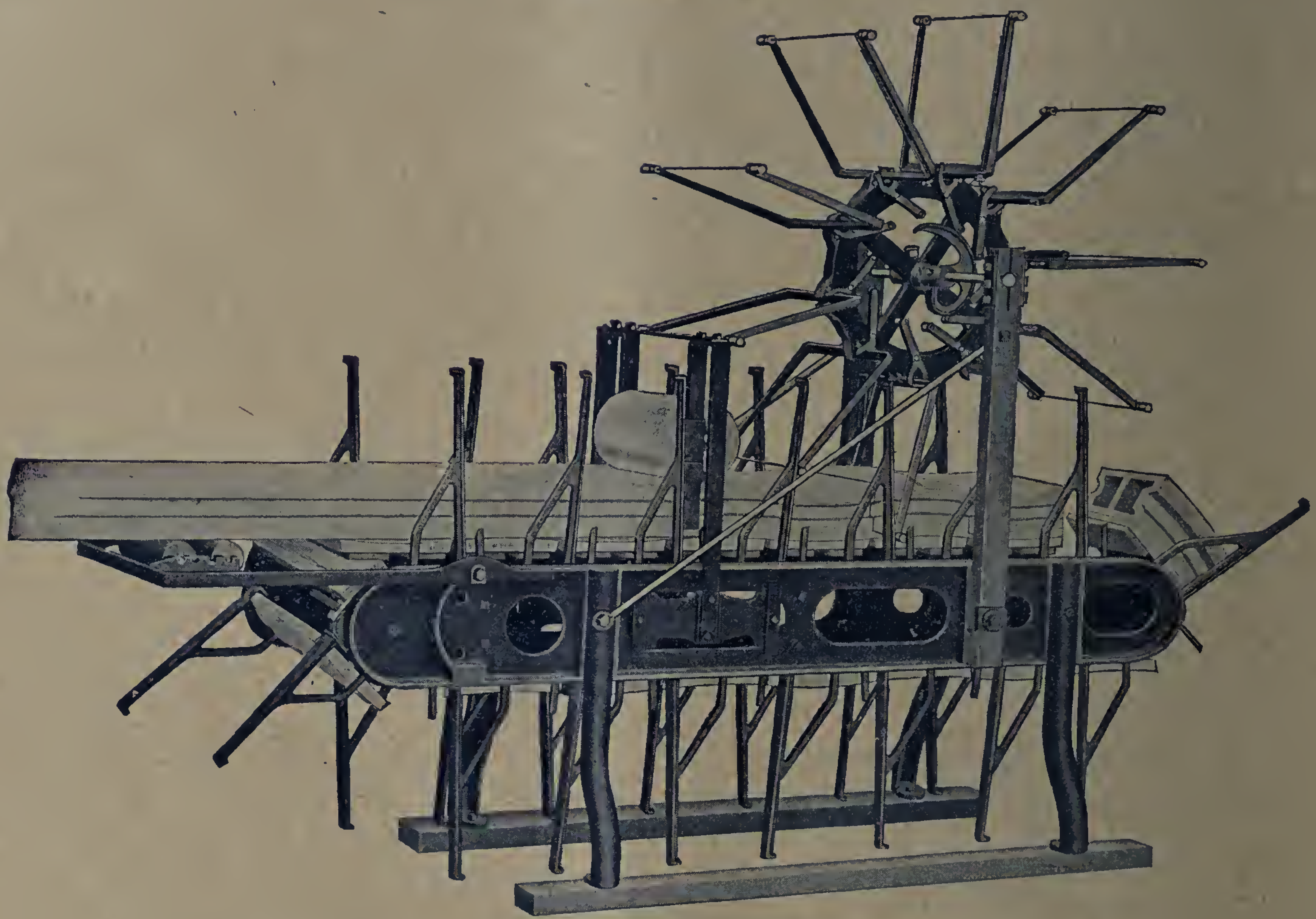

AUTOMATIC TABLE FOR CUTTING CURVED SILO BLOCKS.

This table has been developed from our automatic tile and block cutting table, embodying our new reel with cam and friction arrangements, which dispenses with the cutter arm springs and guide pins in the arms. This method insures an absolute straight cut and positive clearance of the cutting wire as it passes back between the platens or the cut ware. Special platens are provided curved to the radius or diameter of the silo in which the blocks are to be used, such as a 10, 12 or 14-ft. silo, or two or more sets of platens of different radius can be furnished for the same table. A special plaster of paris roller mounted over the column of clay, adjustable as to height, compresses the column as it comes from the machine to make it conform to the curve of the platens.

After the column is thus curved, it passes under the reel, where the cutter arms passing down slanting standards, which are of an even number and inclined alternately forward and backward, cut the curved column into blocks, the ends of which are on an angle to the face, each end the opposite of the other and converging toward the concave side. One block then comes from the table with the convex side uppermost and the next with the concave side uppermost, which if turned half way over and laid on edge, end to end with the first block will make a continuous curve, and in this way a complete circle of the desired diameter can be made, with the ends of each block practically square with the ends of the adjoining block. This permits of even mortar joints and makes a much more substantial wall than one made up of straight blocks with square ends.

While this table is shown without a friction driving device, it can be furnished with one, when desired.

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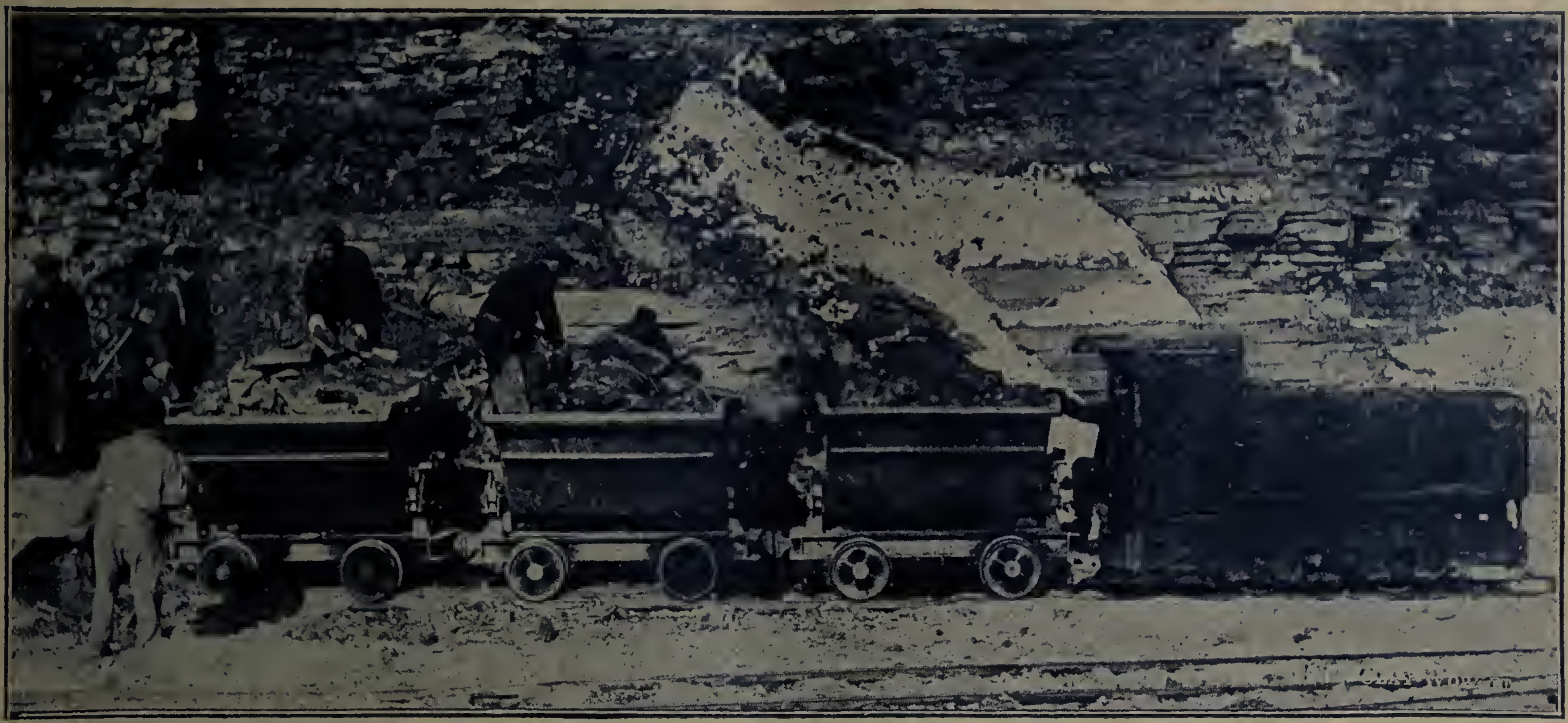
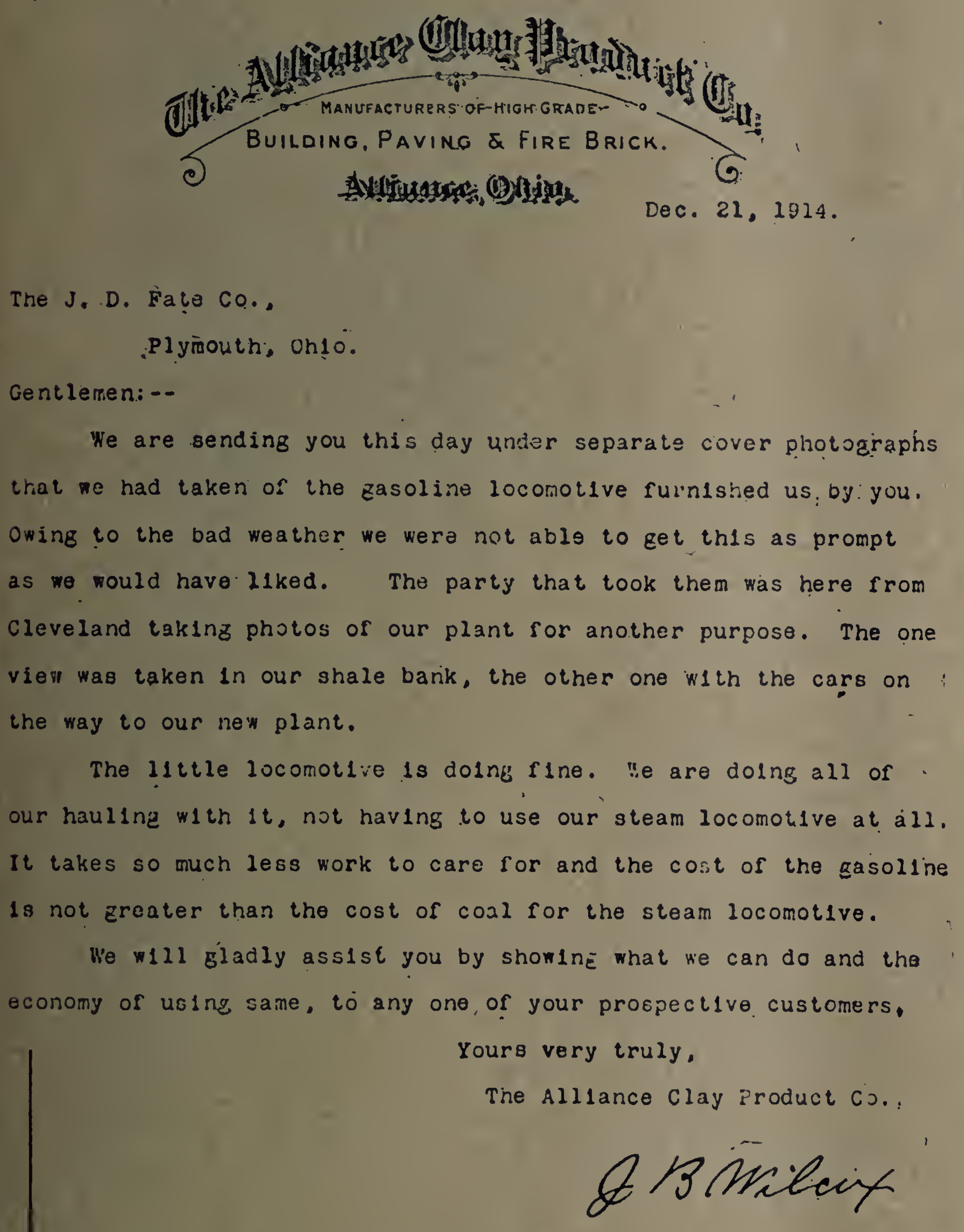


PLYMOUTH 3 Ton Gasoline Locomotive at Shale Bank of the Alliance Clay Products Co., Alliance, O.



The Alliance Clay Product Co.
Manufacturers of High Grade
Building, Paving & Fire Brick.
Alliance, Ohio.

Dec. 21, 1914.

The J. D. Fate Co.,
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The little locomotive is doing fine. We are doing all of our hauling with it, not having to use our steam locomotive at all. It takes so much less work to care for and the cost of the gasoline is not greater than the cost of coal for the steam locomotive.

We will gladly assist you by showing what we can do and the economy of using same, to any one of your prospective customers,

Yours very truly,
The Alliance Clay Product Co.,

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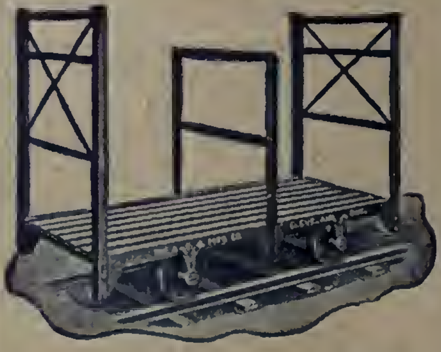

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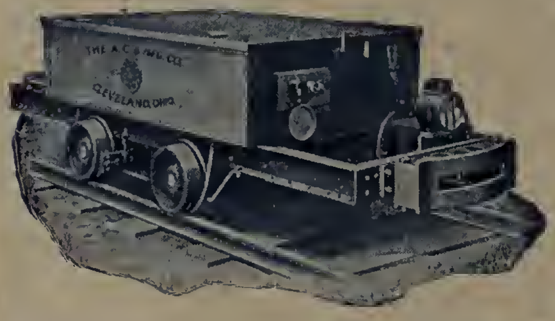

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SEPTEMBER, 1915

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Coliseum, Cleveland, Ohio, Where the First American COMPLETE BUILDING SHOW Will be Held February 16 to 26, 1916

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
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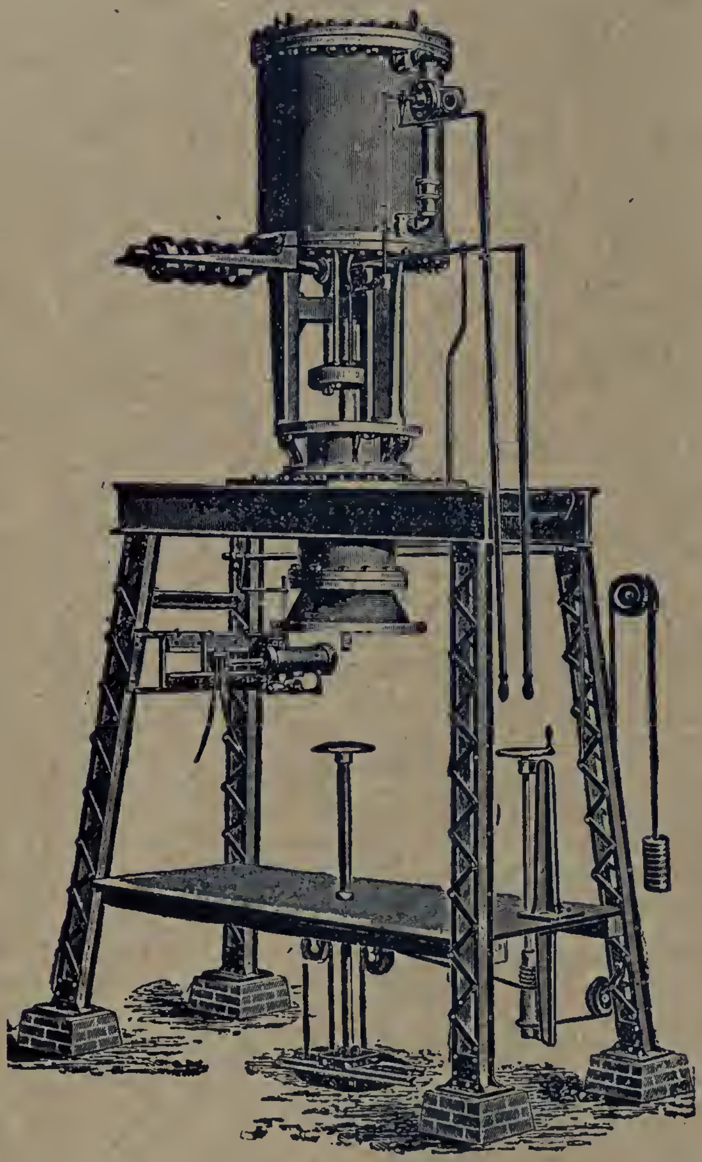
All men get stung sometime. Some men get stung all the time, except the ones who buy PIONEER CLAYWORKING MACHINERY.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

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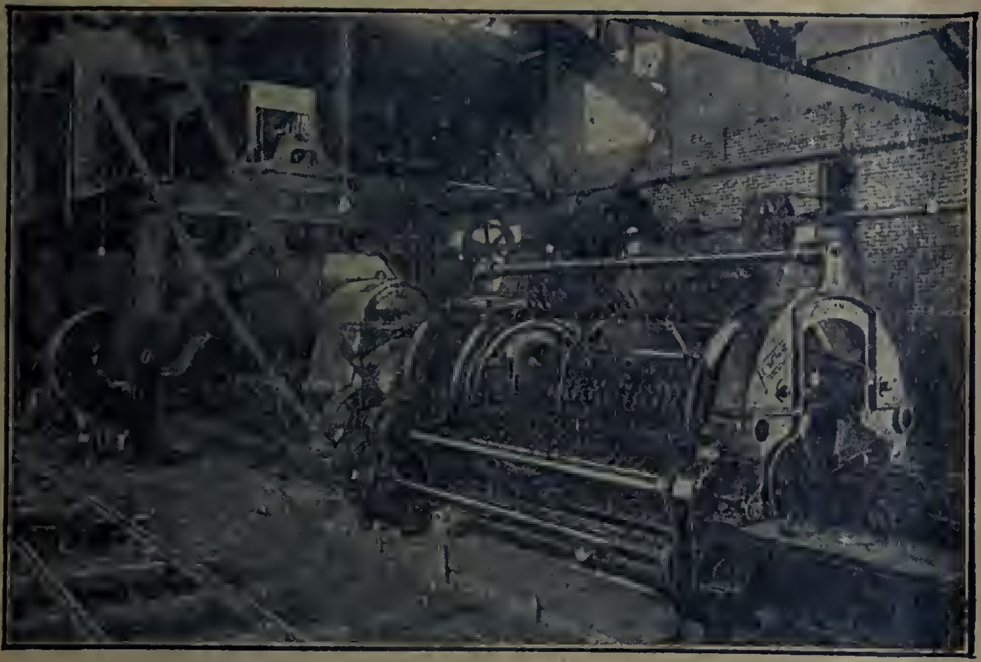

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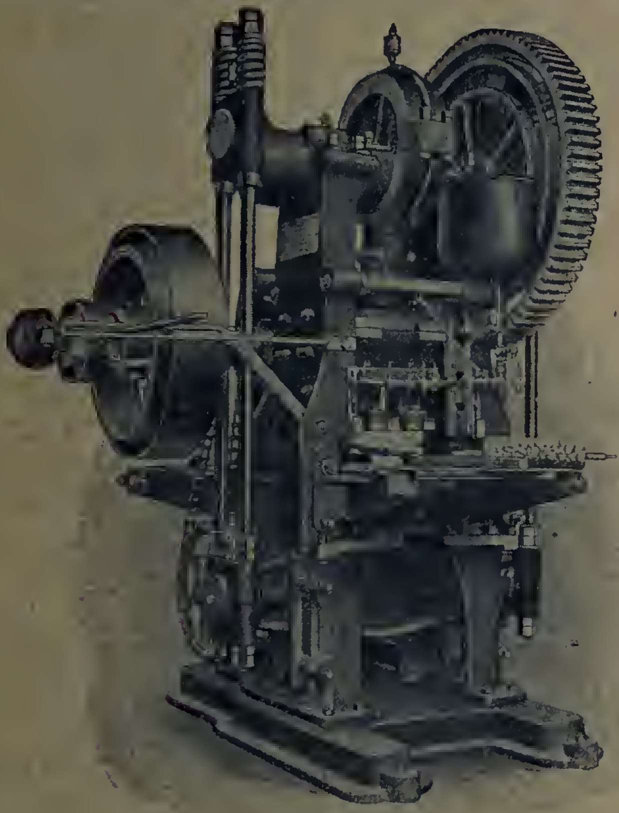

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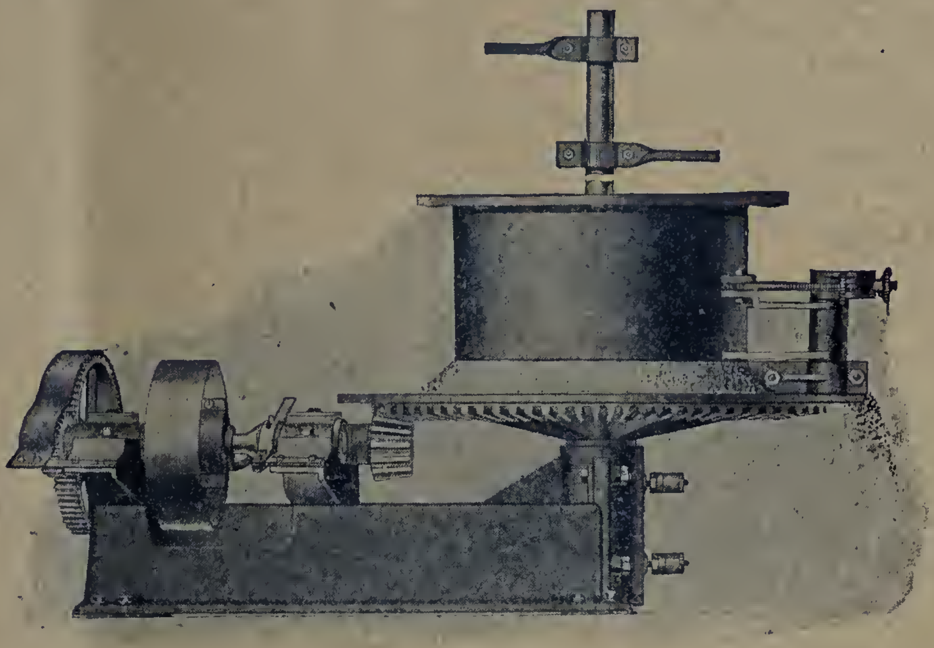

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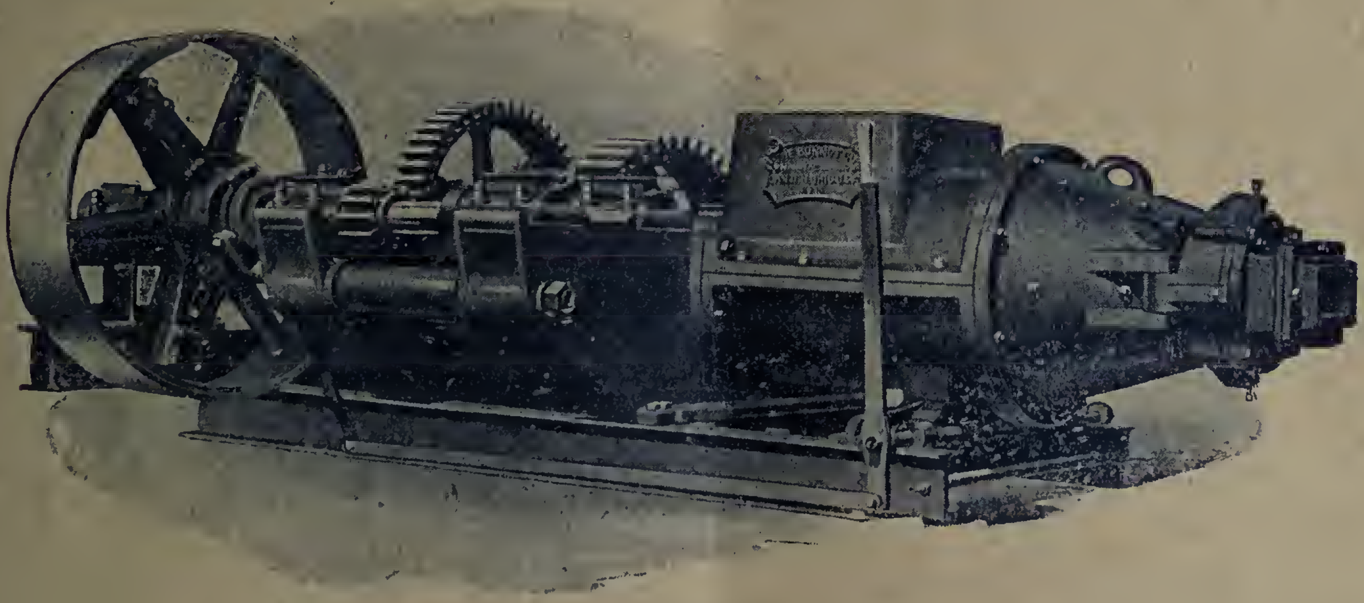

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If you make the mistake of considering what a Gravity Conveyer System will cost without regard for what it will save in salaries, you cannot accurately estimate its value as an investment. We can point out many other advantages, upon request.

SPEED
MATHEWS GRAVITY CARRIER COMPANY
The MATHEWS WAY
The SAVING WAY
ECONOMY

## No Power Required

to run this conveyer. Just the weight of the brick resting on the steel, ball-bearing rollers causes them to run down a straight line of conveyer or turn right-angle corners without injury or danger of falling off.

RODGERS

# "TOO MUCH MOISTURE"

is the almost daily complaint one hears from all sections of the country.

To many workers it means calamity—among others, to the clayworkers. Few workers, however, can so readily find relief, as can the manufacturer of clay products. The remedy, in his case, is a

## RODGERS WASTE HEAT DRYER

His relief is sure, for there's a type for every clay—even the most tender—for the drying of which our latest type

## RODGERS "UNI-TROL" DRYER

was designed and is now in successful operation in various parts of the country.

If you're experiencing "too much moisture" in the manufacture of your product, you can obtain certain relief by asking it of the

## L. E. RODGERS ENGINEERING CO.

**Waste Heat Dryer Specialists**
**Brick Works Engineers**

**Largest Manufacturers of Brick Drying Equipment in the United States**

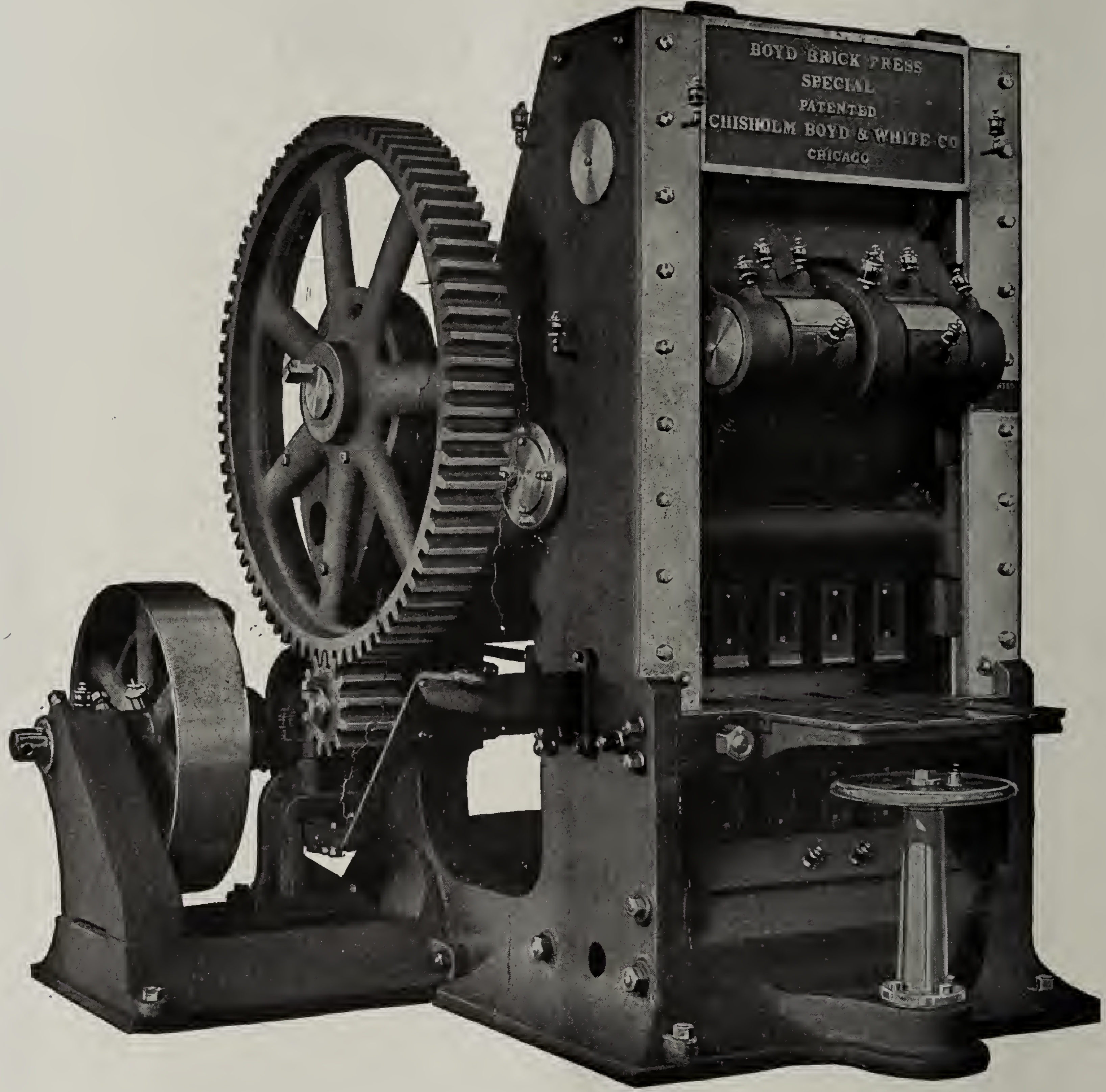
**General Offices and Works**

O
H ZANESVILLE, I
O

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED=PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

## Chisholm, Boyd & White Company

**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

---

### Ammeters.

The Brown Instrument Co.

### Analysists and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Arch Cutting Apparatus.

Ceramic Supply & Con. Co.

### Automatic Clay Bin Emptier.

Fate Co., The J. D.
Raymond Co., The C. W.

### Automatic Cutting Tables.

(See Cutting Tables.)

### Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Barytes, Carbonate of.

Roessler-Hasslacher Chem. Co.

### Bearings, Roller.

(See Supplies.)

### Belting.

Ceramic Supply & Con. Co.
Gandy Belting Co.

### Belt Conveyors.

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Blowers.

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.

### Brick (Building).

Bloomfield Clay Co.
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).

Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).

Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.

### Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Mchy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.

### Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The
Chambers Bros. Co.
Fate & Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

### Brick Recutter.

Raymond Co., The C. W.

### Brick Setting Machinery.

American Clay Machinery Co.

### Buffing Machinery.

American Clay Machinery Co.

### Burning and Drying Systems.

American Clay Machinery Co.
American Blower Co.
Boss, John C.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Yates, Alfred.

### Cars.

(See Dryer and Dumping Cars.)

### Castings.

American Clay Machinery Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.

Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.

American Clay Machinery Co.
American Pulverizer Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Clays.

American Clay Machinery Co.
Bloomfield Clay Co., The

### Clay Dryers.

American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.

American Clay Machinery Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Marion Mach., Fdy. & Sup. Co.
Raymond Co., The C. W.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.

### Clay Gatherers.

(See Scrapers.)

### Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

### Clay Technologists.

American Clay Machinery Co.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.

(See Supplies.)

### Coloring Materials.

Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.

Orton, Edward, Jr.

### Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.

American Clay Machinery Co.
Raymond Co., The C. W.

### Contracting Engineers.

Ceramic Supply & Con. Co.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.

(See Supplies.)

### Cutting Tables (Brick & Tile).

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.

American Clay Machinery Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Mittler Wire Mfg. Co.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

### Dampers.

(See Supplies.)

### Dies.

(See Supplies.)

### Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Drills.

Ceramic Supply & Con. Co.

### Drain Tile Machinery.

(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.

(See Supplies.)

### Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

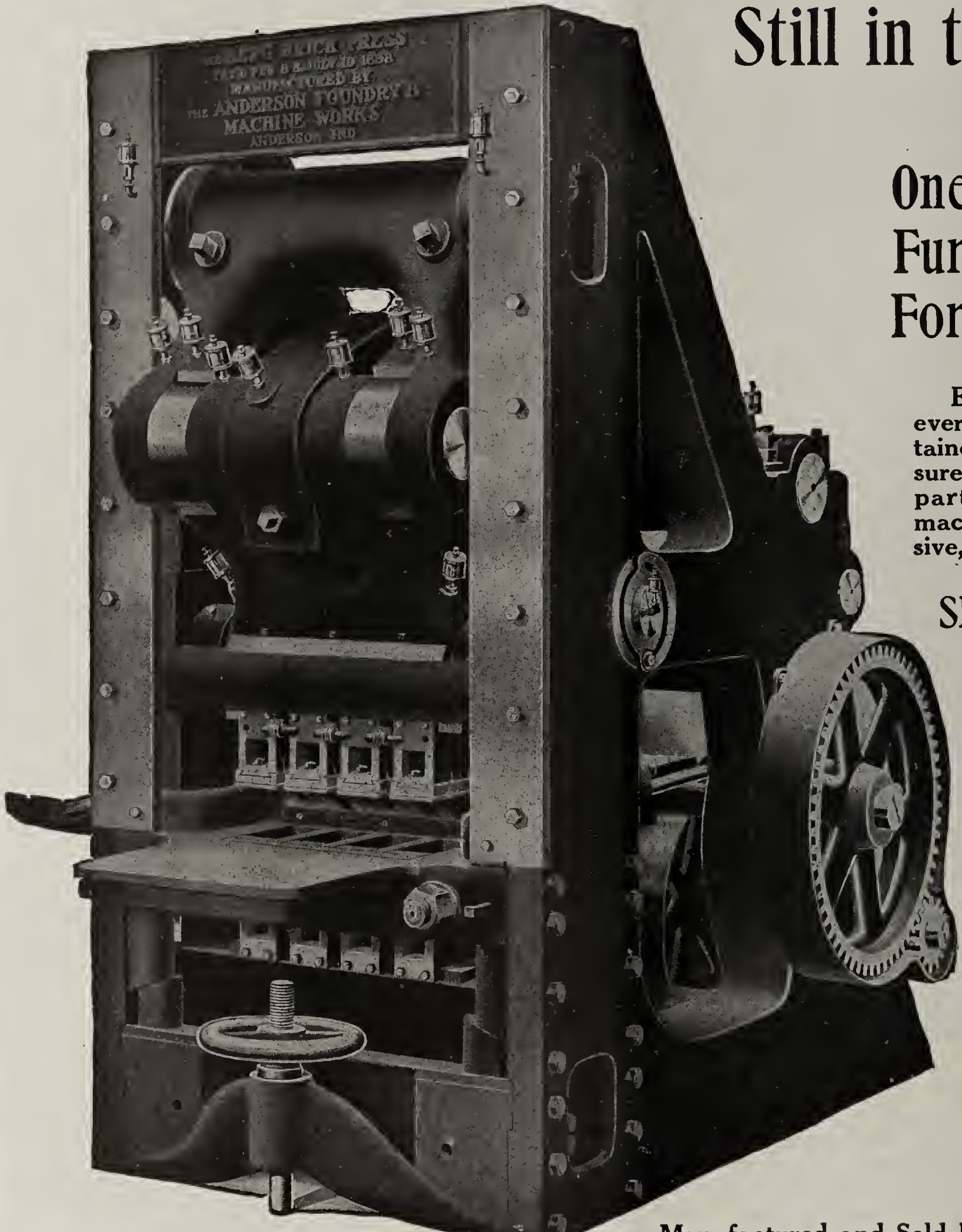
### Dryer Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.

(Continued on page 249.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

**SHIPPED IN ONE PIECE.**

**All Machines Are Equipped With**

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

### Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.

### Electric Instruments.

Brown Instrument Co., The
Thwing Instrument Co.

### Electric Shovels.

Thew Automatic Shovel Co.

### Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

### Electrical Locomotives.

Atlas Car & Mfg. Co.

### Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.
Westinghouse Elec. & Mfg. Co.

### Elevating Equipment.

(See Conveyors.)

### Engines.

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

### Engineers.

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

### Fans.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Filler (Paving).

Barrett Mfg. Co.

### Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

### Fire Clay.

Bloomfield Clay Co.

### Floor Tile.

Chicago Ret. & Fire Brick Co.

### Flower Pot Machinery.

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The
Taplin-Rice-Clerkin Co.

### Friction Clutch Pulleys.

(See Supplies.)

### Furnaces.

Brown Instrument Co., The
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

### Gas Fire Continuous Kilns.

Raymond Co., The C. W.

### Gears.

(See Supplies.)

### Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Grates.

American Clay Machinery Co.
Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.

### Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin-Rice-Cerkin Co.

### Gravity Haulage.

American Clay Machinery Co.

### Grouter.

Marsh-Capron Mfg. Co.

### Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

### Hollow Blocks.

Smith, W. W.

### Hand Winch.

(See Supplies.)

### Hangers.

(See Supplies.)

### Hoists.

(See Supplies.)

### Hollow Brick Machinery.

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Illustrators.

Lamb, J. & R.

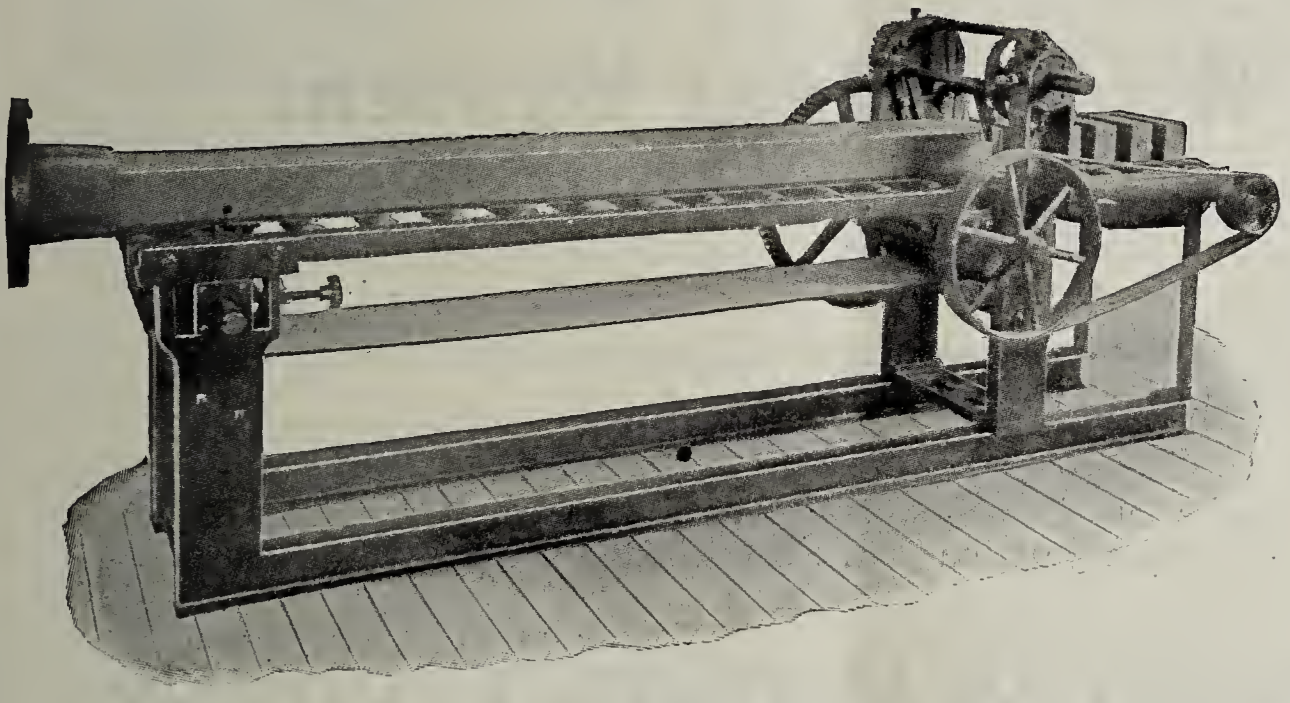
### Insurance.

Mantle, Tile & Grate Monthly.

### Jacks.

(See Supplies.)

(Continued on page 251.)



MUELLER'S NEW AUGER BRICK MACHINERY

Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

MUELLER BROS.

1436 Macklind Ave. (on Frisco Tracks) ST. LOUIS, MO.

The Layton, Pa., Plant of the Kier Fire Brick Co.

**BUILD WITH BRICK**

# 25,000 Silica Fire Brick

**are being dried every day by the**

## Sirocco

TRADE MARK.

## Waste Heat System

are dried economically at the Layton, Pa., Plant of the Kier Fire Brick Co.

They decided to convert their waste heat into a valuable drying element. You can do the same. The cost is small as compared to the results obtained.

Our Brick Engineering Department will lay out a Sirocco System for you, by the installation of which **you** can turn a **waste** into a **gain.**

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.

St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
Dallas, Texas, Southwestern Life Insurance Bldg.

San Francisco, Cal., 667 Mission St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lemcke Annex.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

### Kilns.
American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Klose, A.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred

### Kilns, Doors, Castings and Frames
(See Supplies.)

### Kiln Floor Tile.
Chicago Ret. & Fire Brick Co.

### Knives.
(See Supplies.)

### Locomotives.
Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

### Manganese.
(See Coloring Materials.)

### Mechanical Draft.
American Clay Machinery Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

### Mineral Paint.
(See Coloring Materials.)

### Molds (Brick).
American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.

### Mold Sanders.
American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.

### Mortar Colors.
(See Coloring Materials.)

### Motor Trucks.
Fate Co., The J. D.

### Oil Burners.
Schurs Oil Burner Co.

### Paints.
(See Coloring Materials.)

### Pallets.
Fouts Co., The C. C.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

### Pans (Dry and Wet).
(See Dry and Wet Pans.)

### Paving Brick or Block.
(See Brick.)

### Perforated Sheet Metal.
Caldwell & Sons, H. W.
Ceramic Supply & Con. Co.
Harrington & King Perf. Co.

### Pitch (Paving).
Barrett Mfg. Co.

### Plows.
(See Scrapers.)

### Poidometers.
Schaffer Eng. & Equip. Co.

### Portable Track.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### Pottery Machinery.
American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Taplin-Rice-Clerkin Co.

### Power Plant Equipment.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Presses.
(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

### Pug Mills.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Pulleys.
(See Supplies.)

### Pulverizers.
American Clay Machinery Co.
American Pulverizer Co.
Fate Co., The J. D.
Taplin-Rice-Clerkin Co.

### Pumps.
Ceramic Supply & Con. Co.
Dean Bros. Steam Pump Wks.
Potts & Co., C. & A.

### Pyrometers.
Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

### Rails and Railway Equipment.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Ceramic Supply & Con. Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

### Rattlers (Paving Brick).
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

### Recording Gauges.
Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

### Represses.
American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Con. Co.

### Revolving Steam Shovels.
American Clay Machinery Co.
Thew Automatic Shovel Co.

(Continued on page 252.)

# Reduced Operating Costs

Reduced cost is what every brick manufacturer wants now when the denand for brick is slack.

Our power engineers have convinced many owners of the economy of Westinghouse Motor Drive. The plants that are so equipped today are the ones which are saving money.

Give our power engineers a hearing. Their services are free.

**Westinghouse Electric & Manufacturing Co.**

Sales offices in all
large American cities

East Pittsburgh,
Pennsylvania

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Clay Machinery Co.
American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.

### Sand Dryer and Sand Sieves.

American Clay Machinery Co.
Ceramic Supply & Con. Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Lechtenberg Brothers.
Eagle Iron Works.

### Screens.

American Clay Machinery Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Lakewood Engineering Co.
Raymond, Co., The C. W.
Taplin-Rice-Clerkin Co.

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

American Clay Machinery Co.
Thew Automatic Shovel Co.

### Steam Specialties.

American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steam Traps.

American Clay Machinery Co.
American Blower Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Switches.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., H.
Brewer Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

American Clay Machinery Co.
Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

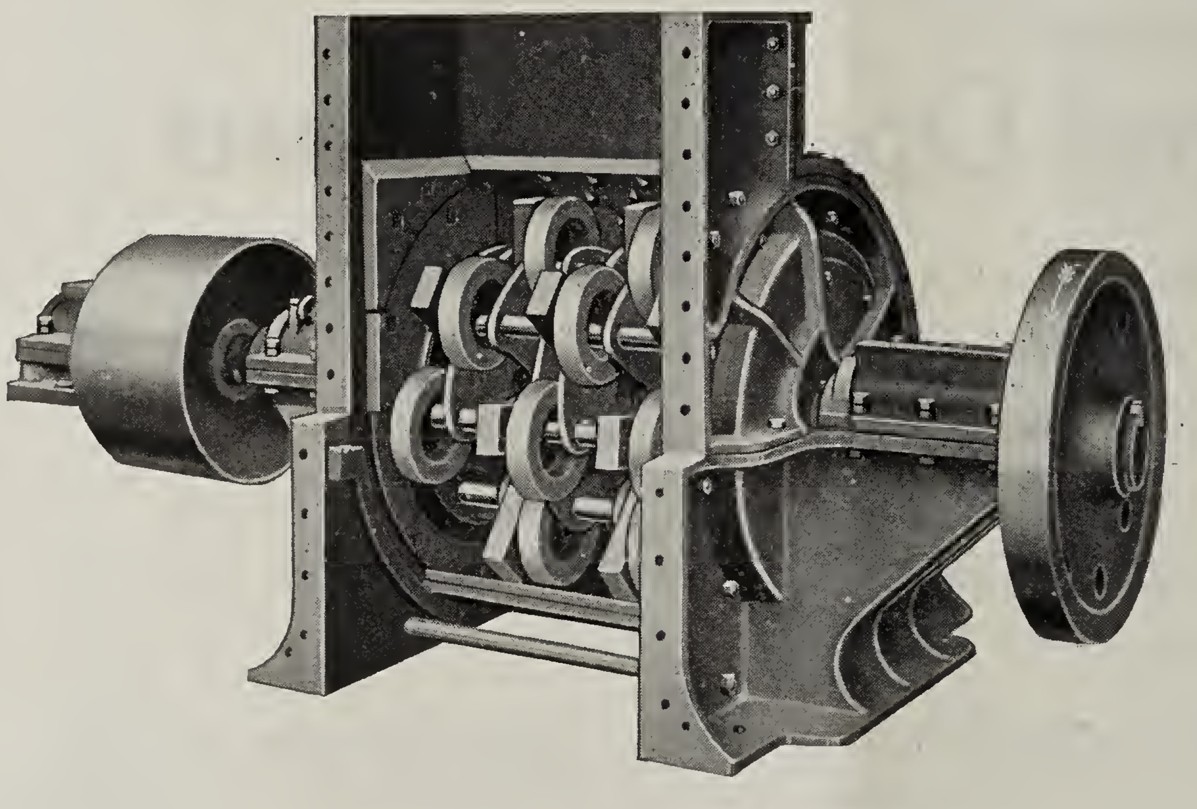
(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)



Our Number 48
PULVERIZER
Price $1650
will pulverize
18 to 25 tons
of
shale and clay
per hour.

COMPARE
this machine's ability with any other type of grinding machinery,
like installation cost.

GUARANTEED UNDER 30 DAYS' GRINDING TEST.
SEND FOR PARTICULARS.

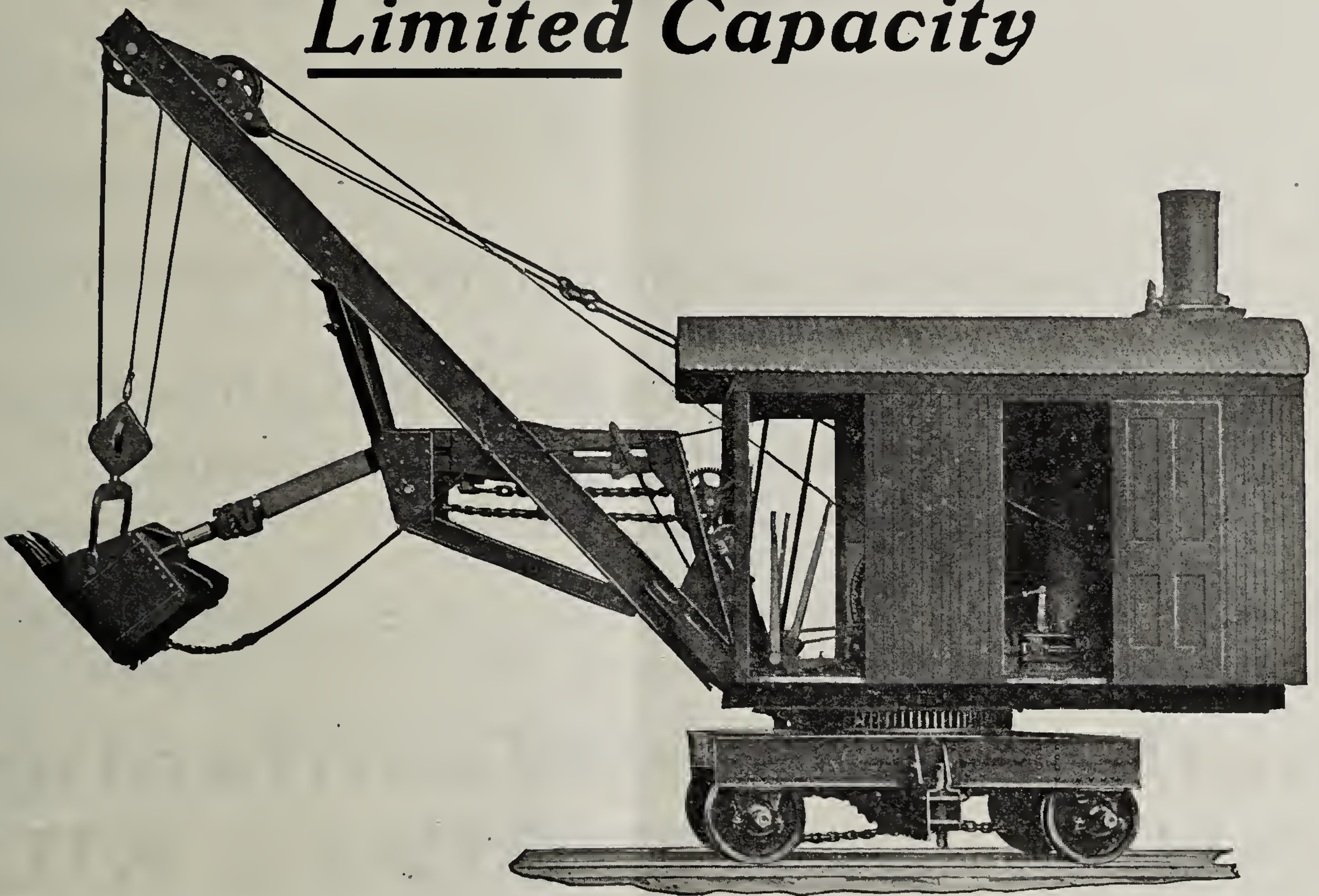
AMERICAN PULVERIZER CO., East St. Louis, Ill.

THEW SHOVELS

FULL CIRCLE SWING
THEW
HORIZONTAL CROWDING MOTION
STEAM SHOVELS

# Type A0---A Smaller Thew Shovel

## *For Clayworking Plants of Limited Capacity*



MORE than 400 Thew Shovels are in use in clayworking plants, a fact which conclusively proves the adaptability of these shovels to this industry.

Until recently the Type 0 Shovel, weighing 18 tons, was the smallest and most generally used machine and the range of sizes adapted for clayworking varied from that up to Type 4, weighing 55 tons.

The success invariably experienced by clayworkers with Thew Shovels proved their design and operating features to be ideal and emphasized the need of a somewhat smaller shovel for the plant with more limited capacity.

The Type A0 Thew Steam Shovel was designed to meet this demand and it affords the owners of these plants an economical advantage, equal to that enjoyed by their larger competitors.

The Type A0 Steam Shovel is small, light, simple in operation, readily portable, and ample in every way for the requirements of the modern clayworking industry.

Weight, 15 tons; dipper, 5/8 cu. yds. capacity; hoisting engines, 5x6 inches; swinging and crowding engines, 4x5 inches; boiler built to Massachusetts specifications for pressure up to 150 pounds.

Owners of clay plants who heretofore considered their plants not large enough to justify a steam shovel will be interested by obtaining additional information about this Type A0 Thew

**Sign and Mail or Use for Memorandum**

**The Thew Automatic Shovel Co.**
**Lorain, Ohio**

Send us at once literature and complete information about your Type A0 shovel advertised in The Clay-Worker.

Name ....................................

Address ....................................

**THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO**

Trautwein
DRYERS

# INSURE YOUR CAPACITY

To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

## ASSURANCE

Of Increased Capacity
Greatest Economy
And Largest Profits

OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

**Trautwein Dryer & Engineering Co.**
**Manufacturers-Engineers**
**417 South Dearborn Street Chicago**

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# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP-TO-DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

## Claude Smith Company

**KILN BUILDERS**
**Plymouth Building Chicago, Illinois**

# JOIN THE

**BOOST** **BOOST**

# BUILD WITH BRICK

# CAMPAIGN

A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

## THE BUILD WITH BRICK MOVEMENT.

IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.

It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.

Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background.

These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.

Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.

**T. A. Randall & Co., Publishers The Clay-Worker.**

Gentlemen:

You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ................................................

................................................

**(Cross out the items not wanted, fill in and mail us the coupon.)**

**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country,"
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

**SHAWMUT VITRIFIED PAVING BRICK WORKS**

Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

PAVING BUILDING · BRICK AND BLOCK · SIDEWALK FOUNDATION

**The Barr Clay Co.**

C. C. Barr, Pres. · Streator, Ill.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

**KUSHEQUA**

Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

**PROMENADE TILE**

Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

**Tile Underdrainage.**

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

**THE DECKMAN-DUTY BRICK CO.**
CLEVELAND, OHIO.

"THE HOME OF MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

**ALTON BRICK COMPANY**

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

**McAVOY VITRIFIED BRICK COMPANY**

PHILADELPHIA, PA.
*"McAVOY BLOCK"*

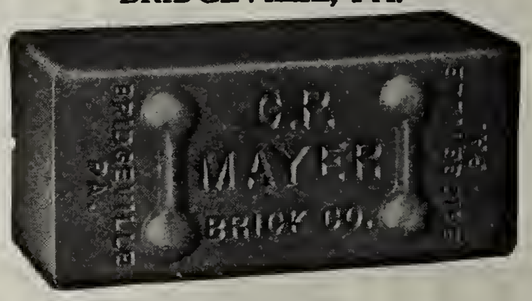
**VITRIFIED PAVING BRICK.**

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second Edition. Mailed to any address on receipt of $2.00.

T. A. RANDALL & CO., Publishers, Indianapolis.

**C. P. MAYER BRICK CO.**

BRIDGEVILLE, PA.



The MAYER BLOCK is Unequaled in Abrasion Test.

**"Best Paving Block Made"**

Daily Capacity
500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

**IRONSTONE BLOCK**

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

**Terre Haute Vitrified Brick Co.**

TERRE HAUTE, IND.

**Murphysboro Paving Brick Company**

Manufacturers of

The Celebrated

**EGYPTIAN PAVING BLOCK**

The Block That Stands the Test.

Prices and samples furnished upon application.

MURPHYSBORO, ILL.

**Do You Want Clay?**

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

**Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.**

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

**The BLOOMFIELD CLAY CO.,**

(C. A. Bloomfield, Treas. and Manager)

P. O. Box 413. METUCHEN, N. J.

**CLINTON PAVING BRICK CO.**

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

**Clinton Paving Brick Company**

Clinton, Indiana

**PAVE WITH BRICK**

THE DEPENDABLE ROADWAY

**Bessemer Limestone Company**

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Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

**PURINGTON PAVERS**

ARE MADE OF

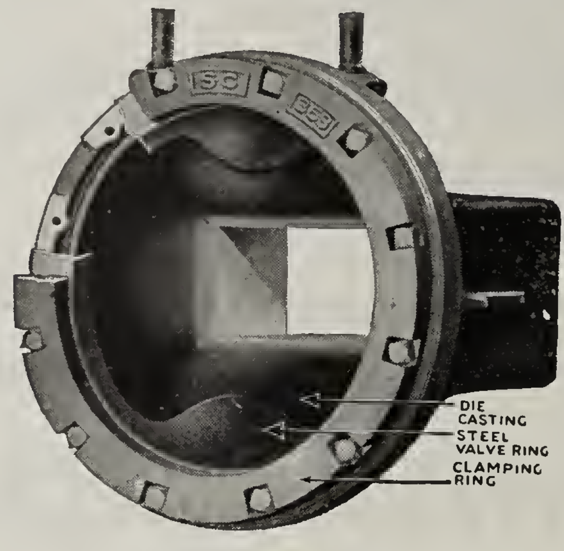
**GALESBURG SHALE**

**PURINGTON PAVING BRICK CO.**

GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

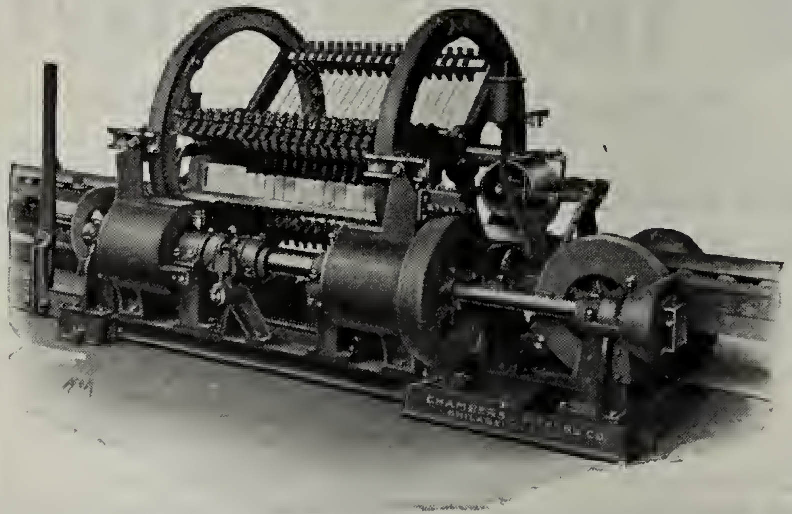
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

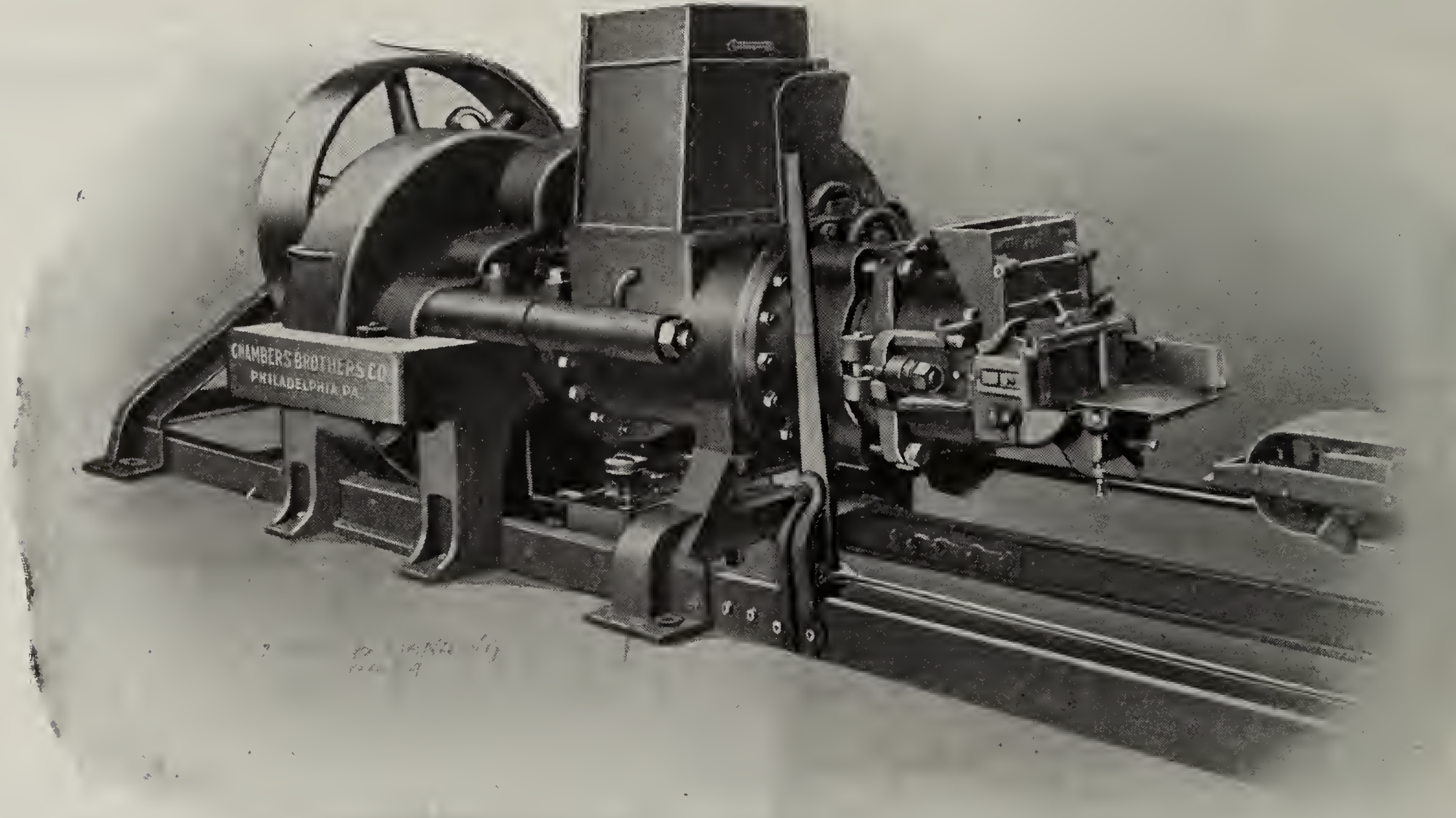
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

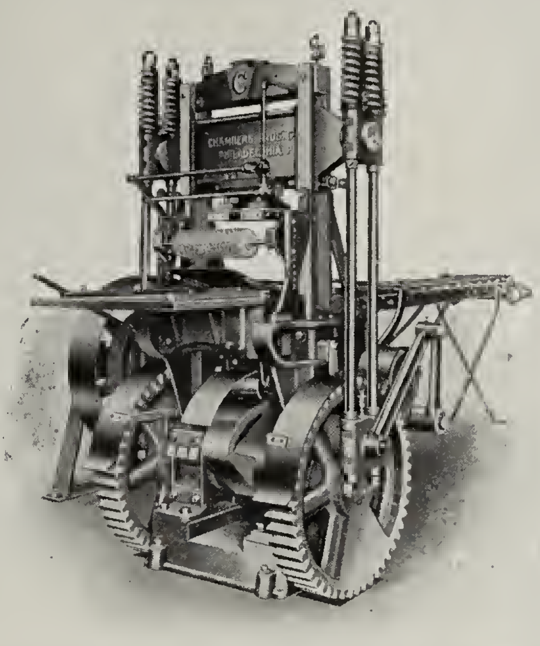
# Chambers Brothers Co., Philadelphia, Pa.

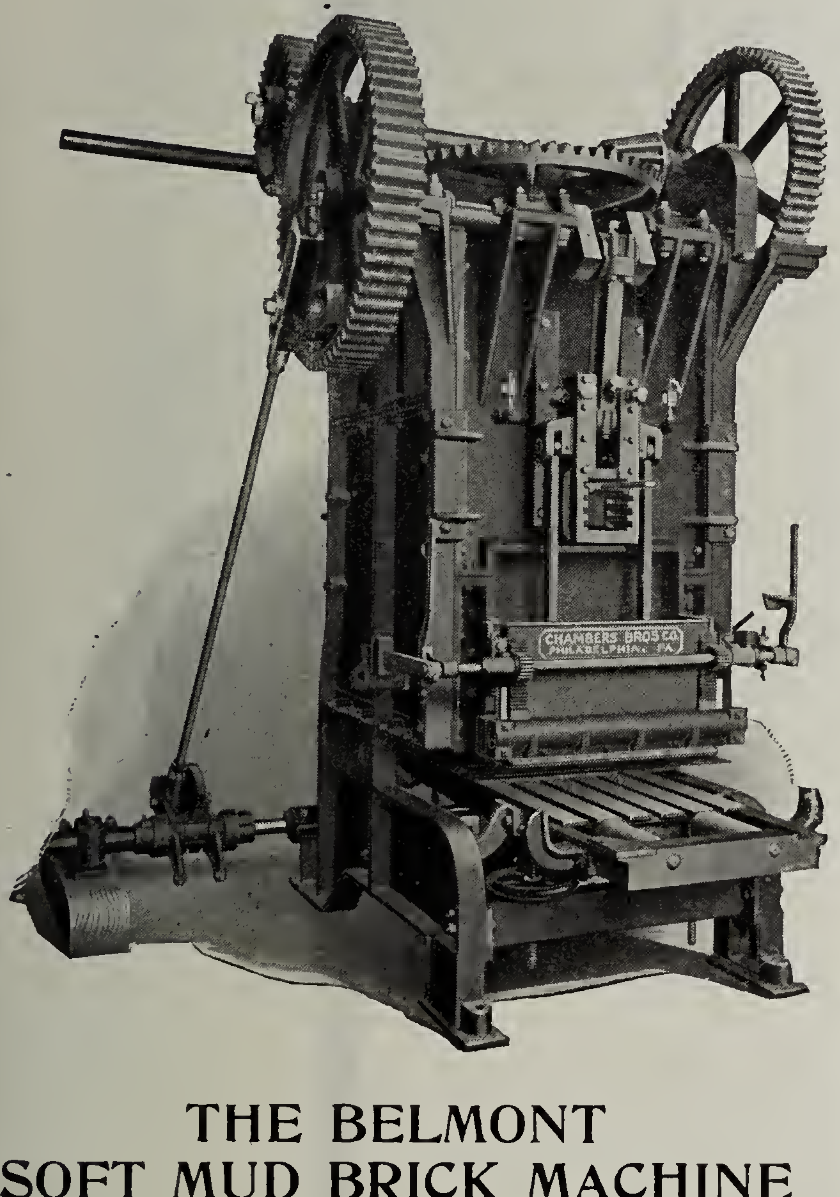
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

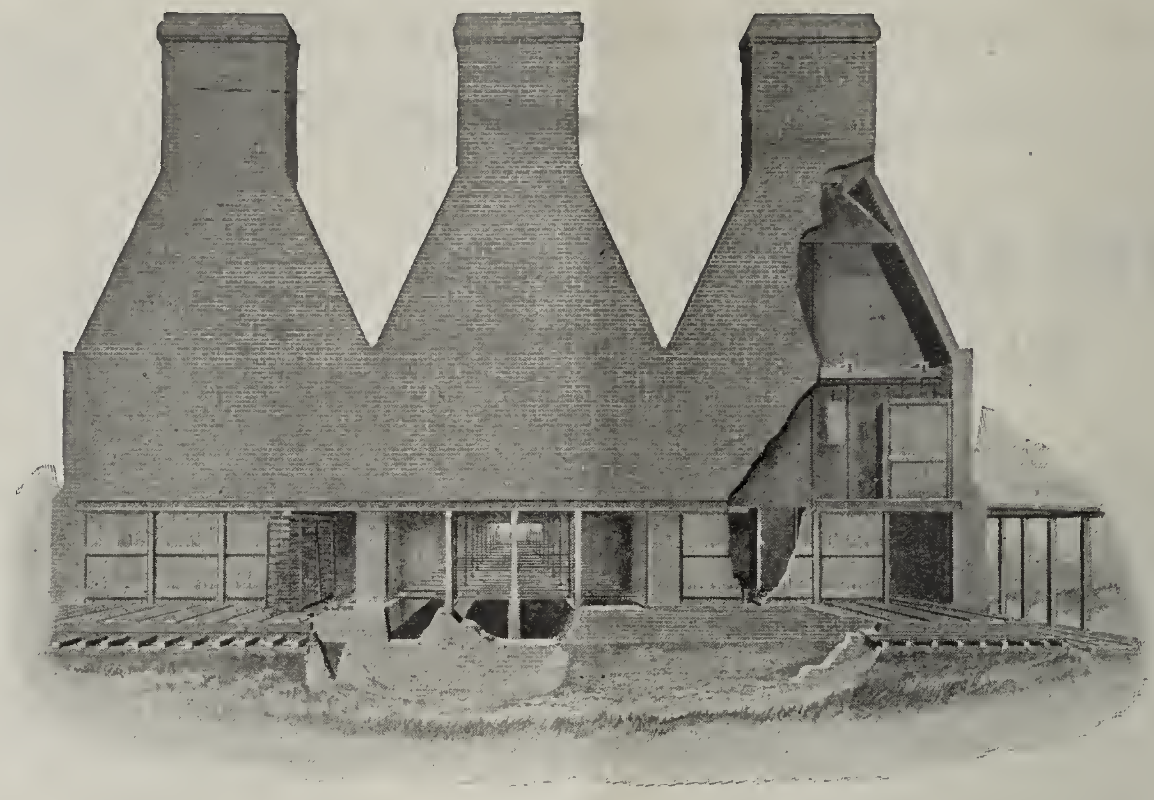
Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

THE BELMONT
SOFT MUD BRICK MACHINE

Molds sharp clean edge brick as stiff as can be dumped from the molds.



# Read the Letters

that users write, saying: "The Standard Drier is doing MORE than you claim." Then you'll begin to see why we can afford to make our guaranty as strong as we do.

Write for the catalog and list of users, in which you'll find letters like that from many brick plants where The Standard Drying System has been "making good" year after year. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.

THE CLAY-WORKER

The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIV. INDIANAPOLIS, IND., SEPTEMBER, 1915. No. 3

# BRAZIL, THE CLAY CENTER OF INDIANA.

### Three of Its Nine Large Factories Manufacture High Grade Face Brick.

LAST MONTH we published an article under the above heading, in which we pointed out the importance of Brazil as a clay manufacturing center, told a little of its history and described several plants producing conduits, hollow block and tile. In this issue we give the information gathered from an inspection tour through the Brazil plants manufacturing face brick. There are three such factories, each producing ware of distinctive merit; namely, those of the Brazil Clay Company, Brazil Face Brick Company and the Hydraulic Face Brick Company.

The Plant Office of the Brazil Clay Company, Brazil, Ind. Mr. W. J. Snyder is Seen Standing by the Second Brick Pier.

We began our trip by hiring a jitney bus in front of the interurban station and were soon at

### The Plant of the Brazil Clay Company.

The factory is located but a mile and a half from the center of Brazil. In approaching the plant we cannot but be impressed by the attractive office building made of the company's famous rough X brown brick. This office building is roomy and well lighted and ventilated. There are four rooms including toilet. The company also has an office in Brazil proper.

Of unusual interest is the clay mine located a short distance from the office, designated by the tall towering frame structure to the top of which the clay is elevated ready for its trip through the plant.

We had the pleasure of inspecting this mine. After a signal was given the cage shot up to the ground level, the gate lifted and we walked in and held fast while we seemingly dropped 110 feet through the 28 by 28 shaft which gives ample room for the operation of two cages.

After leaving the cage at the bottom we walked down a long dark passageway where hundreds of tons of fire clay had been removed. The immense vein of fire clay averaged from 9 to 17 feet in thickness superimposed by a thin vein of coal over which is a hard bed of rock, which makes an excellent roof. With small lamps in our hands we walked down the 600-foot main entry and passed 6 by 9 cross entries every 60 feet, the pillars being 60 by 40 feet which give sufficient support for the roof. The sounds of the men at work grow strong as we near the farthest point.

A mule drawing an empty car with a silent driver passed us and did not slack pace as he approached a wooden door which blocked the passageway, for the mule is accustomed to push open the door with his nose, which in this instance proved more useful than ornamental. The door swings ahead and drops back in its former place as the car disappears beyond. This is an invention of an old Scotchman, whom we had the pleasure of meeting years before. The door hangs on two bolts or hinges, one on the bottom on the left and the other at the top and about a foot further to the right than the other, being fastened in a beam at the top of the door, thus causing the door to swing to its natural position of its own accord. This arrangement saves the labor of "trapper boys" and assures no break in the circulation of air in the chamber being worked. On our inspection tour we saw chambers entirely worked out to the property line while at other points we saw workmen loading cars or busily engaged in boring holes and preparing the charges and fuses for the next shooting, and in other places were several tons of loose clay that has recently been torn down from its bed by mighty shocks of dynamite. Eighteen experienced miners are employed here. Over 180 tons of clay are mined daily, four mules being used in the hauling.

The method of air circulation is as follows: The main shaft forms the up cast, while the air shaft is closed up near the main shaft, a Crawford & McCrimmon fan being used to force the air down the latter and into air corners through which it travels to the several entries and finally reaches the main shaft through which it escapes. The loaded cars are locked to the cages, which elevate them to the top of the tower 50 feet above ground level where the cars are automatically dumped. The clay drops down a chute to a large hopper in which it is weighed and is then lowered to descend by gravity down a chute to a crusher. The clay is conveyed by belts from the crusher to two Bonnot 9-foot dry pans and thence by cup elevators to Dunlap and Bonnot screens.

Tower over Entrance to Mine.

The screened clay is delivered to a large Bonnot pug mill by means of gravity and a belt conveyor. The pugged clay passes into a Bonnot brick machine. The clay column is cut by means of a Bonnot automatic cutting table. All of the brick are repressed on three Bonnot represses and are then loaded on Bonnot dryer cars, on which they are taken to the dryers. There are two dryers, a sixteen track waste heat dryer and a new eight track Justice radiated heat dryer, giving a total drying capacity of 192,000 brick. The green brick are dried bone dry in 36 hours and then taken to twenty-two round down draft 30-foot kilns. Three Crawford & McCrimmon fans are used for drawing out the heat from the cooling kilns to dryer and disposing of condensation. From 60,000 to 65,000 brick are set in each kiln. An unusual high percentage of good ware is secured from every burn, the kiln showing little difference in color between the top and bottom brick. This is due to careful systematic firing. The American blower fans are used for forcing the air. Trials are drawn at freuent intervals throughout the entire burn, giving the burner the correct indication of the progress of the firing.

Slack coal is used as fuel entirely in the burning of the dark brick while lump coal is used in burning their lighter colors. It requires from 10 to 12 days to burn. A large amount of the burned ware is shipped at once, the rest is stocked in a large shed 175 feet long and 75 feet wide. There are excellent railroad facilities, depressed tracks running into the kiln yard.

The power of the plant is furnished by means of a large 250 h. p. engine and three large Erie boilers, 18 by 72 feet, 125 h. p. each. A small Ironton engine is used to run a direct dynamo which furnishes a complete lighting system for the plant.

Mining the Raw Material.

Receiver End of the Justice Dryer.

The officers of the company are, President, W. M. Zeller; vice president, H. R. McClellan; sec'y-treas., M. J. Snyder, and Manager Chas. Hill.

### The Brazil Face Brick Co.

This company was organized in 1911, at which time the property of the old Sheridan Brick Company was purchased. The old factory was remodeled and rebuilt for the most part. The old clamp kilns were blown down and a new kiln yard was constructed with ten splendidly built, heavily steel banded 30-foot round down draft kilns.

Formerly a great deal of trouble was experienced in the shale bank due to the presence of huge rocks and boulders. The new company abandoned the old bank, took a lower level in another part of the property and have had little or none of the old trouble.

The shale and clay pit is about 800 feet from the plant proper and consists of the following: 3 feet stripping, 4 feet of bastard fire clay, 12 feet shale, 2 feet of coal, 8 feet fire clay, 3 feet of coal and a No. 1 fire clay, depth of which has not been determined.

The bank is dynamited and the different materials handled separately, the cars being loaded by hand and drawn to the plant by means of cable and winding drum. The dump cars are those of the Lakewood Engineering Co. The raw materials are stored in 5 bins, about 150 tons being handled each day. Nine men are employed in the pit.

Setting a Kiln of Rough X Brown Brick.

A Fine Kiln of Face Brick.

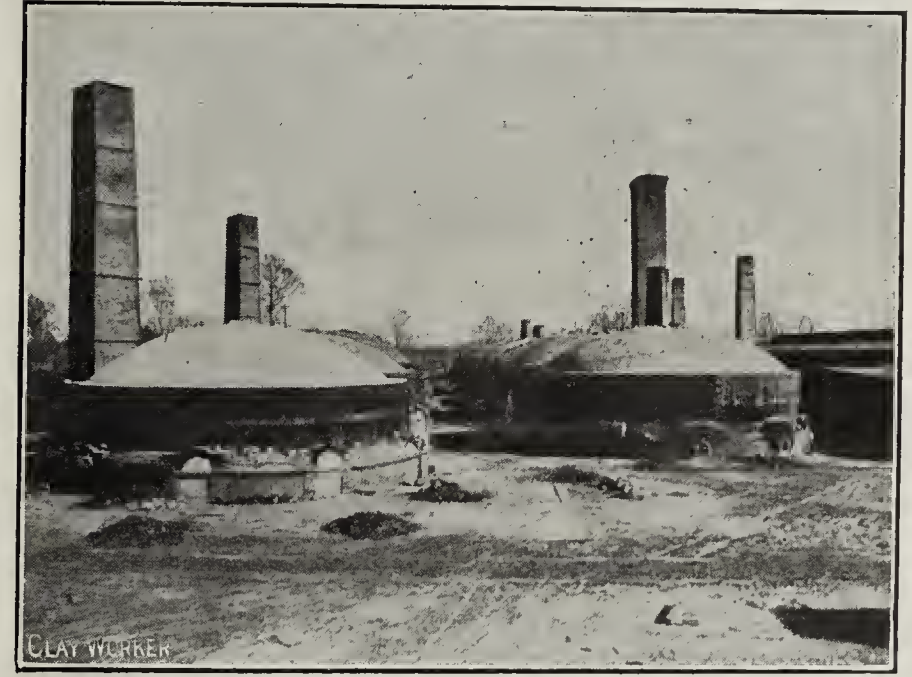
The raw material passes through dry pans of the Taplin-Rice-Clerkin Co.'s make, elevated to Dunlap screen and fed into an E. M. Freese & Co. combination machine. A Freese automatic cutter is used most effectively. Wires in front of the cutter peels the brick and gives it the desired texture called matt. The brick are loaded on the Standard Dry Kiln Co.'s cars and taken into a 24-track Standard dryer where they are dried in 48 hours.

The ware is burned in ten kilns, all well located in the brick-paved kiln yard which has depressed tracks running through the center for convenient loading. They are securing excellent burns making matt brick in gun metals and browns only. The kiln they were emptying when the writer was there had an almost perfect burn, not a single marred brick could be seen, the entire kiln was the same color. The men wheeled the brick from the kiln to car without need of sorting. Five cars were being shipped. The company manufactures one million brick each month. The steam power is furnished by means of Chandler & Taylor boilers and an Atlas engine. A small engine in connection with a generator furnishes the electricity for lighting. A Pulsometer steam pump is used in securing the water supply from a large reservoir of soft water, averaging 15 feet in depth filling a large gully 200 feet from the plant. This is a great improvement over the old factory and is seemingly more successful.

Four more kilns will be erected at an early date and the dryer capacity will be increased. The officers of the company are Mr. Fred Gompf, president and general manager; Alfred Lauter, vice president; Lewis Meier, secretary; Geo. Seidensticker, treasurer, and E. B. Leppert, sales manager. It is owned altogether by Indianapolis men.

Within a stone's throw of this plant is that of the Hydraulic Press Brick Company.

This is another large holding company with many plants scattered over the country. This company spent $100,000 last year in advertising their Hy-Tex brick.



Kiln Yard of the Brazil Clay Co.

Their Brazil plant compares favorably with their other factories and this statement, to say the least, is very complimentary, for the plant we are about to describe is an excellent one, a factory which has unusual features and well worth the while visiting. It is here the Hydraulic Company manufactures their Chinchilla brick, a product of unusual merit, for which there is much demand.

This brick plant was built in 1902 by the Ayres-McCarel Clay Co., which manufactured hollow ware, conduits, hollow block and chimney block. The company changed to the manufacture of brick in 1905 and sold out to the Hydraulic Press Brick Co. in 1906, since which time it has been successfully operated by the present owners. The present management is the same as in 1906. This speaks well for the ability of the men in charge. E. C. Hervey, Indianapolis, is sales manager in charge of the Indianapolis office, and H. R. Ireland is assistant secretary-treasurer and superintendent.

The company owns about 100 acres of clay land one and one-half miles north of Brazil. The raw material consists of a blue shale, the outcroppings are about the same as at the Clay Products Co.'s shale pit. The formations run as follows: 10

to 15 feet of sandy loam, part of which is used, 25 feet of blue shale, strata of 10 to 20 feet of slate and rock, the top vein of fire clay 10 to 25 feet, bed of rock 10 to 20 feet, and fire clay 10 to 20 feet.

The two fire clays are mined by the side drift method on two levels. A Y switch leads off from the mine incline to the shale pit, where the material is blasted and loaded by hand. A mule draws the five loaded cars to the point of the incline where the cable is attached drawing the cars to the plant about 1,000 feet distant. The empties are returned by gravity. The incline runs into the mine about 1,250 feet. The raw materials are dropped right into the three pans, two of which are the Bonnot 9-foot pans, the third a 9-foot American pan. Red and dark colors are made out of the shale, while the lighter colors, such as light greys, grey mottled and grey buffs are made with the fire clay.

Shale Pit of Brazil Face Brick Co.

Receiving End of Standard Dry Kiln.

There are two separate lines of stiff mud machinery. One line consists of an American Clay Machinery Company's No. 40 machine, and pug mill, a C. W. Raymond Co. No. 2 automatic cutter and a stationary metal perforated screen. The second line of machinery is comprised of a No. 777 Raymond machine and pug mill, their No. 2 automatic cutter and a Manufacturers Equipment Co.'s piano wire screen. A conveyor for the screened clay is used from elevator to the second line of machinery. Two C. & A. Potts & Co. conveyors are used for taking the waste clay back to the pug mills; 288 dryer cars are used, some are of the Lakewood Engineering Co.'s make, while the others are by the Crawford & McCrimmon Co. Each dryer car is loaded with 500 brick and then transferred to the eight tunnel, sixteen-track waste heat dryer by hand. Each track holds fifteen cars. The drying is accomplished in thirty hours. The dried ware is transferred to the kilns, there being ten 30-foot round down draft and four rectangular Graves patent Hydraulic Press Brick Co. kilns. The rectangular kilns hold 130,000 face brick each. The average daily production of the plant is about 60,000. Every detail of the burn is carefully observed. Draft gauge (Ceramic Supply and Construction Co.) readings are made every twelve hours on each burning kiln during the majority of the burn, but every six hours toward the close. Close attention is paid to the settle. Orton cones and Veritas firing discs are also used.

The power of the plant is furnished by two 150 h. p. water tube boilers and a 250 h. p. Alfree engine. A main drive Chandler & Taylor engine drives the generator for lights, fans, mine pumps and mine fans. The fans are of the American Blower Co.'s make and Crawford & McCrimmon. Mineral water from a deep well is used for drinking purposes and also pugging. A large reservoir supplies the water for steam. An unusual feature is the splendid fire protection. A large water main surrounds the plant with nine fire plugs and fourteen stations located at necessary points. Some stations have a reel of 50-foot hose, others 100 feet, as position of station requires. A gasoline pump is constantly in shape for operation at a moments notice for creating the proper pressure.

Machinery Room of the Brazil Face Brick Co.

Superintendent Ireland took the writer completely by surprise while explaining the system. He turned in an alarm near the incline. A whistle shrieked followed by four sharp blasts and before the writer could collect his thoughts, fourteen workmen dashed from different directions unreeling the hose or running forward with fire extinguishers. Two men had already set the engine going and a stream shot out from two lines of hose that would have been sufficient to put out an immense fire in short order.

The men are on their toes at all times. When their signal is given everything is dropped and double quick time is made to their respective places. Mr. Ireland remarked that they had a drill at frequent intervals and at unexpected hours. An alarm pulled from any station is recorded automatically in the engine room, at the same time blowing the whistle which warns the engineer. A quick glance at the recorder gives him the location and he immediately gives the proper number of whistle blasts. There is a fire department for the night as well as the day, the day consisting of twelve to fourteen men, while at night all of the men are pressed into service. This method has saved the company many a fire loss and is the best insurance they can buy.

The main building is of brick, while the office is of hollow tile. The brick sheds are of frame as is also the housing in all the buildings. A large amount of straw is stored for packing the face brick and a number of other combustible materials must necessarily be kept around the plant including freight cars.

Preparing to Blast a Shale Bank.

In the Shale Pit of the Hydraulic Plant.

The freight cars are run in on depressed tracks which facilitates the loading. A great deal of stock must be kept on hand due to the variety of face brick made. Attractive displays are on hand in the exhibition rooms and near the front of the plant in the open are racks of sorted brick to give the sorters the proper information in filling orders. The principal territory of this plant is in the central states.

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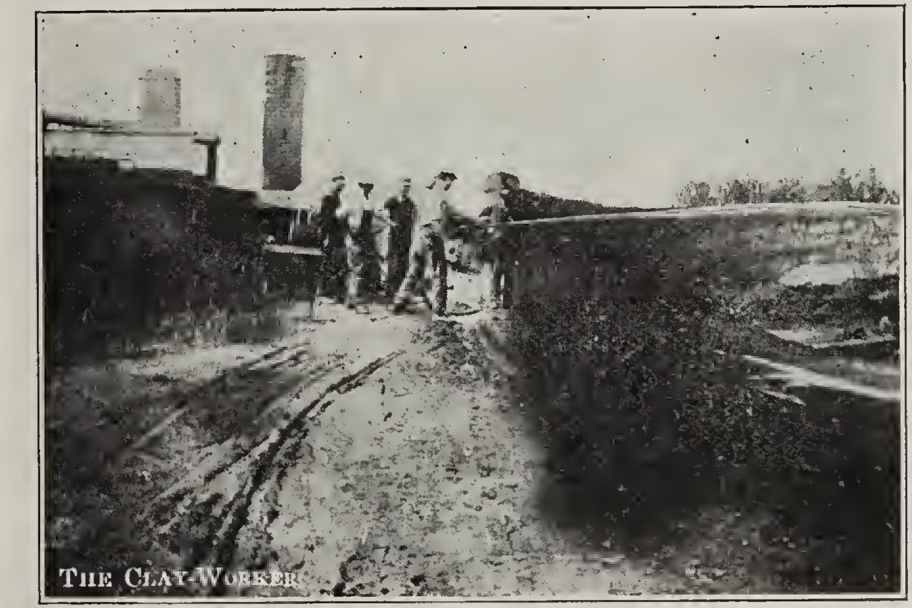
It is beginning to look like air ships are about as safe as water ships, especially in mined seas and places haunted by submarines.

## THE SPRINKLER ASSISTS.

Makers of automatic sprinklers for the protection of buildings and their contents against fire are very enterprising people and are doing some effective exploitation work. Among other things they have some lecturers on the road with interesting moving picture displays of fires that have occurred with and without sprinklers and demonstrating methods of effective sprinkler installation. The writer of this had the pleasure of listening to one of these lecturers and observing the picture show recently. One of the things that assists the brick people in their work is the careful tabulation they make of the fire losses of the country, not only of the country as a whole, but in each city visited by their lecturers, the per capita figures as well as the total figures of that city are set forth and the people are enlightened generally upon the subject of the great fire waste of the country and adjured to build safely. This of itself is good argument in support of brick construction. Another thing noticed in connection with the moving picture display of fires was frequently either brick buildings or brick fire walls played an important part in the stopping of disastrous fires. It is not the purpose primarily of the sprinkler people to exploit brick and brick fire walls, but brick walls are there in some of the pictures and speak for themselves. So, to the observant student, these picture shows themselves assist the advocates of brick. Perhaps, however, the most noticeable assistance rendered brick construction by the propaganda of the sprinkler system is in their driving home to the people the great extent of the annual fire waste of the country.

Draft Gauge Used on Hydraulic Plant.



The Fire Department at Work.

# RESEARCH IN BRICK CONSTRUCTION.

*This is the fourth installment of a series of articles boosting a campaign which goes hand in hand with that of the "Build with Brick" movement and will prove of vital interest and importance to the clay trade in general. We ask the co-operation of the clay product manufacturers in compiling data and statistics for publication, in order that every angle of the subject may be treated in a thorough, comprehensive manner.*

## BRICK SIZES AND SHAPES.

### The Standard Sizes in Brick.

(As adopted by N. B. M. A.)

| | |
|---|---|
| Common brick | 8¼ by 4 by 2¼ |
| Pressed brick | 8⅜ by 4 by 2⅜ |
| Roman brick | 12 by 4 by 1½ |
| Norman brick | 12 by 4 by 2⅜ |
| Paving brick | 8½ by 4 by 2½ |

Just why brick sizes are what they are is a question that might be debated back and forth and explained and elaborated upon considerably, but the present purpose has nothing to do with that. The sizes set forth above are standard as adopted by the National Brick Manufacturers Association, and for the time being we are not going behind that, but are going to accept these for what they are and discuss more the question of adherence to these standards than the reason for the standards themselves as they now exist.

As compared to the standard sizes set forth above here are some examples of brick taken as they are found around building operations and display rooms and carefully measured.

| | | | | |
|---|---|---|---|---|
| 8½ | by | 4¼ | by | 2⅜ |
| 8¼ | by | 4 | by | 2⅜ |
| 8⅛ | by | 4 | by | 2⅛ |
| 8⅛ | by | 4 | by | 2¼ |
| 8⅜ | by | 4 | by | 2 5/16 |
| 8¼ | by | 4 | by | 2 3/16 |
| 8 | by | 4 | by | 2 |
| 8¼ | by | 3¾ | by | 2 |

Here we have a variation in thickness of ⅜ of an inch and also in length of 3.8 of an inch. Careful measuring of quite a number of brick from different places shows that there is not so much variation in width generally speaking. Occasionally one finds brick running 4¼ inches wide and occasionally one that is only 3¾, but the great majority of brick range close to the 4-inch width which, as will be noticed in the standard, is uniform throughout.

The noticeable variations with which we are concerned right now is in the thickness. This at times is quite a serious matter and for this reason should receive earnest attention to the end that we may adhere as nearly as practical to standard sizes.

Take the man selling a brick two inches thick, for example, and another man selling a brick 2⅜ thick. The man who scants the thickness of his brick has an advantage that is unfair to his competitor, to the builder and to the building contractor. We usually count a thousand brick as a thousand brick, and that a thousand brick will lay up so much wall space. Therefore, the man who scants his brick thickness perceptibly saves for himself weight, reduces his burning time a little, and makes the other fellows pay for it.

The objections to a brick below standard thickness are:

First: That it is a short measure proposition and consequently is unfair to those who keep up the standard in size.

Second: A thousand brick will not lay up the same amount of wall with the same amount of mortar, consequently, it disorganizes calculations and whatever advantage the buyer thinks he has obtained in a more favorable price will be absorbed in the greater number of brick required or the more mortar necessary to lay up a certain amount of wall space.

Third: Not only is the laying capacity of brick estimated on the basis of a thousand, but often the price of brick laying itself is based upon so much per thousand and not so much per foot or square yard of wall, consequently, the purchaser has to pay more for brick laying as well as buy more brick.

There is a sort of standard table of calculations for the number of brick required to lay up a given amount of wall space, and this is based upon the use of standard sizes in common brick and uniform or average mortar joints of ¼ inch.

The basis of calculations for wall space are seven brick to each square foot of single width wall. In other words tabulated it would read as follows:

### Brick Required Per Square Foot of Wall.

| | |
|---|---|
| 4 inch veneered wall | 7 brick per square foot |
| 9 inch brick wall | 14 brick per square foot |
| 13 inch brick wall | 21 brick per square foot |
| 18 inch brick wall | 28 brick per square foot |

Some time ago we had a comparison of frame wall cost and brick wall cost per square foot, the frame wall cost running approximately 18 cents and the brick wall 21 and 22 cents, figuring the brick on a basis of $16 and $17 per thousand laid in the wall.

Now from the table given here any brick manufacturer can take the cost of his brick per thousand and if he has a figure on the cost per thousand for laying, including mortar, he can easily estimate his wall cost per square foot. Or if he desires to reduce it to a square yard basis, as many do, it is simply a matter of multiplying the table by 9 which would make it run as follows:

### Brick Per Square Yard of Wall.

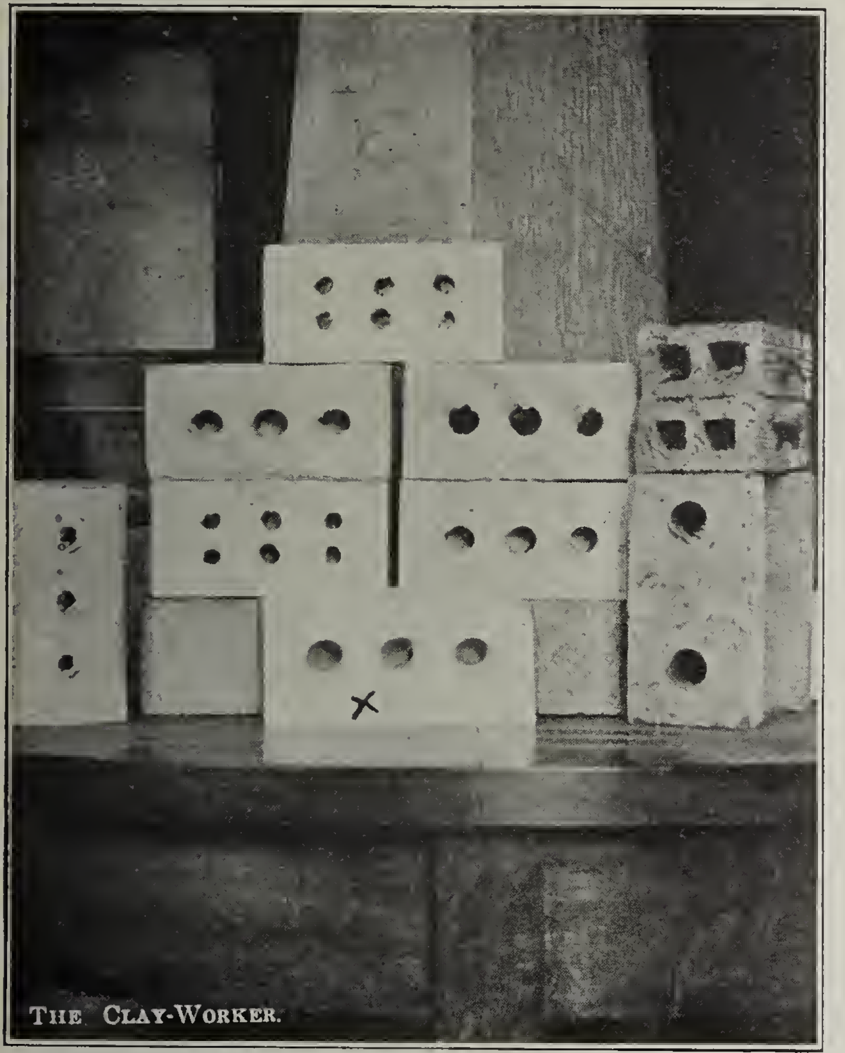
| | |
|---|---|
| 4 inch veneered wall | 63 |
| 9 inch brick wall | 126 |
| 13 inch brick wall | 189 |
| 18 inch brick wall | 252 |

As stated above, the basis of these figures as near as can be determined is the standard brick size of 8¼ by 4 by 2¼ inches with a quarter inch mortar joint. This would make each layer of brick with its mortar joint practically 2½ inches.

Now, if the brick is made scant, it means the size of the mortar joint must be increased or else the calculations of the builder will go wrong and it will require more brick to do a given amount of wall than should be. It is easy to see how this gives the man an unfair advantage who plays on the theory that a thousand brick is a thousand brick and then goes to work and reduces his thickness to 2 inches, enough that he can bid a little under the other fellow.

It is perhaps in order to mention right here mortar joints and their thickness. In making this round and measuring brick as they are found and used the writer discovered even a wider variation in the mortar joints. Some are very close, perhaps a little scant of ¼ inch, and they range from that up to ¾. This together with the variation in thickness of brick sometimes leads to odd results in brick structural work. For example, if the face or front wall is of a thin brick, not much more than 2 inch, laid with a thin mortar joint, as was found in one instance, and the side wall or common brick, which are 2⅜ are laid with a ⅝ mortar joint, we can easily see how it would be impossible to make the brick courses of the side wall member with those of the front wall. To join the side wall in this instance, of course, made a perpendicular line joint between the face wall and the side wall, a thing that neither looks good nor makes for good construction, and which would not only have looked better but been better had both the brick sizes and the mortar joints been uniform and the courses been membered and bonded into each other all the way round.

There will be a little variation in brick sizes always because clays vary in shrinkage while drying and burning, and also the shrinkage varies some with different processes of manufacture. What little variation comes from these causes, however, would not amount to much if reasonable precautions were taken to guard against them, and the variations that do harm seem to be those purposely made which makes them all the more inexcusable. If standard sizes in brick are worth anything they are worth religiously adhering to and unless they are adhered to with more fidelity than appears at present the matter should be a subject for action by the N. B. M. A. for the maintenance of uniform standard sizes. It is essential to a standard or uniform system of estimating for the use of brick in structural work.



A Group of Perforated Brick. The one Marked X is an Enamel Brick with Conical Indentions.

And now as to the matter of shape. What is in mind now is not the contour of brick itself so much as ideas involved in its make-up and especially ideas pertaining to perforations and hollow brick.

There has been for some time more or less making of perforated brick, that is brick with holes in them through their thickness. Investigation of this subject developes two main ideas in connection with it. One is to reduce the weight of the brick and the other is that it makes a better mortar bond since the mortar will enter into these holes enough to lock the brick together.

Incidentally, it has been found that perforating brick in this way with holes assists the bricklayer some when he desires to break or cut a brick with this trovel for they will break easily along a line crossing through these holes.

While this was a minor matter in the original calculations it seems to be a deciding factor in the number and the location of the holes in brick. For instance, one idea, perhaps the original one, of having two comparatively large holes through a brick later modified into four holes, has been practically given up because if the bricklayer undertakes to break a brick in half he finds it difficult and quite often the brick will break through the quarter where the hole is located instead of in the center into two halves.

This has resulted in a more general turning to three holes and to six holes where brick is perforated. In case the three holes are used the holes are made larger than when six are used and the location in relation to the length if the brick is the same in each case. Also the amount of material removed by the holes is usually substantially the same whether the three holes are used or six.

Perhaps, after it is simmered down carefully the main advantage found in perforating brick or putting holes through them is that it reduces the weight and in this way helps some where there is a long freight haul involved. Also it perhaps lightens the total weight of a brick wall, but this is seldom taken into consideration as a factor. The main factor is in reducing the shipping weight. It has been found practical to reduce the shipping weight about half a pound. To go further than this with larger holes or more of them weakens the green brick enough that warping and damage results in the kiln, enough to offset the additional advantage gained. So those following the method of perforating their brick with holes seem now to be settling down to either three or six holes and figuring on enough hole space to take approximately half a pound of weight out of the brick.

Lately there have been some other ideas developed in regard to brick shapes or rather the make-up of brick, partly new and partly a modification of well-known ideas. One is the making of a hollow brick with two rectangular hollow spaces through it lengthwise, of substantially the same character as the well-known hollow clay block used in fireproofing, partitions and wall construction. This type of brick has been made for some time with a corrugated or grooved outer face to be used for backing up on inner walls, for partitions and generally for such work as the larger hollow clay blocks may be used.

### The Hollow Brick Idea.

A new wrinkle was put into this idea by the Coral Ridge Clay Products Co., which has its headquarters in Louisville, Ky., in connection with the building of the plant for the Ford motor branch of Louisville. The new wrinkle was simply that of making this hollow brick face brick, of leaving one or two faces smooth like their regular brick stock and laying the entire wall of it.

This type of brick is made on the same stiff mud machine that makes their regular side cut product. They simply have a different die and run a stream of three brick and change the cutting for the end lengths instead of the regulation side cuts for thickness. They found that the output of the brick machine was substantially the same in these as in the regular run of brick, it required less time to dry and less tme to burn in the kiln, and last but not least, the weight of the brick was reduced one and one-half pounds.

Geo. H. Feidler, of the Coral Ridge Clay Products Co., Louisville, is very highly pleased with the result of their efforts in the making of this brick so far and is inclined to believe that they can make it and sell it regularly at the same prices of their regular stock of brick and in it they have a product that offers a decided advantage in shipping because of its lighter weight, and where hollow wall space construction is desired they have the hollow space in the brick itself while the outer face is the same in appearance and effect as their regular stock.

### The Fisklock Brick.

Another idea differing materially from this but following right along the same line has been developed in the east by J. Parker B. Fiske. This is called the Fisklock tapestry brick. It is a sort of compromise between the regulation brick and the hollow block or tile with the face appearance of the former and the hollow space and interlocking characteristics of the latter. It is made in approximately 8 inch size as to dimensions and regulation brick length and thickness on its face, and 8 inches wide with four extending ribs on one side carrying two grooves and a center hollow space and two short tongue-like extensions on the outside, which fit into the two grooves making a sort of tongue and groove mortar joint on each side and a two-inch hollow space in the center crossed with the ribs of the brick but not with the mortar joint. One of the important ideas here is that moisture gets through a brick wall by way of the mortar joints and with the mortar joint interrupted in this way and not extending through no moisture can get through. In substance it gives a construction of an interlocking tile wall with the outside or face appearance of brick. In this case the outside brick is made tapestry in harmony with the well-known tapestry brick product, some of the brick being used right along with it to round out corners, etc. There is no reason, however, why the same idea might not be applied to plain brick in various colors and also to any form of fancy face desired.

Here again, we find the question of weight entering as quite a factor and it is claimed that one of these Fisklock brick weighs an average of 6½ pounds, and when we consider that in substance it replaces two brick which would weigh 10 pounds, we have a saving in shipping weight of structural material of 3½ pounds for two brick, which is a shade better than the 1½ pounds of saving in the hollow brick proposition.

Each of these new products carrying the hollow brick idea are among the promising new offerings of the day the progress of which will be watched wth considerable interest.

### BUILDING OPERATIONS.

The figures of building operations for 1914 just made public by the United States Geological Survey show that, although there was an apparent general decrease in building operations throughout the country, ten cities which during the year 1913 showed decreases rallied in 1914 and showed increases. The most noteworthy feature in the building industry in 1914 was the large decrease in New York city, by which it lost its rank as the leading city in cost of building operations, being passed by Chicago. The cost of building operations in Chicago was $83,261,710, against $74,030,241 in New York. New York's decrease, compared with 1913, amounted to $33,074,466. The greatest increase shown in any city was in San Francisco—$7,140,299—the second largest increase being in Brooklyn—$7,109,801.

In forty-eight selected cities the total cost of building operations in 1914 was $619,752,354, compared with $673,220,625 in 1913.

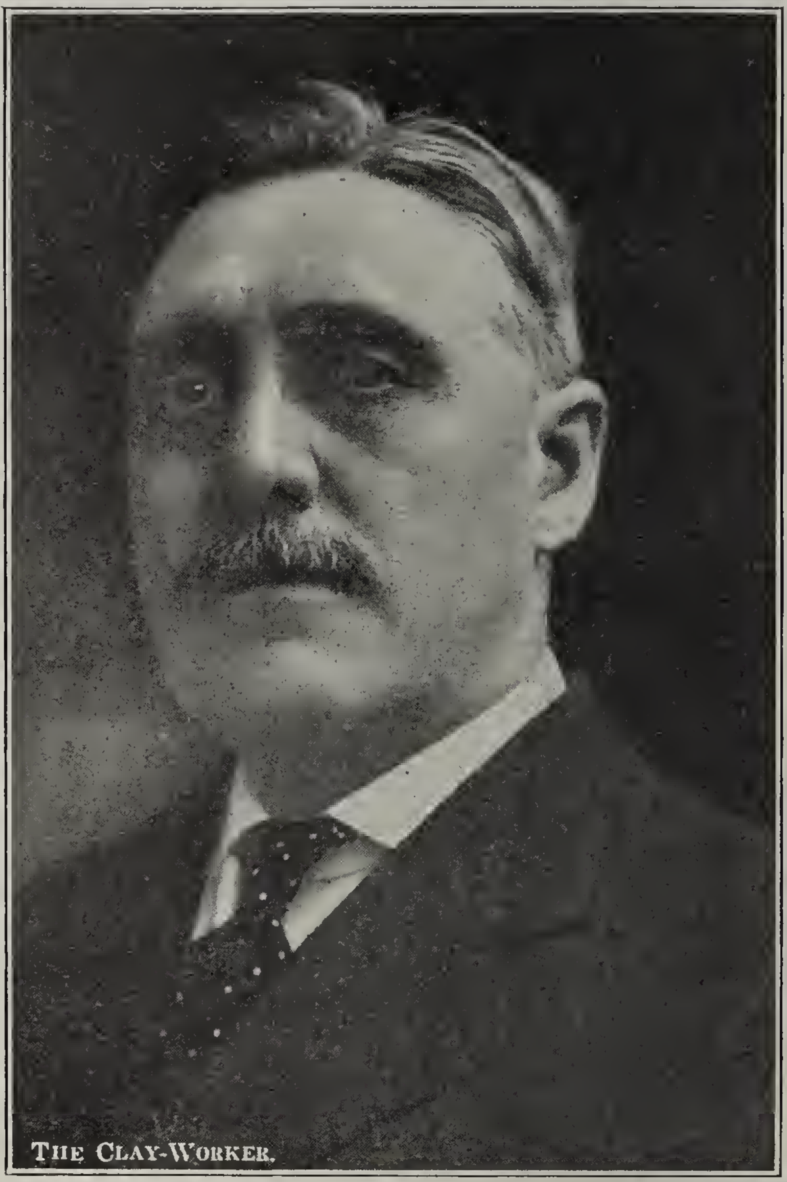
Efforts were made by the Geological Survey to obtain detailed information from the leading 157 cities in population. Replies were received from 147 of these, 113 of them furnishing sufficient details to permit the publication of figures by classes of buildings. Building operations in the 147 cities cost $785,525,746 in 1914. In 113 of these cities the new buildings of all kinds cost $461,681,108; new wooden buildings, $165,226,250; new fire-resisting buildings $296,454,858, and new brick buildings cost $181,957,682. All other new fire-resisting buildings cost $114,497,176. The cost of all additions, alterations, and repairs in these 113 cities was $67,230,432, $24,453,877 of which was for wooden buildings and $42,776,555 for fire-resisting buildings.

BUILD WITH BRICK
THE CLAY-WORKER, INDIANAPOLIS

## HOW TO BUILD SAFELY.

### A Bradford, Pa., Paper Offers Advice to Prospective Builders and Boosts the Bradford Pressed Brick Co.

Brick as a fire-proof building material is superior to all other materials known. Stone and concrete are in the class of so-called fire-proof materials, but are only partly so, because when subjected to intense heat and then water thrown on them (as is likely in case of fire) they crumble and fall to pieces. When our Bradford city hall was completely gutted by fire, every brick remained intact. Even the tall chimney stack in the center of the building stood, although subjected to the greatest heat. The brick dormer windows of the old tower all remained standing like the bones of a skeleton, when all the flesh (or wood) had burned away. The city officials sent men up with crowbars and sledges to batter them down, as some timid people feared they might be blown over on the sidewalk. But although all the brick stood that fire, many of the window sills and caps of Ohio sandstone cracked and crumbled, although on the outside of the walls and, therefore, were not subjected to the fierce heat of the interior. We give this instance because our citizens will most likely recall those facts, as the walls stood for months before the floors and roofs were replaced. There is nothing as appropriate as stone for banks, court Houses, a certain class of street fronts and public buildings to give that substantial business look so desired, but stone for houses or dwellings does not compare with brick unless the house is designed for a palace. Stone has that 'cold, stony look" we hear about and will in a degree affect and chill the occupant of that house. Who has not entered a room with bare walls of white or gray and not felt a chill? Even walls of snow-white plaster


THE CLAY-WORKER.

Mr. William Hanley, Bradford, Pa.

seem actually to require more gas to heat the room than where the walls have a warmer tint.

### Advice to Prospective House Builders.

In selecting the shade of brick for a building attention should be given to the surroundings. If the building is high and with a narrow street, or in a court, where there is a deficiency of light, use a gray or light colored brick. If there is ample light, and particularly where there is a green lawn or shade trees, use brick of bright red. Red and green blend beautifully, and the owner of the house will never tire of the combination. The white rose is beautiful, but more beautiful yet is the rose of red, and even the beauty of the red rose is enhanced by the leaves of dark green that surround it. We make these suggestions because, in selecting the brick for a house, many do so without thinking of the conditions or the surroundings. The Bradford Pressed Brick Company make only red brick. The company have at different times thought of making a gray brick also, as the upper measures of the higher hills surrounding this city carry shale that burns that color. Red is now and has been for all time the standard color for brick; other colors come and go, but red keeps on forever. Like materials for women's dresses, there are new fads and fancies coming and going continually. Silk remains always. Besides, the shale which the Bradford Pressed Brick Company uses makes brick of unequalled red; a bright, clear red; a red that is distinctive and absolutely unfading. There are many so-called red brick, but they are a mucky red or brownish red, a dull red, and in no way compare with the bright red-red brick of the Bradford Pressed Brick Company. The company make their brick by the best and latest improved methods, and both the "dry pressed" and "wire cut" processes. They also make brick of "Roman size," mantels and all kinds of molded and ornamental shapes, and can fill any special design or architect's drawing submitted. To show the popularity of the "Bradford pressed brick," we will mention a few of the thousands of buildings where they have been used. Besides furnishing several United States federal buildings, the state of Illinois last year selected Bradford pressed brick for the State Hospital outside of Chicago, and this year again chose them for the new State Hospital at Dixon, Ill. Henry Ford also selected Bradford pressed brick for his new buildings at Los Angeles, San Francisco, Denver, Chicago, St. Paul, Minneapolis, Cincinnati, St. Louis, Dallas, Houston, Pittsburgh, Detroit; also Toronto, Windsor and London, in Canada. With the exception of the first three cities named, where the freight charges were excessive, Bradford pressed brick was used in all the Ford buildings. We could name many other noted structures only out of regard for our readers' time. It is a well-known fact that when any article has acquired a first-class reputation, there are many persons who are unscrupulous enough to try to get a benefit to themselves of that reputation. There have been brickmakers and dealers all over the country selling their own brick as "Bradford Brick" or "Bradford Red Pressed Brick" or "Bradford Shale Brick" or some other similar name, but making sure that it sounded like the Bradford Pressed Brick Company's name. Of course, the only object was to make the purchaser believe he was getting the genuine Bradford pressed brick. When these pirates were brought to task they would invariably argue that their brick was "just as good" or that the Bradford Pressed Brick Company did not own Bradford, or use some other such excuse. If their wares are "just as good," why not sell under their own name and make a reputation for their own goods. The very fact that they do not do so is proof that they themselves do not believe their goods are equal or else they want to take advantage of an already established reputation, which likely, has cost the firm they are pirating expensive advertising and years of clean business, besides first-class goods to build up. Or, if as good,

A Splendid Brick Residence Made of the Famous Bradford Red Brick.

they must have hurt their sales by questionable business methods. Besides the unfairness of such business, the evil results are that by this sharp practice they not only steal a part of another's trade, but far worse, they steal the other's reputation by furnishing an inferior article, because it can be assumed that if their article was "just as good," they would sell under their own name. Take it locally as an example: Why would the Bradford Pressed Brick Company sell their brick as "Tuna Valley Red Pressed Brick" or "Tuna Valley Shale Brick," or as "Alumina Red Shale Brick," or that their brick was made from "Alumina Shale," thereby using partly the names of other local firms. The only possible reason for doing so would be that the other firms had good reputations, which they themselves did not possess. When a firm's goods are so poor, or the firm's reputation so low that such tactics become necessary to sell their product, they should either quit business or change the management, as their business cannot be of much value. Of course, people who pirate on the reputation of others in selling goods are always open to prosecution under our laws, yet we know the country is full of such people, but they take the chances because of the likelihood that the injured parties may not haul them into court, or if they are hauled in, of being able to get off on some technicality. Our reason for the foregoing remarks is that the Bradford Pressed Brick Company have for years been annoyed by a horde of dealers and makers all over the country selling brick as "Bradford pressed brick" or some name about the same, but being sure in all cases to work "Bradford" in, so as to deceive the purchaser with the implied, if not the expressed belief, that it was the genuine article he was buying. The Bradford Pressed Brick Company employs about 125 men and excepting break-downs or occasional repairs, run their yards all the year round. The yearly output is about 22,000,000 of brick. The business depression during the past twelve months has naturally affected building operations all over the country. The company are running both their yards to the full capacity, but have a very large stock of brick on hand, which is unusual at this time of the year.

Postoffice, Bradford, Pa. Oscar Wenderoth, Architect.

Written for THE CLAY-WORKER.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

The FALL REVIVAL OF BUILDING activity has apparently started, and the end of August saw a number of good-sized projects in view, which have been dormant for some time past. There is very little doubt that if the war is brought to an early end the fall will see a larger amount of large buildings planned than has been the case in several years. Whether it will go ahead before spring depends somewhat upon the character of weather which may prevail during the fall and early winter. The outlook is excellent, although it is contingent somewhat upon an early settlement of the European war.

The summer has been a fair one, although not large, and the totals shown by building permits are fair, though not quite up to 1914 for the whole year, but they are showing favorable comparisons by months, of late, with the months of a year ago. Last year, in both these cities, there were several large structures, costing a great deal of money, and the present year has had almost nothing of conspicuous size. Notwithstanding this, the number of smaller structures has been enough to make a fair comparison with a year ago. And now, with the crops all harvested and threshing well along, the Northwest has a heavy yield in almost all grains except corn. In fact, the yield of wheat has been so good that prices have gone down below a dollar, for the first time in many weeks—since around the beginning of last winter. There is likely to be considerable fluctuation in prices, but the large volume of grain will mean that there will be good returns, even upon moderate prices. And as a result there will be a quick improvement in manufacturing, jobbing, retailing and other lines. Unquestionably there will be a great deal of building done by merchants and others in the Northwest, as a result of the better business conditions which will rapidly develop after the fall settlements. And in this the demand for brick will undoubtedly show a better proportion than has been the case. The concrete block, which in the interior was more of a competitor to brick than elewhere, seems to have been practically forgotten, so far as being used for anything but foundation work. Where, two or three years ago, store buildings in the country, if they were not of frame construction, were as likely to be of concrete block as of brick, now the rule is just the reverse. It is the exception to see a report of a concrete block building being erected. This is not the case with silo construction, which is still running to concrete as second best to wood, with clay block or brick as a third favorite. But wood stave silos are unsatisfactory, and this is generally admitted. Concrete has been urged as the only solution of the troubles with wood silos, but brick and clay block silos are making progress and would make more if clay men would push their claims harder.

The wet season this year has been of considerable effect in encouraging tile drainage for farms, and it is anticipated that the fall and winter will see a great deal more undertaken in this line, because of the wet season. A genuine boom in drainage work is anticipated, and tile plants in the Northwest are likely to close out their stocks before cold weather.

The plant of the Heron Lake Brick and Tile Company, at Heron Lake, Minn., suffered from a tornado in July, which wrecked twelve of the fourteen brick kilns and ruined their contents. The manager, C. K. Willard, set to work immediately to repair the damage, and had things in shape so that work was resumed in a fortnight. In spite of the interference, the shipments of the plant for the month were worth more in value than ever before. This is one of the most aggressive plants in southwestern Minnesota, and has developed a good business, which is steadily growing.

Splady, Albee & Smith, of Minneapolis, received the general contract to erect a handsome loft building at 16 and 18 North Fourth street, Minneapolis, on plans by Victor F. V. deBrauwere, architect, of Minneapolis. It will have a terra cotta front. The owner of the project is C. H. McKee, of Pittsburgh, Pa.

C. T. McElroy, architect, of Minneapolis, has made sketches for an addition to the Calhoun Theater, at Lake street and Girard avenue, South, in Minneapolis. This structure is of rough texture brick, with paneled interior effect in brick, as well as the exterior. The intention is to build an addition of the same size and design as the present building.

Lars Pearson, of 1808 Melbourne avenue, Minneapolis, received the general contract for the erection of a modern grade school building for the board of education of Buffalo, Minn. Cost, about $30,000. Kirby T. Snyder, architect, Minneapolis.

Tyrie & Chapman, architects, Minneapolis, have been engaged to prepare plans for a modern twelve-room brick school building for Chatfield, Minn., for the board of education there. Plans will be completed about October 1.

Alban & Lockhart, architects, St. Paul, have plans for a modern high school for Grundy Center, Ia., to cost $85,000. It will be of brick and hollow tile construction.

Madsen Bros. of Minneapolis, have the general contract for a twelve-story hotel building for the Union City Mission, of Minneapolis, to be located at Second street and Hennepin avenue. It will cost perhaps $150,000.

The J. L. Robinson Company, of Minneapolis, have the contract for the foundation of a large addition to St. Mary's Hospital, in South Minneapolis. The building complete will cost $175,000.

The board of education of Minneapolis is considering a new type of school building, to be one story high. It is estimated that such a building can be erected at a considerable less cost than the usual two-story structure.

The Booth Hotel Company, St. Paul, has placed contracts with Wells Bros. Company, St. Paul and Chicago, for the erection of a twelve-story family hotel building at Dale street and Grand avenue, St. Paul, to cost complete $2,000,000. It will be of cut stone and gray rough texture brick, 150x200 feet in size. Mark Fitzpatrick, architect, St. Paul.

Buechner & Orth, architects, St. Paul, have plans under way for an elaborate store and hotel building to occupy the site of the library building at Seventh and Wabasha streets, recently burned. The building will cost $500,000 and will be eight stories high, about 160x200.
T. WIN.

## DRAIN TILE IN ALKALI SOILS.

One of the places where cement drain tile has developed a weakness is in connection with alkali soils, and this, together with the fact that there are acids of various kinds in all soils should make a mighty strong point in favor of burned clay tile against all competitors.

The durability of cement mortar and concrete when exposed to concentrated alkali salts in soil and water has been questioned by engineers for some time because of various failures. As a result of this the Bureau of Standards of the Department of Commerce has been investigating the question and the result of these investigations has just been published by the Bureau of Technologic Paper No. 44.

Every burned clay drain tile man should get a copy of this report and make a study of it because it will qualify him to talk burned clay tile, and it gives specific information on the weak points of the rival offerings in cement.

Some idea of the results of these investigations may be had from a little brief of the results and conclusions from the first year's test of tile in actual use. It has been found, for example, that tile made of the usual mixtures of cement and sand or cement, sand and gravel will not stand up under certain acids in the water and to make them stand up requires a much richer and more expensive cement composition than is ordinarily used.

It is pointed out that drain tile manufactured in a manner described for cement mixtures not leaner than one part of cement to three parts of aggregate are apparently unaffected structurally when exposed to a year in operating drains in concentrated alkali soils. Drain tile made from cement mixtures leaner than one part of cement to three parts of aggregate should not be used in localities where the character of the alkali concentration is similar to that found at the site of the experimental drains at Grand Junction, Colo., and Montros, Colo., and Garland, Wyoming.

This sounds simple but when we consider that the usual concrete compositions run one part cement to from five to eight of aggregate we begin to get an inkling of what it means. It means in substance doubling the quantity of cement to make a drain tile which will stand up against concentrated alkali acids in soils.

Of course, there are certain places and conditions where the service required is much more severe than others, but the fact remains that everywhere in every soil there are acids of various kinds which do violence to nearly everything buried in the soil with the exception of burned clay. This means, if it means anything in the world, that when it comes to durability under the ground there is nothing superior to burned clay and always a chance for other substances to develop structural weaknesses, whereas, burned clay can always be depended upon.

It is in the drain tile business as in the building material business a case of the more testing and the more investigating the better the burned clay products shows up. This weakness of cement products furnishes an interesting case in point and a study of the detailed report of the experiments in this connection should furnish splendid authentic matter for boosting a clay drain tile against all competitors. For that reason every man interested in the welfare of drain tile and sewer pipe should get a copy of this report and keep it on file for record. It may be obtained by addressing the Department of Commerce, at Washington, D. C., or one of its branches.

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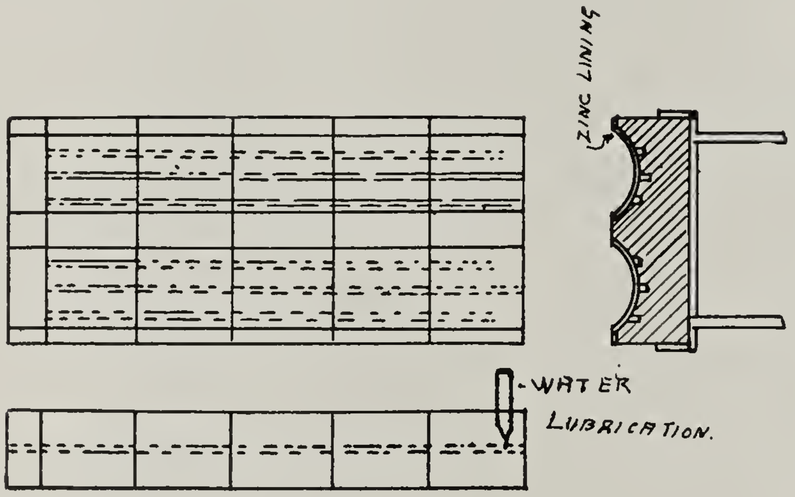
## TILE YOUR FARM.

**Seger Cones Under Fire**—According to Mr. E. Trab, the Seger cones, which are used in the lower series from 010 to 3 and contain iron, are more or less subject to irregular fusion on account of the gases attacking the iron contents of the cones. Inasmuch as the cones will melt very regularly with good color in oxidizing fire, it is a good indication (if the burning has been done properly) if the cones come from the kiln right. Therefore, the irregularity of the cones can be taken as a good guide for the burner. In many cases the cones are now made without iron contents, and are all white and do not show much irregularity.—Keramische Rundschau No. 13, 1915.

**Drain Tile Cutting Table**—As it is impossible to cut drain tile on brick-cutting tables, some device has to be used for cutting drain tile. A home-made affair will very well answer the purpose, and if a small table is made as shown in the cut, it will cut all drain tile very well. This cut shows a two-stream affair and four tile can be cut on each side at the same time. The table is lined with sheet tin or zinc, and the small grooves shown are for water lubrication.—Deut. Topf & Z. Z. No. 51, 1915.

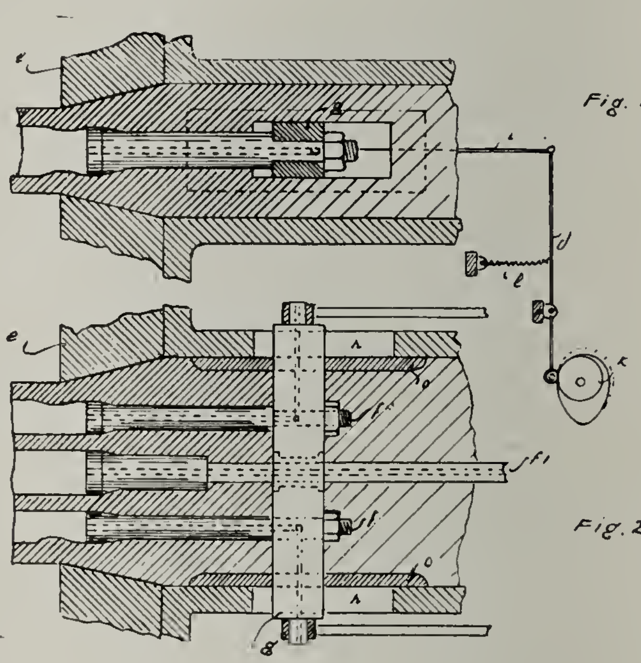


**Ceramic School at Bunzlau**—The annual report of this school shows that there were forty-five day students and thirteen evening students in attendance. The faculty consists of Director Dr. W. Pukall with six professors and three assistants. The financial assistance was taken care of in funds furnished by the government of 1,300 marks; the city of Bunzlau gave 120 marks, while the different clayworking associations furnished 670 marks.—Sprechsaal 21, 1915.

**Figuring Cost of Burning Brick**—There is always a great difference between the methods used for the figuring of the cost of burning brick, especially in such cases where the percentage of first-class brick is not very high. To show how the brick manufacturers can easily figure the wrong side the following example will illustrate same: The cost of burning a certain amount of brick is $2.00 per 1,000. After the brick are burnt, we get 20 per cent. of first-class brick, 60 per cent. of common brick, 15 per cent. of second-grade brick and 5 per cent. broken and culls. The best brick bring $25.00, the common brick $9.00, and the second-grade brick $7.00. The total price obtained for the 1,000 brick is, therefore, 200 brick at $25.00, $5.00; 600 brick at $9.00, $5.40, and 150 brick at $7.00, $1.05, making a total of $11.45. If it had been possible, now, to burn a much larger percentage of brick at $25.00, then the cost of the burning would have been much less, for now these brick do not cost the $2.00 for burning, but also the difference of the price which could be obtained, and in case of $2.00 as burning cost, these brick will cost about $18.00 per 1,000 to burn.—Tonind. Z. Z. No. 134, 1914.

**Sand in Kiln Walls**—In order to isolate the kiln walls in either round or square down drafts and also continuous kilns, it is a good idea to use sand for filling. Sand has more of a tendency to hold the heat than brickwork, and when the walls are built strong enough to hold the sand pressure, then it is not necessary to build thick brick walls. This applies to continuous kiln properly, and a great saving of labor in laying up brickwork can be made with sand as filling.—Tonind. Z. No. 7, 1915.

**Patent Arrangement for Making Hollow Brick with Closed Ends**—In order to make hollow brick with closed ends, Mr. Gustav Adam has obtained a Hungarian patent on a die which will make three of these hollow closed brick at one time. Fig. 1 shows the cross-section, while Fig. 2 shows the horizontal section. The mouthpiece of the brick machine is marked e, the center core Fl, while the outside cores are marked f. The cores are fastened to the bridge g, which can be moved in a slot h by means of a lever arrangement, as shown in i, j, k and l. The guide plates, o, prevent the clay from coming out of the mouthpiece, and move with the core bridge. By special arrangement the center core can be moved back before the core bridge moves back, and therefore the center brick will have both ends closed before the ends are closed on the two outside bricks.—Zentrallblatt fur Baukeramik No. 875, 1914.



**Fuel Question in Sweden**—Mr. G. W. Cronquist states that since the export of English coal to neutral countries has been stopped, the fuel question is becoming very serious for the clayworking industries of Sweden. As there is a lot of different kind of wood in that country, he argues that wood should be used as fuel for burning the clay products. Two pounds of wood correspond with one pound of coal, and he says that a cord of good birch wood, containing 20 per cent. moisture, weighs about 3,200 pounds, and is therefore equal to 1,600 pounds of good English coal. The same applies to peat, and this can also be used for fuel in brickyards. It is urged on all brickmakers to make the necessary experiments and use that class of fuel which is handy under present trying conditions.—Tegel No. 6, 1915.

Written for The Clay-Worker.

## SEEN IN NEW JERSEY.

BUSINESS IN BUILDING brick of various sorts is picking up somewhat of late and most dealers have pushed up prices fifty cents a thousand during the past week or so. It is nearing the close of the making season and the demand is improving in some directions. Brokers say that they have had more inquiries during the past week than they have had before in two months and most of them are for the better qualities of building brick. Fireproofing is doing well, too, though perhaps not as well as brick. Sales have been made at the outside price, $6.50 to $6.75 and in some instances $7.00. The market is strong and active at that figure, with a tendency to advance still further within the next few days.

Building operations in that portion of New Jersey near New York are larger than they have been for a number of years at this season. Leading architects say they have more work on their boards now than they have had for two years at the same time. They are receiving many inquiries for estimates on plans and say that they expect a better business next season than they have had this. William T. Fanning, a leading school architect of Paterson, says that he had a better business now than he has had in several years, and believes that the outlook promises still better things. Fred W. Wentworth, another leading architect of Paterson, has been given the contract to make the plans for a new school to cost $175,000 which is to be erected within a year or so. The plans must be done by the first of the year and the building will be put up some time next season. It is to be brick and terra cotta. Many dwellings are being provided for. Three have been passed upon by the building inspector during the past two weeks which cost $12,000, $18,000 and $30,000 respectively. Many which cost less are under consideration.

Burning in the yards along the Hackensack is probably closing for the season, unless a few small kilns are put in later. The yards have been cleared twice this season and the burnings which are now in will scarcely be out until the cold weather comes and it is too late to do any more. Not all the yards have done as much business as they do sometimes, though they have had a fairly active trade. The weather has been unfavorable since the opening of July with almost constant rains or showers, some of them very severe, which have seriously damaged the drying brick and have caused much loss. The close of the season will be welcomed by most of the men who have been doing business this summer. It has been a time of more or less difficulty and prices have been generally unsettled. At present, however, the situation looks better and the remainder of the brick available will be sold at what promises to be better values.

The Hackensack Brick Company, of Hackensack, reports the close of a prosperous season, with sales moderately active and prices generally fair, though they have suffered somewhat from the general uncertainty. Still, the fact that the company had considerable orders on contract has kept it fairly active where others not so freehanded have gone without business. The company bought a somewhat reduced business a few years ago and by exerting themselves they have been able to largely increase it and develop it along profitable lines. The present season has demonstrated the real business getting abilities of the organization.

The Singac Brick Company, of Singac, has had a fair business all the season and its agent said a few days ago that it is closing the season with sufficient orders on hand to dipose of all the brick left in its yards. The building development in and near Paterson and Passaic has been rather slow through the season, which has prevented the active sales this company usually enjoyed, but the business which its enterprising management has succeeded in obtaining has been reasonably satisfactory.

The Homestead Brick Company, just outside of Jersey City, was obliged to increase its facitlities somewhat this season and has done a good business all the year. Its kilns are full now and the yards have a supply of green brick ready for the kilns as soon as those now burning are out. The company obtains its clay from the Hackensack meadows, excavating most of it by means of dredges. The quality is good and the expense of obtaining it not heavy. The brick goes to Jersey City, which is close at hand, and furnishes a good market.

About Newark the situation remains substantially the same as last month. Architects report more business than for a long time and the building permits issued exceed those which have been issued during corresponding months for several years past. Brick is selling in a small way at $7.00 a thousand and a few ask twenty-five cents more. In other instances as low as $6.50 has been offered and accepted. Probably on a large order it would be possible to buy at $6.75 without difficulty. Newark is looking forward to the greatest building growth in its history this coming twelve months.

Business in the Raritan section is steady and sales have been made each day for immediate use. During the tie-up caused by the strike in the North River yards the buyers were obliged to go to the Raritan section and sales increased. They have ample stocks on hands to satisfy ordinary requirements and when the present burnings are out, which in some yards will be the last for the season, they will pause for account of stock. The reports from there are very satisfactory and price tendencies are upward.

One of the most rapidly growing business enterprises in New Jersey is the fireproofing manufacture which is steadily increasing. All over the state the plants are enjoying a good run of orders, which seem to increase. Fireproofing is considered an essential for almost every building put up, including dwellings of small size. Large structures could not be erected in most municipalities without the use of fireproofing. Floors and partitions must be made of it to conform to the requirements of the new building codes. While the promoters of these enterprises have had nothing to do with influencing these codes they are profiting greatly by their changes which force the use of fireproofing in substantially all structures within the designated fire limits.

A. L. B.

## THE FIRST LAW OF NATURE.

That first law of nature, self-preservation, has its application to business affairs as well as to life itself. Every man in every business naturally feels that one of his first duties is to help preserve that business, keep it alive and flourishing.

The brick business is a time-honored business, dating back as far as the dawn of civilization itself, a business which has made wonderful progress in this country, especially in methods of manufacture.

We have concentrated, however, on methods of manufacture and have neglected considerably the manner of exploitation, with the result that the welfare of the building brick industry is being menaced on all sides by the active exploitation of other materials for construction. All this has brought us to the point where the preservation and the upbuilding of the business demands organized and systematic effort on the part of the brick people to preserve the integrity of the brick business and to increase the consumption of brick to the volume qualified by its qualities as a building material.

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One way to avoid mistakes in buying machinery and equipment is to make a study of the difference between spending money for equipment and investing money in it.

# PAVING BRICK MEN ORGANIZE TO IMPROVE THEIR ART.

A SERIES OF EVENTS with most happy significance to the art of brickmaking has led to the organization of the Institute of Paving Brick Manufacturers. Its officers are: F. R. Kanengeiser, president; D. E. Humphrey, vice president; Robert Keplinger, secretary, and Spencer M. Duty, treasurer.

The next meeting will occur at Galesburg, Ill., on September 22. The place is selected with a view to the opportunity it affords to visit the plant of the Purington Paving Brick Company. It has become the rule of the Institute to combine plant inspection with theoretical study, and its investigations at Galesburg will be a continuance of those pursued at the plants of the Bessemer Limestone Company, in Youngstown, and the Metropolitan Paving Brick Company, in Canton.

Like most organizations that fill a real need, the Institute is less the result of a deliberate plan on the part of an organizer than the outgrowth of a spontaneous desire on the part of certain manufacturers for more intensive practical study into brickmaking problems. Certain conferences held at the time of the Detroit meeting resulted in the appointment of a meeting in Youngstown on May 25. Officers were elected there and a committee appointed to draw up a constitution and by-laws, which were adopted in a meeting at Canton on June 29.

"Whereas," recites the preamble, "there are now manufactured in the United States of America, from certain shales and clays, brick and block especially made for use in building and constructing streets and roadways, and, as it is desirable that such brick and block be manufactured in a manner best suited and adapted for said purpose, therefore the subscribers hereto shall and do constitute a society to be known as the Institute of Paving Brick Manufacturers."

The object is further stated to include meetings, discussion and the reading of papers as a means of disseminating among the members further knowledge as to the manufacture of their product.

In distinction from those gatherings where brickmakers and men of allied occupations meet for interchange of ideas, the Institute meetings are designed for the paving brick maker, pure and simple. All active members must be actively connected with a reputable company manufacturing paving brick. For associate membership men may be admitted who are engaged in furthering the interests of the paving brick industry, even though they are not brickmakers. An honorary membership is reserved for those whom the Institute chooses to honor for reasons satisfactory to itself. The dues of an active member are $20 a year, while an associate member pays $5 for each meeting attended.

The active members constitute the board of directors. Officers must be active members and no two of them identified with the same concern. Provision has been made for committees on membership and honorary membership, and also for a committee on programs, which will be responsible very largely for the measure of usefulness which the Institute attains, since it determines the subject to be discussed at each meeting. Regular meetings are to be held quarterly.

The Institute will avail itself not only of the best technical talent for its programs and discussions, but will devote a generous portion of its time to plant inspection.

At the forthcoming Galesburg gathering inspection will occupy the day and the meeting will be held in the evening. A paper upon electric drives in paving brick plants by Eb. Rodgers will be a feature of this meeting.

The organization of this Institute is an evidence of the new day that has dawned in competitive industry, a day when competitors take mutual pride in the advance of their profession and realize that more is to be made by each through a reputation for good service accruing to all, than through jeal-

THE CLAY-WORKER.

Jim Hoskins Entertaining on Hotel Porch.

Inspecting a New Type of Steam Shovel Tooth.

THE CLAY-WORKER.

All Aboard for the Shale Pit.

ousies and secrecy. The Institute is advancing one of the cardinal objects of the National Paving Brick Manufacturers' Association and has its hearty approval and co-operation.

A cordial invitation is extended to every paving brick manufacturer to attend the Galesburg meeting. Full particulars may be obtained from Secretary Keplinger, in care of the Metropolitan Paving Brick Company, at Canton, Ohio.

Written for The Clay-Worker.

## NEW YORK AND VICINITY.

FOR THE CLOSE of the season building operations are very active and the situation is promising. Brick has advanced from 50 to 75 cents a thousand and holders are firm in their views. Conditions are more favorable than they have been before this season with plenty of prospect of a better year in 1916. In the main, business has improved. While not all operations which were promised have come out, those which have are large enough to make the market firm, with a sharp upward tendency. Makers are well enough supplied, but expect to see their surplus consumed before the season ends at the rate they are going out now.

The strike up the river last month caused considerable inconvenience, but the adjustment enabled shipments to be resumed. For a number of weeks not a brick went out of the North river yards. The result was that before the time ended the local market was about bare of stock and almost any price could be obtained for good brick. Yard workers refused to load cars, which was the principal difficulty encountered. Without loaders it was impossible to get stock shipped, and this, of course, worked against deliveries everywhere. Meantime New Jersey yards were operating full time and shipmnts continued unabated. This had some bearing upon the price situation and lower values did not follow the adjutment of the difficulty.

Demand has improved, and brick at $6.50 to $6.75 a thousand is not easy to find. Best qualities are even as high as $7.00, and the tendency is upward. Sales are made in small lots only, as a general thing, and most holders are not anxious to let anything go beyond satisfying actual requirements of their customers. So far as the building situation is concerned it is better than it has been for two years. The projects which promise to come out within the next few months are very numerous and represent a high value. But whether or not the development is to continue beyond the present brilliant outlook is quite impossible to predict. It is, however, a favorable opportunity to impress upon builders the importance of using brick and terra cotta in construction. Fortunately, manufacturers understand this better than they did and the propaganda issued by the association is being widely circulated and carefully studied. Ultimately this will bear fruit in much larger sales. But those who have undertaken such work as this know full well the difficulties which must be encountered to develop a business. Long and arduous labor is required to attract the attention of the public, and unless those who have charge of these matters are persistent, the results are not satisfactory and much of the labor is lost.

BURTON.

THE CLAY-WORKER.

A Snap Shot taken of Pres. Kanengeiser and Mr. Weaver.

Steam Shovel at Work in Shale Pit.

THE CLAY-WORKER.

At the Close of a Busy Day.

## NO ROOM FOR INCOME TAX.

When I am asked 'bout income tax,
I'd like to hand the guy the axe;
I'll tell the truth, and these are facts,
My reasons for no income tax.
There's auto tax and water tax
That keep some folks flat on their backs.
There's special tax and city tax,
And dog, and war, and highway tax.
There's county, state and schoolhouse tax;
There's personal and voting tax.
There's snoring tax and eating tax,
And darned old occupation tax;
At night there's even carpet tacks,
But these are only family facts,
So it's because of all this tax
They don't soak me for income tax.

—The Beaumont (Tex.) Journal.

# DRYING OF CLAY WARES.

## By Ellis Lovejoy.

### Part XVIII Continued—Waste Heat Progressive Dryer.

IN one plant the distributing ducts are the full length of the tunnels, as in Fig. 82. Suspended in these ducts, which are very large, are cylindrical smoke pipes connected with the kiln draft flues at one end and with an exhaust fan at the other end. All the combustion gases from the kilns are drawn through these pipes and the heat therefrom is available for drying. The heat from cooling kilns is made use of by means of a separate fan in the usual waste heat progressive dryer manner. Thus we have an economizing system as part of the dryer construction.

This manner of using the products of combustion would be equally applicable to a radiated heat dryer, except both combustion gases and heat from cooling kilns would be handled through the smoke flues by the single smoke flue fan.

The most convenient place to connect the dryer duct with the kiln is through the wicket, and a goose neck connection is simple and effective. In the majority of kiln setting there is some space next to the wicket and there is always space over the wickets and in the crown. The suction of the fan draws the air from around the wares rather than through them, and we not only get more heat in this way but the wares are not damaged by direct draft through them.

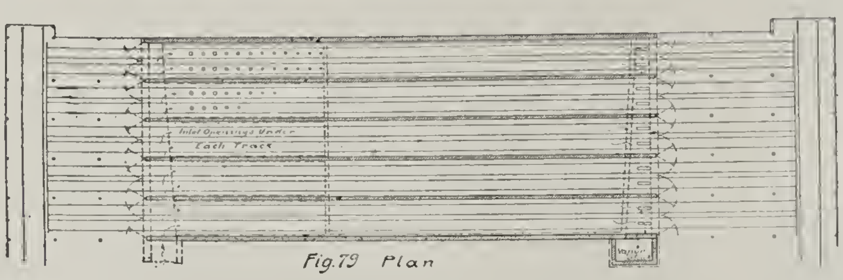


Fig. 79 Plan

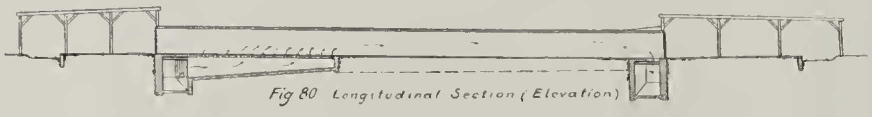


Fig 80 Longitudinal Section (Elevation)

The most efficient place tó connect the dryer and kilns is on top of the kiln crown where we fully recover the heat so far as recovery is possible. The wares under such conditions cool entirely by radiation. It is not convenient to make connections through the crown, and we usually compromise on the wicket, or in some instances a furnace connection.

Figs. 79, 80 and 81 show a plan and sections of a typical waste heat progressive dryer.

The hot air cross inlet duct from the fan is tapered on bottom and one side to correspond with the air volume reduction as each distributing duct receives its proportion. The taper is on the distributing duct side so that the end walls of the distributing ducts are in echelon and thereby each duct mechanically cuts off a proportion of air for its supply. The distributing ducts have graduated openings under each track for a distance of several car lengths.

The number of cars subjected to the direct upward blast of hot air through the graduated openings depends upon the ware.

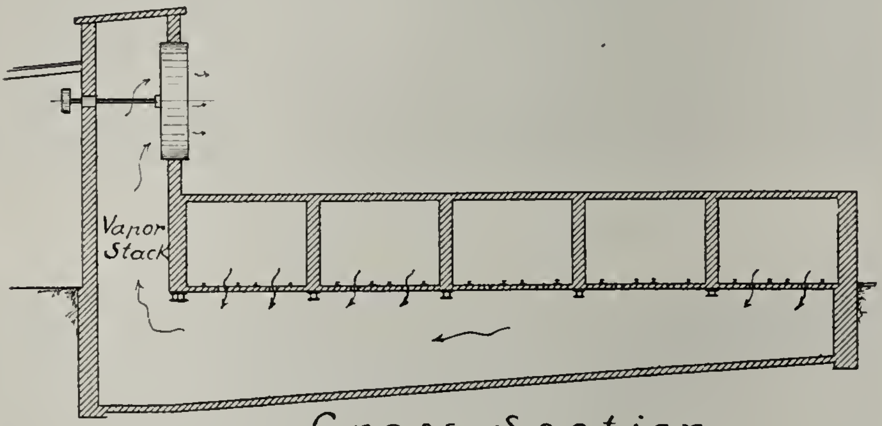
If the ware will stand severe treatment we extend the distributing ducts a greater distance, even the full length of the dryer, as shown in Fig. 82, but extension to this degree is not good practice because any approach to complete saturation is impossible under such conditions, and economy of operation is coincident with complete saturation.

A common practice is to extend the ducts four car lengths so that one car will be over the inlet cross duct and three cars over the graduated opening subjected to the direct blast of hot air. Five to eight car lengths subjected to the direct air blast are not uncommon. Other things being equal, the longer the distributing ducts and corresponding greater number of graduated openings, the more quickly the drying will proceed.

Besides the changes in the distributing ducts there are a number of modifications in the exhaust duct.

In one installation the exhaust ducts return under the dryer floor to the distributing ducts and there connect with an exhaust cross duct. We get two advantages from this construction: It brings the fans close together and both can be housed in a single room and driven from the same shaft. The returning air keeps the floor of the dryer warm. Not only the sensible heat of the air and vapor becomes useful, but also the latent heat of any condensation. If the air is saturated to the dew point at the exhaust end of the dryer, there must be some condensation in the return ducts to the exhaust fan, and the heat from this condensation is given back to the dryer through the dryer floor.

A vertical air movement is much better than a horizontal one, especially for hollow ware. In any progressive dryer we have an upward movement of the air from the distributing ducts but beyond that the movement is horizontal to the exhaust and if the ware is not close to the roof of the tunnel which the hot air invariably tries to follow, there will be poor contact between the air and ware. The exhaust cross duct is generally placed underground in order to pull the air down, but it is not very effective and except at the end of the tunnel over the exhaust duct is without any influence on the horizontal movement of the air.



Cross Section
Fig. 81

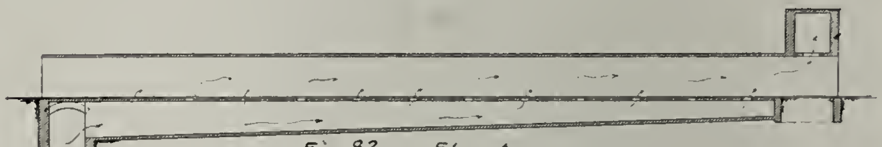


Fig. 82 Elevation

To get a vertical movement, dryers are sometimes constructed with exhaust ducts having graduated openings similar to the distributing ducts, as illustrated in Fig. 83. The movement then is up through the distributing ducts' openings, over an intervening space which may be much or little as required, and down through the openings in the exhaust ducts. The exhaust cross duct may be at the end of the tunnels or any predetermined distance from the end in order to provide dead air heating up space, ȧnd moreover the exhaust ducts' openings nearest the exhaust cross duct may be closed to increase the dead air heating up space, but one which will have its floor heated by the escaping air and vapor. Similarly where the exhaust cross duct is on top as in Fig. 82, it may be placed at any distance from the end of the tunnel and thus provide a heating up space removed from the direct air current.

(To be continued.)

Written for THE CLAY-WORKER.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

SIGNS OF THE FALL revival in the Milwaukee and Wisconsin building field are evident, even at this early date. Considerable building which has been delayed because of the unsatisfactory condition in some lines of industry will be consummated this fall. In Milwaukee, for instance, work is about ready to start on several large projects, which have been held in abeyance for several months.

According to figures prepared by W. D. Harper, Milwaukee building inspector, the total building investment for the present year will exceed that of 1914 by more than $1,500,000. A total of a little more than $10,000,000 was expended last year. The investment for the first eight months of the year was only slightly below that of the corresponding period a year ago, while several large structures will be under way within the near future. Among the big buildings just started is the $500,000 grain elevator, which is being erected by the Chicago, Milwaukee & St. Paul Railroad. Leenhouts & Guthrie, architects, are drawing plans for a $100,000 apartment building, which will be erected at Van Buren street and Juneau avenue. This building will be of brick construction. The city of Milwaukee will expend nearly $1,000,000 in additions to school buildings before the close of the present year. Brick will be used in practically all this work. Henry Uihlein has been granted a permit to erect his $350,000 moving picture theater at Grand avenue and Sixth street. This playhouse will be one of the largest and most modern in the middle west. David J. Borun has been granted a permit to erect two $30,000 apartment buildings at Cramer street and Linnwood avenue. Both buildings will be of brick construction. Plans are being completed for the erection of a $100,000 addition to the plant of the Phoenix Knitting Company. Leenhouts & Guthrie are the architects. Brick will be used. It has been authentically stated that work will start soon on the $1,000,000 structure which will replace the historic Plankinton block on Grand avenue. During the last week of August there were eighty-eight permits issued by the Milwaukee building inspector for structures to cost $182,876, as compared with eighty-seven permits and an investment of $176,883 during the corresponding period in 1914.

The city clerk of Reedsburg, Wis., will receive bids until 7:30 p. m., September 14, for constructing a brick pavement on North Albert avenue. Brick paving has always given excellent satisfaction in Reedsburg, and it is only natural that the city should be in favor of this type of paving.

Ricketson & Schwarz, 111 Mason street, Milwaukee, well-known jobbers of brick and general building material, have secured several more fine contracts for furnishing paving brick to various Wisconsin cities. Among the specialties carried by the Ricketson & Schwarz firm are the Purington, Barr and Metropolitan lines of paving brick.

General business in Milwaukee and about Wisconsin seems to be showing steady improvement. Milwaukee is distinctly a center for the manufacture of heavy producing machinery, and practically all the big concerns in this line have increased their output and have taken on additional men. Conditions in the smaller cities and towns about the state are even more satisfactory. A bumper grain crop was harvested and is now being threshed and will be disposed of at fine prices. The corn crop, which was hampered by the cold and wet weather received some time ago, is now making fine headway. It is usually a foregone conclusion that when crops in this section of the northwest are good, general business will be satisfactory.

Wisconsin brick manufacturers, building material dealers and all those associated with the building industry, are much interested in Wisconsin's new building code, which has been revised and adopted by the Wisconsin Industrial Commission and was published on August 21. The code, which will become effective in its revised form on September 20, will be published in pamphlet form for distribution by the Industrial Commission. The new code applies throughout the state, to the smaller cities and villages, as well as to the larger ones. Its administration and enforcement is to be carried out largely through local officials, fire chiefs, building inspectors, etc., so that the cost for inspection will be kept at a minimum. The code covers nearly every imaginable kind of building construction, except private residences, flat buildings used for residence of not more than two families, buildings used for agricultural purposes outside cities and villages, and temporary buildings or sheds used for construction purposes only. It does not limit, however, the power of municipalities to regulate building by more stringent provisions than are set forth in the code. It prescribes rules for the installation of boilers and furnaces, smoke pipes, steam pipes, hot-air pipes, electrical work, lights and roof coverings; lays down requirements for office, mercantile and factory buildings; provides safety regulations for elevators and the installation of fire prevention service.

A. BADGER.

Written for THE CLAY-WORKER.

## NOTES FROM DIXIE LAND.

CONSTRUCTION WORK AT Memphis, Little Rock, Nashville, Chattanooga looks favorable for the autumn, and until bad weather sets in there will be a good deal going on, both in residence and business house construction.

One of the handsomest jobs completed the past month is the terra cotta front and reinforced buildings on Madison avenue, Memphis, for N. O. Nelson Co., wholesale plumbers of St. Louis and Memphis, and for Pritchard & Co., contracting plumbers next door. The buildings have considerable tile work and among the finest plumbing buildings in the South.

The white brick building, called the Shop of Culture, standing four stories at Main and Monroe, Memphis, but architecturally designed to have the appearance of seven floors, is finished by the Carroll-Blake Construction Company of Birmingham, Ala. Architect G. M. Shaw, of Memphis, designed the building. The cost was about $75,000.

Architects Regan and Weller, of Memphis, Tenn., have let the contract for a handsome brick residence for Clifton F. Jameson, Forrest avenue.

Architects John Gaisford and Victor Dunkerly have drawn plans for a seven-story brick and stone addition to the Goodwyn Institute at Memphis. Changes will be made in the auditorium and an addition in the rear of the building which stands at the corner of Madison avenue and Third street.

Hanker and Cairns, architects, Scimitar building, drew the plans for the three-story brick and terra cotta building at 343 South Main street, next door to the Shop of Culture. Cost, $15,000. E. J. Pearson was the contractor.

The South Memphis Brick Co. report a good activity and are turning out face and common brick on a big scale.

Contractor Edgar Parish, of Jackson, Tenn., has been given the contract for building the new brick jail at Lexington, Henderson county, Tennessee.

Plans are being prepared at Nashville, Tenn., by Architect Donald W. Southgate for an apartment house to cost $60,000, to be erected at the corner of West End and Thirty-first avenue by Chas. W. Cohn. It will be three stories.

Architects Asmus & Norton, of Nashville, Tenn., have made plans for the extensive remodeling of the Polytechnic Institute at Cookeville, Tenn., the construction of two three-story brick dormitories and the installation of a central heating system.

N. M. Crawford, who has been connected with the Builders'

Exchange at Memphis as secretary, has resigned that position, and this month becomes southern representative for several eastern and northern concerns who make a specialty of the various lines of fireproof construction, with offices in Memphis. Mr. Crawford is widely known among the leading architects and contractors of the country, and will be assisted by a well-known consulting engineer of New York City in his new work. Having the territory of the entire southern states, he will no doubt meet with much success in his new venture.

The Fulcher Brick Company, of Nashville, Tenn., is supplying the brick for a number of residences and business houses in that city.

DIXIE.

# BUILD WITH BRICK==A PERMANENT CAMPAIGN.

NEARLY one year and a half has elapsed since The Clay-Worker inaugurated the Build with Brick movement. It was the most important suggestion ever made to the clayworkers of the land and received the active support of the majority of our manufacturers.

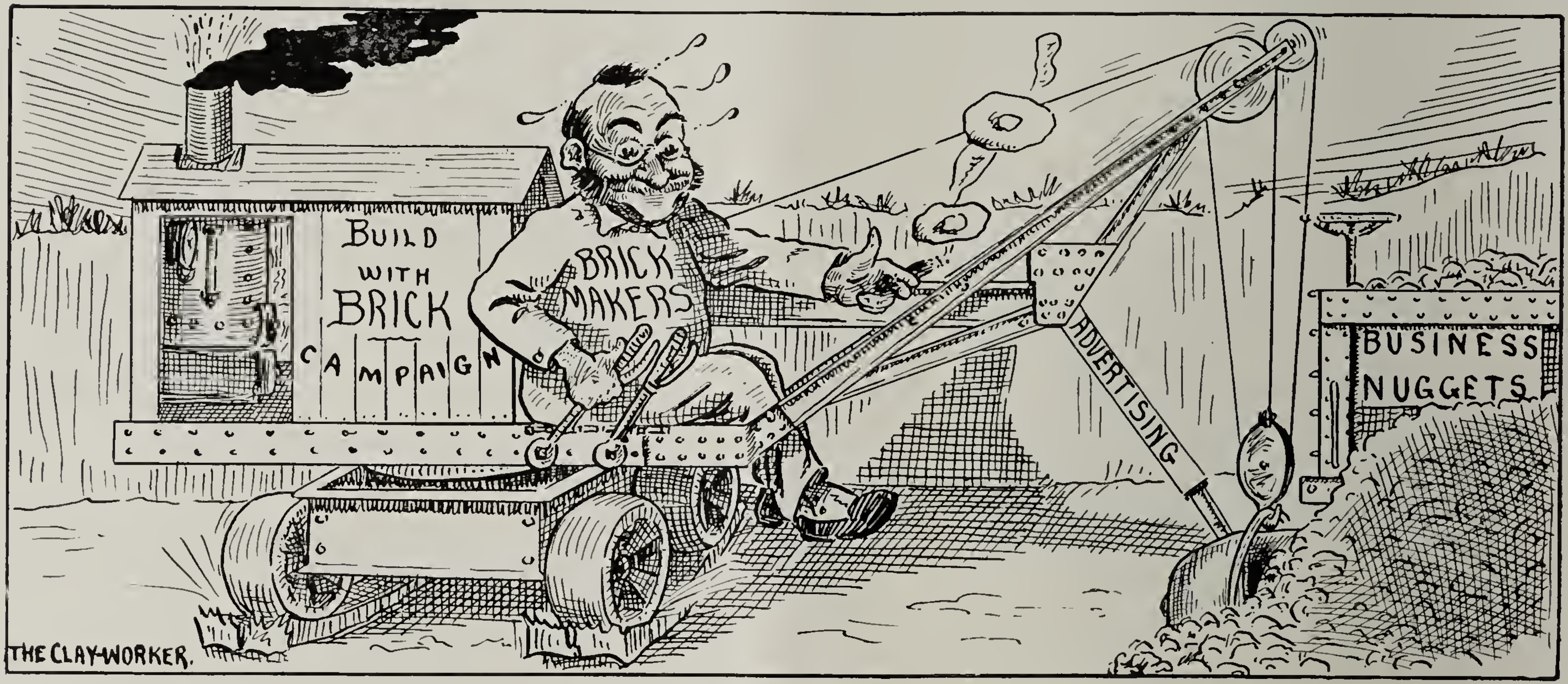
Posters and metal signs bearing the magic words BUILD WITH BRICK, or DRAIN YOUR FARM, or PAVE WITH BRICK, were purchased by the hundreds. Shipments were made to every corner of the country and it was not long before fences, buildings, barns, telephone poles, etc., along the country highways in many sections were decorated with the attractive blue sheet steel signs or tack card posters.

The first important work done in our publicity campaign was the filling of an order for posters for The Brick Service Bureau and Fiske & Company, Inc., of Boston—even before the ruins of the disastrous fire at Salem, Mass., became cold. These posters were scattered over Salem and did splendid service in making brick the important material in the rebuilding of that formerly frame-built city.

In rapid succession posters were shipped to Des Moines, Iowa; Columbus, Ga.; Glen Head, L. I., New York; Los Angeles, Cal.; Bradford, Pa.; Danville, Alton, Peoria, Marion and Edwardsville, Ill.; New Orleans, La.; Selma, Ala.; Buffalo, Kans.; Gonzales, Texas; Rochester, N. Y.; Cleveland, Ohio; Spokane, Wash.; London, Canada; Mason City, Iowa; Columbus, Ohio; New Galilee, Pa.; Brownsville, Texas; West Charleston, W. Va.; Union City, Tenn.; Eugene, Oregon; Toledo, Ohio; Louisville, Ky.; Chicago, Ill.; Greenfield, Mass.; Davenport, Iowa; and several points in Indiana and Wisconsin. This was just the beginning, thousands of posters and metal signs have been shipped from this office during the last eighteen months to various points in the United States and excellent results have been secured by the clayworkers who have taken this means of educating the prospective builders, contractors, and users of their goods in their territory as to the merits of burned clay goods.

The movement created world-wide attention, Sweden and several other foreign countries adopted the slogan and inaugurated a similar campaign.

The various branches of the clay business used expressions suitable to their business as, for instance, the hollow tile makers adopted the slogan Build with Hollow Tile. The lumbermen tried to get in the limelight by using and still use the slogan Build with Lumber. So this movement has secured the interest of not only the clayworkers of the land, but competitors as well. They see the possibilities.



The Machine That Has Proven Most Successful.

The Build with Brick movement was not simply a flutter, or a grandstand play. It wasn't inaugurated as a temporary proposition. It was placed on a firm foundation and will last as long as there are any clay products to be sold. In other words, it has for its backbone a vertebrae that is enduring, for it is the necessary frame work for securing larger and better business.

There are a very few firms in this country who are not using this slogan on their stationery. Large display advertisements have been erected in different cities. One firm spent $10,000 in erecting a Build with Brick, brick constructed permanent advertisement. The clayworkers are using their local papers and spreading the truth about well-burned clay products. BUILD WITH BRICK appears in the advertisements of the brickmakers in hundreds of our daily papers.

Many firms have written us telling of the wonderful results they have obtained by these several means of business boosting. All this tells of the success of the campaign.

We will back this movement until the crack of doom, for it is necessary to the progress of our trade. We urge and will continue to urge all of the clayworkers of the land to do their share in extending the work of this nation-wide "Build with Brick" campaign for the greater use of all well-burned clay goods.

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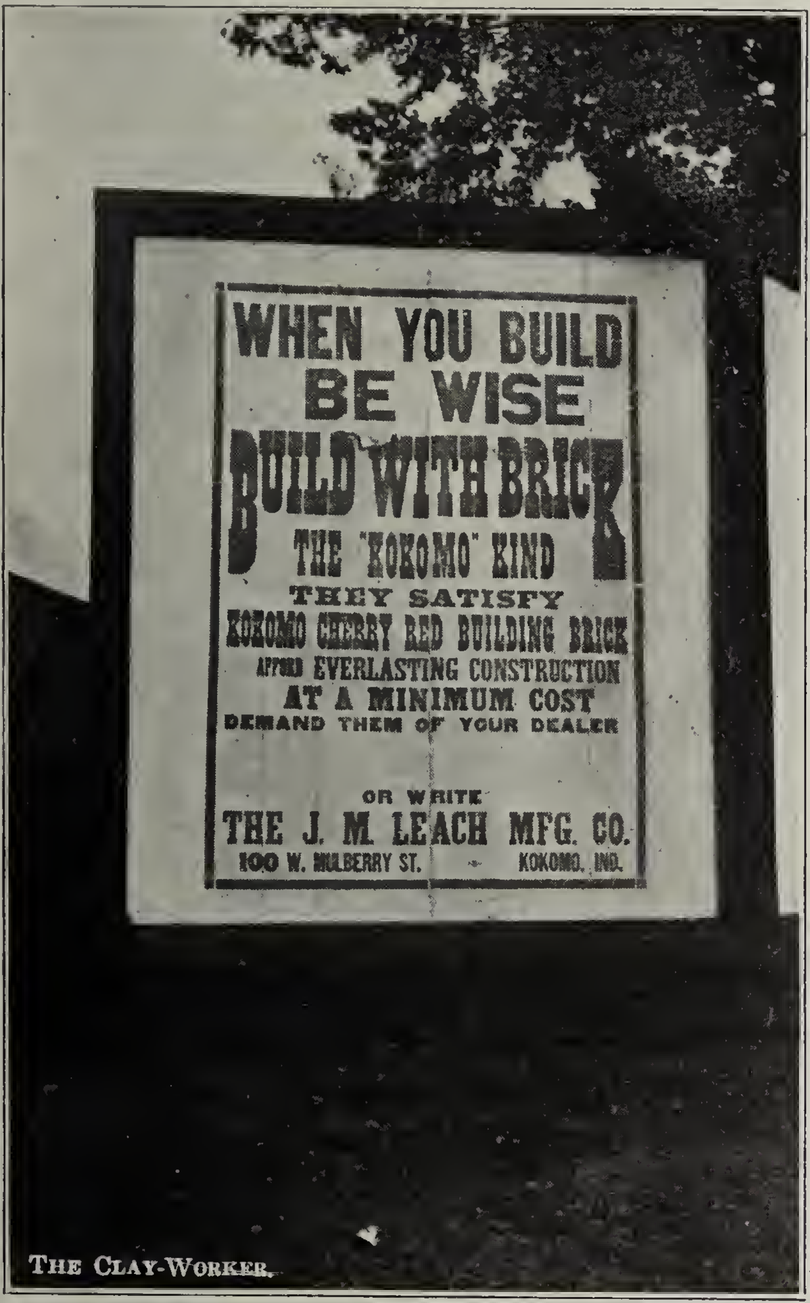
## CLAY PRODUCTS OF NEW YORK STATE DURING 1914.

IN a late number of the Clay-Worker statistics, of the clayworking industry, are given placing the production from the state of New York at 908,868,000 common brick with a value of $4,666,037, and an output of terra cotta valued at $889,468. These figures are not quite correct. I have had unusual opportunities to become acquainted with the clayworking industry of this state and have carefully gathered the statistics of this industry for the annual report of the mining and quarry industry. The following table is given as the correct value of the different clay products exclusive of crude clay:



A Build with Brick Bill Board Advertisement.

| | |
|---|---|
| Common brick | $4,597,856 |
| Front brick | 105,439 |
| Paving brick | 680,226 |
| Hollow brick | 38,119 |
| Fire proofing (hollow block) | 245,034 |
| Terra cotta | 892,630 |
| Fire brick and stove lining | 331,671 |
| Drain tile | 92,938 |
| Sewer pipe | 81,000 |
| Pottery | 2,405,676 |
| Miscellaneous | 4,630 |
| Total | $9,475,219 |

One hundred and ninety companies reported a production of clay products during 1914 as compared with two hundred and four during 1913. Of this number one hundred and thirty-three reported a production of common soft-mud building brick and thirteen a production of wire-cut common with a total of one hundred and forty-five as compared with one hundred and fifty-nine during 1913. The total number of common brick produced during the season amounted to 932,759,000 as compared with 1,090,506,000 during 1913. Of this number 55,071,000 were made by the wire-cut process and reported a value of $365,159 as compared with a value of $424,894 during 1913. Paving brick and front brick were the only products to show an increase during the season. With paving brick this amounted to an increase of 15.1 per cent. in value and 23 per cent. in quantity over 1913.

The tide-water Hudson river region produced 709,907,000 common brick with a value of $3,346,430 as compared with 788,731,000 and a value of $4,176,406 during 1913. The Mechanicville district produced 50,416,000 with a value of $240,912 as compared with 89,744,000 for 1913. Long Island and Staten Island produced 57,735,000 with a value of $276,832 as compared with 59,004,000 and a value of $331,071 during 1913. Erie county produced 40,015,000 valued at $244,116 as compared with 56,899,000 and a value of $380,153 for 1913. Ulster county led in the production of common brick with an output of 202,366,000 valued at $895,126; Rockland county was second with 150,183,000 valued at $747,026.

The output of front brick was as follows: 3,000,000 red smooth face valued at $30,000; 4,151,000 rough face valued at $39,205; 3,331,000 dry pressed valued at $36,234, a combined total of 10,482,000 with a value of $105,439. In 1913 the output was 9,350,000 valued at $99,736.

Common hollow brick was produced by seven operators having a combined output of 6,402,000 with a value of $38,119 as compared with 7,631,000 and a value of $44,265 for 1913.

Fire proofing (hollow blocks) were reported by seven companies with a total output valued at $245,034 as compared with $276,053 for 1913. The market for both hollow blocks and hollow bricks is on the increase in this section and with the great available beds of clay, cheap transportation and fuel, New York state should rank higher than it does at present in the production of these two materials.

The paving brick producers reported an output of 446,696,000, an increase of about 23 per cent. for the year. This is the greatest output ever made in the state. During the year 49,374,169 paving bricks were laid on the state highways, or more than the local output. Less than one-fourth of the total output was sold in the local markets.

The output of terra cotta was valued at $892,630 as compared with $1,113,322 for 1913.

Drain tile was produced by fourteen firms operating in Albany, Cayuga, Erie, Monroe, Oneida, Onondaga, Ontario, Saratago and Washington counties with a value of $92,938 as compared with $134,199 for 1913. The loss was due to the temporary closing of several plants while undergoing reorganization.

Pottery showed a loss of about 30 per cent. from the preceding year with a reported value of $2,405,676. Of this amount only about $70,000 was produced from local material.

The total production of crude clay amounted to 7,109 tons valued at $12,424. Of this amount 4,703 tons were classified as "slip" with a value of $10,407. Lately there has been considerable interest taken in the slip clays of the Hudson valley. The largest deposits of this material in the United States are probably found in the region between Catskill on the south and Troy on the north along both banks of the Hudson river. No attempts have been made to open pits or banks on an extensive scale and no attempt has been made at artificial drying by any firms in the slip clay trade exclusively. Chemical and physical analysis of the various beds has shown that there is a great variation in the ingredients although in most cases the alumina is fairly constant at about 12 per cent.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

### The Business Outlook.

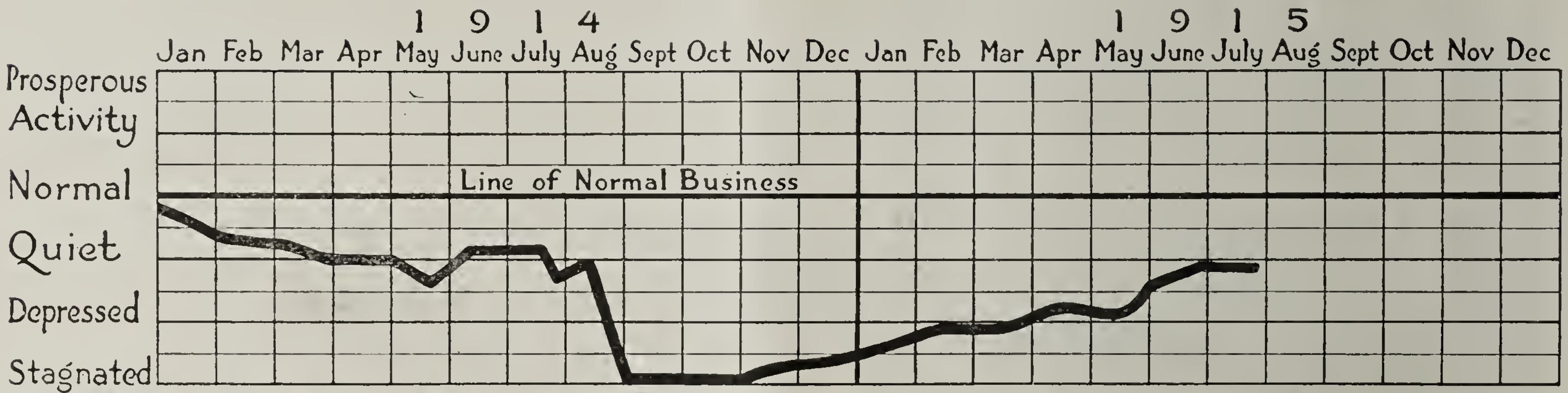
Editor The Clay-Worker:

On September 1, last year, the bottom dropped out of business. (See chart below.)

What will happen September 1 and afterward this year?

That's what you want to know. That's what we all want to know. The manufacturer or dealer who can see six months in the future—who can forecast the rising tide of healthy business revival, who can put his finger on the chart and say, "Here is the turn in the road, here is where we leave stagnation, depression and uncertainty behind, here is where business heads straight for great activity and prosperity"—he is the man who will cash in, because he will be ready and prepared.

Are you ready—are you prepared?



What Will the Business Chart Show This Fall?

The United States is on the verge of a great business revival; just around the corner is an era of the greatest prosperity this country has ever known. Despite the European war, it is coming steadily, surely. The chart proves it. The excess of exports over imports for the government fiscal year ending June 30, 1915, was over $1,000,000,000, surpassing by $400,000,000 the highest record heretofore made. This means that foreign countries have paid us for their balance in trade a cool billion dollars in gold coin, or its equivalent, which is right here in the United States—a billion dollars to add to coming prosperity for you and for us. This billion dollars does not mean munitions of war, but everyday staples—bread-stuffs, animals, automobiles, meat and dairy products. Enormous crops this fall will insure prosperity's permanency. And when the war does cease it will come with a rush.

It will require four or five years for the European manufacturers to reorganize and regain their lost ground—if they ever regain it. South America is also looking to us for all sorts of supplies. And bumper crops are assured for 1915. That will insure domestic prosperity. * * *

Are you ready for real business? We are. Then call on us to supply them!

LACLEDE-CHRISTY CLAY PRODUCTS CO.
By D. R. Hatton, Vice-President and Gen. Mgr.
St. Louis, August 17, 1915.

### Tousands of People Visit the "Brick Home."

Dear Mr. Randall:

Just a short line to tell the readers of "The Clay-Worker" what my impressions are, based on my experience since my arrival last Tuesday forenoon, the 7th.

To Wednesday night I was busy getting my baggage, making my 'pass' arrangements and finding living quarters. Thursday morning I was 'on the job,' and believe me, it's some job. I give you the record of the number of visitors which passed through the "Home" for the last three days.

| | |
|---|---|
| Thursday (California Admission Day) | 2,111 |
| Friday | 471 |
| Saturday | 953 |
| A total of | 3,535 |

All handled in good shape, and as shown by my card record, a little over five per cent. interested in safe construction and wanting information as to comparative costs, actual prospective home builders, and over fifty per cent. wanting to know the purpose of our elaborate and beautiful structure.

As a general proposition, the exposition is a wonder, its architectural features preclude any verbal description, as one must see to believe. The attendance is large and weather, since my arrival, perfect. My advice to my eastern friends, clayworkers and all others, irrespective of their reputation for honesty to date, is to see the exposition if it is necessary to steal the money for the trip.

As for our "Brick Home," it surpasses in beauty and perfect detail of construction, both as to exterior and interior, my wildest dream as to a perfect example of the small home built safe, and only to last until December fourth, and for the sole purpose of increasing the demand for burnt clay products with particular reference to the construction of the small home.

To the loyal supporters of our educational campaign, particularly our cash subscribers to date, it is an example of good work performed but unseen by many of them; as for our San Francisco friends, especially the work performed by our local committee, Mr. J. R. Gwynn, chairman, the "Home" shows for itself. It can hold its own in comparison with any state building, and is taken by hundreds of visitors to be a state building. The "Home" can do everything but talk, and I bless my lucky star that I am here to talk for it, as in doing this, I am doing what the officers of our association want me to do, and what our supporters expect me to do.

I am here through the liberality of three Chicago men, officers of our association, who personally advanced me the cash to cover my transportation here and return, $100.00 to cover my actual living expenses for one month, and $90.00 for emergency expense which may arise for the association; $26.70 of this last item has already "arisen," and there will be "more to follow," but I have faith. I give my services for the first month, free, and will feel that my reward will be in the knowledge that I am helping promote an idea that has been my life work during my business experience.

This is no time to "mince" matters; we have the opportunity; will we take advantage of it? Will the ones who have not given their financial support to date, leave the burden to those who have subscribed, to carry it to the finish? I do not believe that they will. A general publicity movement is under way, and the Panama-Pacific Clay Products Association with their supporters have started it. The initial work at the "Home" will be far reaching. It will call for executive ability selected from the "Live Wires" in the burnt clay products industry to carry on the idea later, by supplying inexpensive floor plans and elevations of moderate cost homes, and educational literature covering all phases of interest to the prospective home builder in every section of the United States.

You may assume that I am premature in giving my positive impressions, based on the short time that I have been here. Had I no knowledge of the general building and competitive conditions which the manufacturers and dealers of the East and Middle West are "up against," your assumption would be correct.

One may be an interested listener to an evangelist once, may be impressed deeply or superficially, drop his dollar in the plate and feel that he has done his part for the cause. He has never been to the good place under discussion, and has never seen anyone that has been there, but he believes there is such a place.

The clayworkers of the United States have a tangible, positive proposition in operation here, to better their business conditions.

"By their works ye shall know them." I believe they will be known.

Yours very truly,
E. C. KIMBELL,
Publicity Manager Panama-Pacific Clay Products Association.

## AN ADVERTISING INCIDENT.

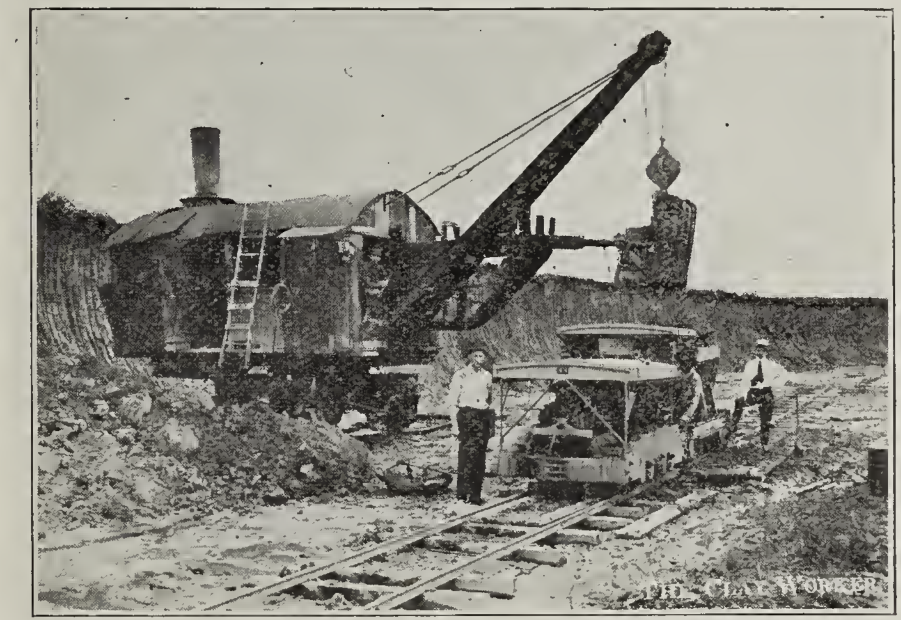
Early in this year there happened an incident in connection with a prominent manufacturer of automobils that serves to show the effectiveness of advertising, and especially such publicity as is obtained through periodical publications. The incident consisted in the announcement of a few million dollars to be divided on the profit-sharing basis with employees, coupled with a story to the effect that it was proposed to establish a minimum wage scale of $5, and that no workman in the plant even down to the floor sweepers would receive less than this amount. The report also spoke of enlargements and the intention of taking on new men. As a result people flocked by the thousands to this place, many of them leaving excellent positions, and the crowd that gathered was so great and so insistent that a riot followed. It matters but little for the present purpose what the underlying idea of all this was, or what criticism may be made of the incident itself. The one important factor remains that it proves the effectiveness of advertising. Those who may be filled with doubts or inclined toward the cynical when the benefits of advertising are under discussion should take consideration of this incident and remember from it that advertising, especially periodical publicity, has a wonderful effect in the world.

There is a kind of clay called Betonite, which is said to be superior to the familiar diatomaceous earth for many uses. It has notable powers of absorption, taking up about seven times its own volume of water. It is the material used as the body matter of antiphlogistine, a proprietary remedial dressing, and it is recommended as a better material than those already in use for making dynamite. The U. S. Geological Survey tells us about its qualities and uses in the Overland Guidebook, Bulletin 612, but where to find it and how to identify it is another matter.

## HAULING CLAY CARS WITH GASOLINE LOCOMOTIVE VERSUS HORSES.

LOOKING BACK not so many years, those who are, or have been, interested in the brick manufacturing business can appreciate the use of modern machinery now used about a brick plant; and this business has reached a stage that brick has a commercial use, and those who manufacture it have got to maintain economy and efficiency in order to produce and compete, so as to make the business a profitable one.

A recent and successful piece of machinery added to the many other improved machines that go to make an up-to-date plant is a gasoline locomotive. In the past few years some of these were used, but, of course, mostly home-made; and the gasoline engine, having not reached the height of perfection as today, they were more or less troublesome; and, consisting of only one or two cylinders and made mostly of cast-iron, the outfit was not very powerful or presentable for the purpose. While some plants use steam locomotives, they are rather unfitted for the average light work, requiring heavy ballast, heavy rails, the bother of handling coal and many other inconveniences for the work required. So, the bulk of the work fell back upon horses. We know these to be reliable, but they were limited in their work, and in many yards horses have been so injured that it was necessary to kill them from the result of the cars breaking their legs; and, again, today, this means of hauling is too slow for a large plant.



The J. D. Fate Co. Gasoline Locomotive in Haggerty Plant, Detroit.

John S. Haggerty, one of the largest Detroit brick manufacturers, and whose father was one of the pioneers of the Michigan brick industry at Springwells, belongs to the progressive party in this industry, and has one of the most up-to-date plants in the state, consisting of several yards and producing many millions of brick a year. Mr. Haggerty is running his plant night and day, and, having a good run of clay, manufactures an excellent brick. He found it necessary to replace the horses for hauling clay cars with something more modern. He purchased a "Plymouth" gasoline locomotive, manufactured by the J. D. Fate Company, of Plymouth, Ohio. This outfit does credit to the manufacturer; not only being equipped with a four-cylinder Continental motor, such as used in many of our high-priced automobiles, but also the material used and workmanship are equally as good. The locomotive has equal power, both forward and backward; there are no gears to shift, being equipped with a perfect friction drive. The above illustration shows the locomotive at work in Plant 1. Within a few days another will be working in Plant 2, of the Haggert Brick Company.

WALLACE.

Written for The Clay-Worker.

## WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS

IN THE BRICK BUSINESS the plants are exceedingly busy and there is an upward and hopeful trend to practically every line of manufacture with which it is associated," was the way a high official of the largest brick producing concern in the Pittsburgh district recently summed up the situation.

Conditions in mills and factories indicate that Pittsburgh is entering an era of "old fashioned prosperity."

At a conference recently held at the Fort Pitt Hotel in Pittsburgh, a movement was launched to organize an allied body composed of organizations identified with building operations throughout the country, to be headed by the National Association of Builders' Exchanges. It is the intention, too, to include in the new body the National Association of Real Estate Exchanges, thereby securing its co-operation in furthering the business welfare of the building interests. This conference was a whole day affair and was presided over by H. L. Luman, of Louisville, president of the National Association of Builders' Exchanges. The idea now being worked on was conceived by Mr. Luman, who arranged the present conference. It was attended by nearly forty delegates, representing the various bodies identified with the building trades, such as the bricklayers, carpenters, stone masons, tinners and plumbers organizations, the delegates being from all over the country.

At the close of the session, E. M. Tate, secretary of the Building Construction Employers' Association of Pittsburgh, who has been elected secretary of the national conference, gave out a brief summary which it was announced would be all the builders would make public at present. Uniform legislation affecting building operations in all the states will be sought, it was said, as one of the chief aims. A movement is to be set on foot for national standards in building materials, names and measurements.

The Shenango Pottery Company, of New Castle, Pa., is working its factory at full capacity with orders received in this country. Many of the orders for dishes now being filled at the local plant were given to European plants previous to the world war in Europe.

Nearly three hundred persons are employed at the local plant and this number will be increased in the near future, owing to the increased demand for American-made tableware.

Bids for the first road contracts to be let under the administration of Highway Commissioner Cunningham were opened recently for the state aid construction of three sections of brick block highway in Muncy, Stroudsburg and Milton. The commissioner is rushing repair work on the National pike and on state roads.

The National Refractory Company, of West Apollo, Pa., filed a petition in the prothonotary's office recently asking for an order of dissolution from the court. The statement of the company states that it was organized May 4, 1903, and was first known as the Aplool Fire Brick Company. On the 28th of June a petition for decree of dissolution was entered.

The United State Potters' Association met in East Liverpool, O., recently and considered the proposed two-year general wage agreement submitted by the National Brotherhood of Operative Potters. Counter proposals were drafted to be forwarded to the brotherhood. The new agreement will be signed following a joint conference in Atlantic City September 9, 10 and 11.

The Johnetta Brick Works, at Johnetta, Pa., put on full capacity at the plants at Johnetta this month. The company has been in financial difficulties and orders have not been plentiful, but now it is reported that many advance orders have been received and that the plants will run full for some time to come.

An application for a Pennsylvania state charter of incorporation has been made by A. J. Hillegass, W. H. Miller, D. J. Hillegass and L. C. Colborn for an intended corporation to be called the Berlin Smokeless Coal & Clay Company, of Berlin, Pa.

The Philipsburg Fire Brick plant, at Philipsburg, Pa., is working full time. The General Refractories Company's brick plant at Blue Ball, Pa., is working day and night to fill its orders, while others are coming in from day to day.

The entire trade takes great interest in the figures compiled by Chief Clerk A. D. Black in the office of Superintendent S. A. Dies of the bureau of building inspection, showing that building operations authorized in August in Pittsburgh were of an estimated cost of $740,265, the number of permits issued being 278. These totals compare with 388 permits issued in July, for work to cost $1,186,632, and with 353 permits and $31,127,069 in August of last year. Of new buildings authorized 51 were veneered, 29 brick, seven frame and one cement. During the month permits were granted for 88 new buildings, to cost $510,316, and 20 permits were taken out for additions to cost $32,209, while alterations permitted totaled 170, to cost $197,740.

It has been reported that the Clydesdale Stone Company, in Ellwood City, Pa., is contemplating enlarging their present workings and that several more acres of limestone producing land have been leased by them and that they have made provisions for installing a new crusher. The report also has stated that they are going to build a huge brick plant and take up the work of making brick. So far these reports have not been confirmed by the officials of the company, but the information comes from reliable sources. A. SMOKER.

## WITH THE LOUISVILLE CLAYWORKERS.

THERE has just been instituted in Louisville under the auspices of the Commercial Club, a permanent exhibit of Louisville-made products, and among these exhibits are to be found two of Louisville's enterprising clay workers, the P. Bannon Sewer Co. and the Coral Ridge Clay Products Co.

The permanent exhibit of Louisville manufacturers has been installed on the second floor of the Arcadia Building at Fourth and Broadway and the exhibition was formally opened with a parade and blowing of horns and some speechifying Tuesday, September 7th.

The most elaborate exhibit of clay products was furnished by the Bannons because they have many departments and a widely diversified product, which enables them to make a great showing. Of course it all centers in a way around their great sewer pipe work, but even at that many of the special products show up more conspicuously in some respects than the regulation sewer pipe product. For example, there is the patent lidded conduit made by them, which is fitted with patent expansion pipe supports. Samples of these exhibits constitute an important feature of their display.

The display is artistically arranged and it is topped off with some of their flue and chimney top products and includes flue linings, hollow tile and fire brick and blocks and quite a line of shapes in sewer pipe as well as the straight product.

The exhibit has been very tastily arranged and properly labeled so that the products can be identified and it is a center of interest to practically all visitors to the exhibition.

The Coral Ridge Clay Products Co. makes an interesting display of its brick line, which includes the Coralruff brick and also their shale hollow brick. They have a splendid line of shale brick which is taking well in the community and it burns to an attractive red. Also they are making quite a feature of this hollow brick of theirs, having used it exclusively in the erection of the new Ford plant here in Louisville.

# OFFICIAL ANNOUNCEMENT.

### Thirtieth Annual Convention of the National Brick Manufacturers' Association and Allied Organizations, to Be Held at the Statler Hotel, Cleveland, Ohio, February 20 to 26, 1916.

IT IS GENERALLY CONCEDED that the two most prosperous cities in America today are Detroit and Cleveland. Remembering the splendid convention in the former city last winter, the members of the N. B. M. A. and allied associations will be glad to learn that it has been decided to accept the urgent invitation of the Cleveland members to hold the next national convention in that city, February 20 to 26, 1916.

### The First Complete Building Show.

At that time, there will be a great exposition of brick and other building materials in that city, the first American **Complete Building Show.** The chief purpose of the Building Show is to demonstrate to the prospective builders of the nation the importance of building incombustible structures. The exhibits of materials entering into the construction of such buildings will afford an object lesson that can but impress the beholders with the advantages of building permanent, safe and unburnable homes and commercial structures. Hence, such displays must inevitably prove of great material value to the manufacturers of clay products for structural purposes, for brick, tile and terra cotta are unquestionably the best and safest building materials.

For years past American churches and school houses have, as a rule, been built of brick. When such buildings are contemplated, permanency and low cost of maintenance are always considered as elements of first importance. The same should be equally true of our homes and business buildings, for when built of incombustible materials, they afford protection against fire and loss of life, as well as against loss of property.

### Matters of Great Importance to Brickmakers.

These facts should be brought home to the masses, and the Building Show will be an effective means to that end. Clay products for structural purposes being the most durable and in the long run the most economical building materials, brick, tile and terra cotta will naturally play an important part in the Building Show.

No other building material has been improved in both form and color to the same degree of perfection as have brick and tile in the past decade. A building show which will demonstrate this fact will surely be of advantage to the clay craft in general and members of the N. B. M. A. in particular, as the latter have in the past pioneered the way in the march of progress, hence a meeting at Cleveland at this time is desirable.

### Cleveland a Popular Convention City—Hotel Statler Again Headquarters.

The Ohio metropolis is very near the center of the great clayworking industries, and so is conveniently get-at-able to a large majority of our members. It may properly be termed the home of the great paving brick industry, and its vast manufacturing and commercial interests make it a most attractive place of meeting for business men.

Last, but not least, one of the essentials of a great convention is ample hotel accommodations, and these will be afforded by Hotel Statler, which will be headquarters during the convention and will provide unsurpassed conveniences and comforts for the delegates and those who will accompany them. An addition to the hotel is now being erected, which will make the Statler one of the largest as well as one of the finest hotels in the land. As our members know from past experience, the same reasonable rates will prevail during the convention as at other periods, for the Statler hotels do not raise their rates during conventions.

An appropriate program will be arranged covering the various important phases of the industry, which may be considered with pleasure and profit by the members. Clayworkers desiring any particular feature of the business included on the program are invited to communicate with the secretary in regard to same. Those desiring information as to requisite of membership, etc., are requested to write to the secretary at Indianapolis, Ind.

Hotel Statler, Headquarters for the N. B. M. A. Convention.

THE EXECUTIVE COMMITTEE,
C. P. Mayer, President.
Theo. A. Randall, Secretary.

### N. B. M. A. DAY AT THE EXPOSITION.

As announced in last month's Clay-Worker, the week of October 18 to 23 has been set aside as Builders' Week at the Panama-Pacific Exposition at San Francisco, and one day of the week, October 20, has very appropriately been designated as N. B. M. A. Day. All brick manufacturers, whether members of the N. B. M. A. or not, will be cordially welcomed at the Brick Home on the Exposition grounds, which will be the rendezvous for brick men that particular day. It had been anticipated that a special party of brick men and their families from the Eastern and Central States might be made up to make this trip, stopping at convenient places en route, but up to date very few have announced their intention of making the trip at that particular time. However, there is still time to make necessary arrangements, and Secretary Randall will be glad to hear from any one who desires to join such a party, starting from St. Louis about October 15, whether they are members of the Association or not. It is always pleasant to make a long trip of this sort with congenial friends, and then, too, invitations have been received from a number of brickmakers living in cities en route to make special stops, for the purpose of visiting brickmaking plants and other places of special interest to clayworkers. Write Secretary Randall at once for particulars in regard to the trip.

# THE COMPLETE BUILDING SHOW.

## An Exposition of Incombustible Building Materials at Cleveland, February 16 to 26, 1916.

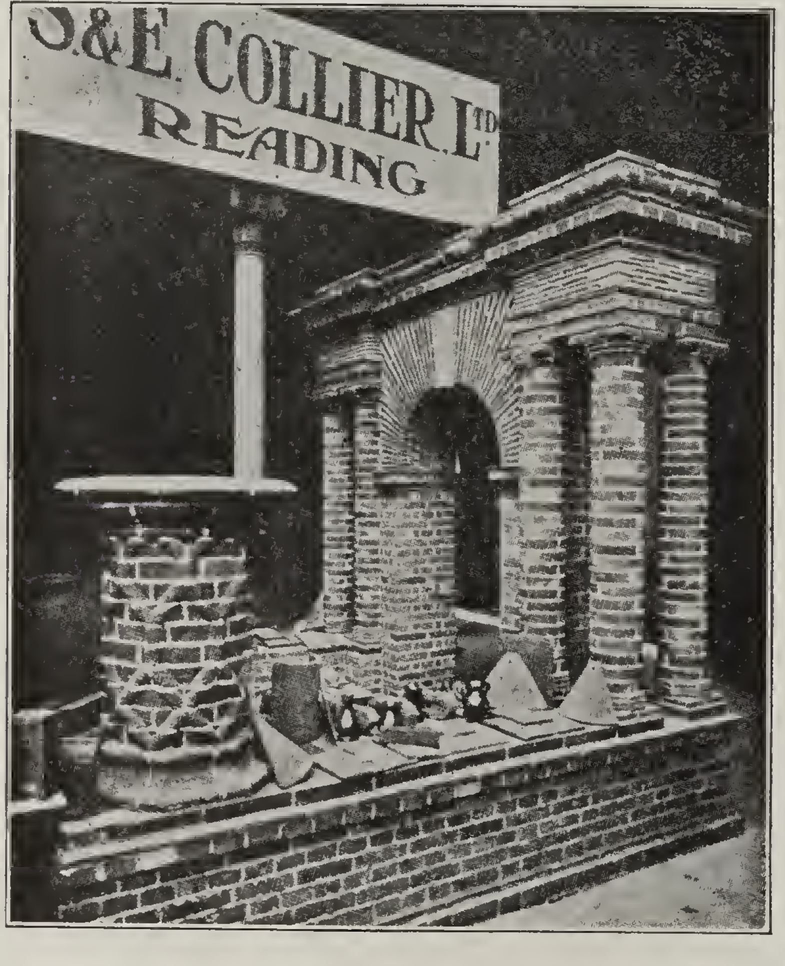
*"Will be the most powerful appeal to the American Builder, in the interest of Safety, Beauty, Comfort and Economy in construction, equipment and adornment, ever made in the United States."*

THE FIRST AMERICAN Complete Building Show, to be held in Cleveland during February of the coming year, will assume international prominence, owing to the calling off of the Building Trades Exposition, London, England.

For many years this famous display of building materials has been held bi-ennially in London. The war, however, has caused its indefinite postponement. This leaves the Cleveland show in a class by itself—the only exposition of building materials not a "trade show."

Being the first of its kind ever held in the United States, the managers of the American show have looked to the London exposition for suggestion. The fact of its continued success through many years was taken as conclusive proof its policy is right. In admitting for exhibition all classes and kinds of materials, it insured for itself a broad scope. A like policy has been adopted for the Cleveland show.

Another of the secrets of the success of the London show was that its exhibits had "life." There was no array of fixed exhibits, such as panels, heaps of materials, idle machinery, etc. The various building materials and construction systems were combined in the erection of complete buildings in miniature, which were equipped with the various fitting and safety and labor-saving devices.



A FEW OF THE MANY INTERESTING EXHIBITS

This plan will be carried to even greater lengths by the advisory board of the Complete Building Show. Negotiations already are under way for community exhibits of common and face brick, gypsum, tile, cement and metal lath. A complete exhibit of wood products, also, is contemplated.

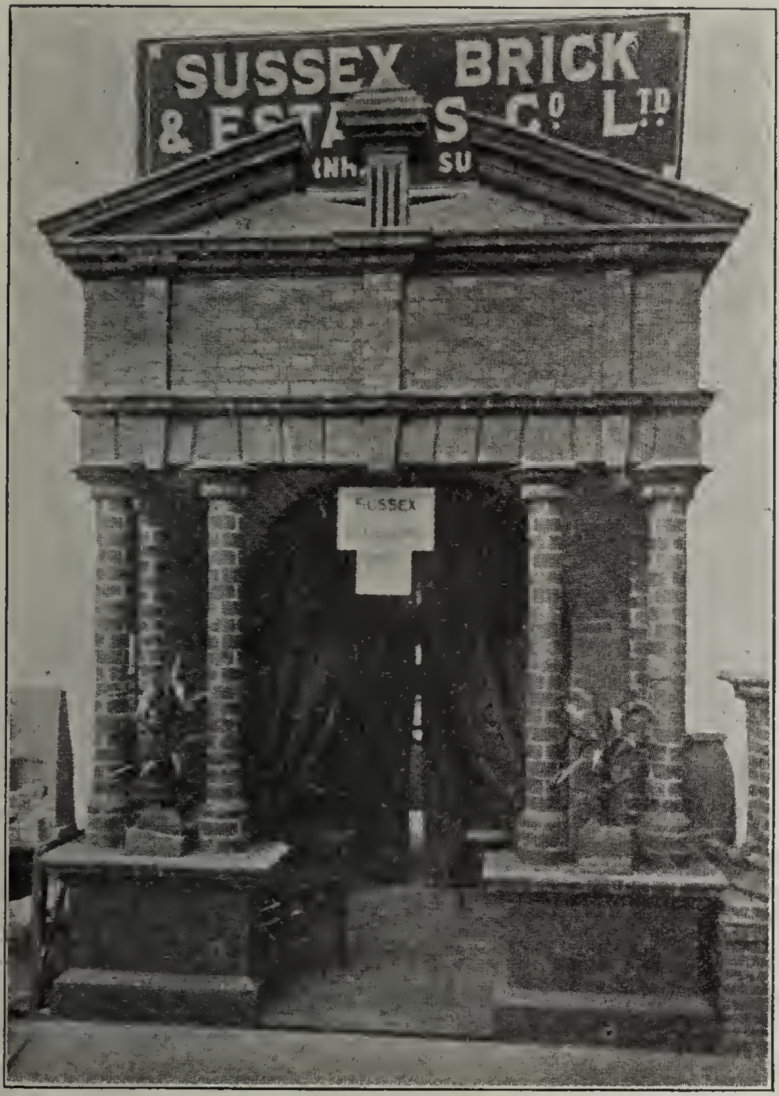
Possibly half the available show space will be taken up with group exhibits, thus eliminating the many booths which otherwise would occupy this area. These materials will be used in the erection of complete buildings of various kinds, and several in miniature, but which will show the application and use of the materials used in their construction. Many of the patented devices for insuring safety and comfort of home and commercial buildings will be installed in these buildings, thus contributing further to the elimination of individual displays.

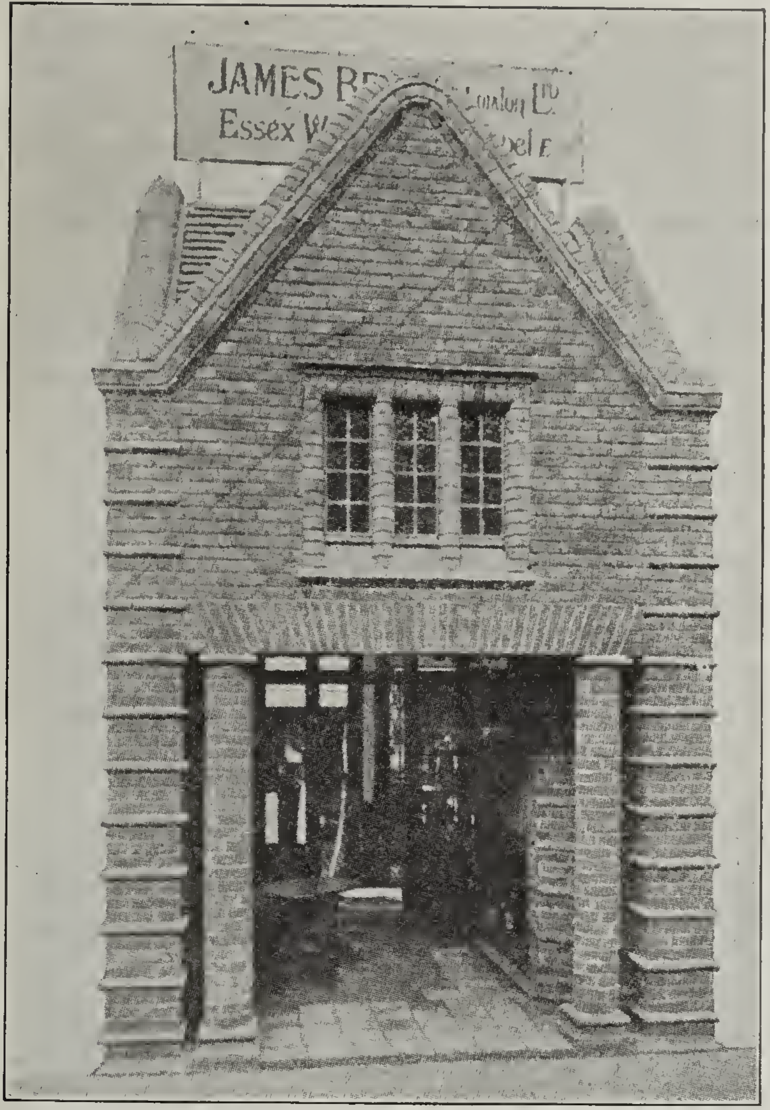
OF BRICK BUILDINGS IN MINIATURE SHOWN AT THE

The architectural exhibit will be a distinct feature of the Complete Building Show. The drawings submitted in a competition for a small fire-safe house, of moderate price, under the auspices of the show company, will be displayed, thus completing the cycle of safe construction, from the drawings and the raw materials to the completed structure.

To aid in the publicity campaign for the show, a complete house of fire-resisting type will be constructed by the show company and given away in competition, in which all who attend the show are eligible. This house will be constructed this fall on one of Cleveland's boulevards.

While the Complete Building Show was inspired by the Society Advocating Fire Elimination, it is assured of an entirely unprejudiced administration through the diverse interests represented on its advisory committee, which is composed of all its stockholders. These number among them many of the largest and most progressive manufacturers and dealers in building materials and equipment in the country. To mention only one of these, the Cleveland Telephone Company, which is the local operating company for the American Telephone and Telegraph Company, indicates the breadth the show will have.





FAMOUS EXPOSITION OF BUILDING MATERIALS HELD BI-ENNIALLY AT THE OLYMPIA, LONDON, ENG.

By request we reprint some views of the brick exhibit at the London Building Show, hoping they may offer suggestions of a helpful sort to those who are planning displays for the first American Building Show to be held at Cleveland, February 16 to 26, 1916.

It is anticipated that this show will be an object lesson of tremendous influence demonstrating the superiority of brick as a building material. Brickmakers can make it very attractive and effective, if they will.

## WHAT ONE CENT WILL DO.

Taking the figures of production in 1912 as a basis, one cent per thousand on common brick and two cents on front brick would yield a fund, in round numbers, of one hundred thousand dollars, if everybody would pay one cent so as to cover the entire production.

The figures for 1912 show a production of 8,555,238,000 common brick. With one cent per thousand of these contributed to a central organization bureau, we would have a fund of $85,552.38 annually. Added to this we have a production the same year of 814,007,000 front brick, and one cent a thousand on these would raise the total to $93,692.45.

The average price realized for the common brick in 1912 was $6.05, while the average price realized on front brick was $11.62. In other words, the front brick brought practically twice as much as the common brick, consequently on a basis of value with one cent on the common brick per thousand the front brick should pay about two cents. This, reduced to exact figures, would give us an annual fund of $101,832.52, if all were to join the Building Brick Bureau and contribute this one cent on common brick and two cents on front brick.

This would make quite a fund, a fund sufficient for all the needs of a central bureau of exploitation. Then, if this were followed by the exploitation of twice the amount, that is, two cents on common brick and four cents per thousand on front brick, by the different manufacturers in local exploitation, it would mean the expenditure annually, in round numbers, of three hundred thousand dollars, which is practically the sum already raised or signed up by the Southern Pine Association for the exploitation of southern yellow pine lumber.

One cent added to the cost per thousand of common brick would not be felt, neither would two cents added to the cost of front brick, but all of it together would make a fund that would maintain a central bureau of exploitation. If followed, as it logically should be, with local exploitation by each man, the result would be to increase the demand for brick sufficiently to eliminate sharp competition and make it possible to get from 50 cents to $1.00 a thousand more for common brick and from $1.00 to $2.00 a thousand more for front brick. That wouldn't mean much to the buyer of brick to build a home, but it would mean a big thing to the brick industry as a whole. An increase of 50 cents per thousand on common brick prices and $1.00 on front brick would yield to the brick fraternity, on the basis of the 1912 production, $5,091,626. Surely that is a sum worth working for, and it is the minimum of good that should come. We might easily double it to $1.00 more on the thousand for common brick and $2.00 for front brick, which would make the yield to the brick fraternity, in round numbers, ten million dollars a year.

# ANNUAL MEETING OF THE NATIONAL PAVING BRICK MFRS.' ASSOCIATION

## To be Held in Dayton, Ohio, October 11 and 12, in Conjunction With the American Society of Municipal Improvements.

THE CITY OF DAYTON, OHIO, has attracted much public attention following the great disaster it suffered by the flood three years ago. It is notable among the cities in that it is run by a manager, and it has a notable manager in the person of Mr. H. M. Waite, former engineer of Cincinnati.

The city of Dayton is now to have two meetings of note as well as of great importance to public welfare in this country. The National Paving Brick Manufacturers Association is to hold its sessions Monday and Tuesday, October 11 and 12. The American Society of Municipal Improvements is to convene on October 12.

The co-operative spirit of the manufacturer and the official using his goods is to be given a distinctive advance by the National Paving Brick Manufacturers Association extending to the American Society of Municipal Improvements a complimentary banquet on the evening of October 12.

This is in accordance with the spirit of the times—confidence, co-operation, mutual effort serving public welfare.

The Main Street of Dayton, Ohio.

An interesting program will be arranged for this banquet. The National Paving Brick Manufacturers Association has always co-operated with the American Society of Municipal Improvements in the efforts of both to give to the public the best specifications under which brick streets are built. This occasion is of particular and peculiar interest to the manufacturers of paving brick and there should be no absentee among all the manufacturers at this meeting. Every one should be present. The paving brick manufacturer should be there because practically the entire interest of his own business is there.

Dayton streets are for the most part brick paved.

The Greater Dayton Association will provide entertainment for the American Society during most of the week, a feature of which will include an inspection trip over the new brick roads which form a part of the system which the county commissioners of that county are undertaking. Enough of this permanent brick road system has been finished to impress upon the visitors the wisdom of building roads on the main thoroughfares that will not lay upon the county a burden of continued repair.

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One of the most annoying things to the builders of good streets is to have them torn up from time to time to make water, gas and other underground connections. Most cities of magnitude have ordinances which forbid this, but they are seldom enforced rigidly enough. The welfare of street paving demands that it be left unmolested and it is almost as important to safeguard them against this tearing up as it is to see that they are properly made and paved.

### MAKING THE PRICE.

Presumably every man manufacturing brick of any kind makes the price on his product, but does he? And if so, what facts and factors are taken into consideration to base the price upon? To what extent does a man's own ideas and desires figure in determining the price, and to what extent is he influenced in price making by what others are doing? Does the average brick man figure from a cost-plus basis to determine the price he ought to have, and then strive earnestly to get it, or is the matter of price largely determined for him in advance by outside influences?

The Miami Hotel, Headquarters for the N. P. B. M. A. Convention.

These questions are not asked out of idle curiosity, nor simply for the sake of saying something. They are questions of vital importance to the industry and the Clay Worker is earnestly concerned with the welfare of the industry, because prosperity for the paper and the publisher is directly dependent upon prosperity in the clayworking industry. There is hardly an item on the brick list but what seems too low in average price, and since a fair price is essential to fair profits we should all be concerned with the matter of the price and its making.

The average price of common brick has varied but little in nearly twenty years. The lowest price on record in more than twenty years was an average price of $4.99 in 1894, following the great '93 panic. The highest average price for common brick was obtained in 1905, and was $6.25. Meantime, of course, there has been higher prices in some localities and lower ones in others. Also from year to year the price in any given local market may vary considerably owing to changes in local conditions, and that is one of the things which inspires the questions asked in the beginning.

Logically brick in a general way is a product that should sell for a price determined upon cost plus a fair percentage for profit. But if it were that way these wide variations in given localities from time to time would not exist. Still the fact remains that the price should be so based, and that the brick man himself should make his price—and then stick to it. And now comes another question: What outside influences are there other than competing brick men to effect price making. In some products a sharp increase in price will serve to automatically curtail the demand, while conversely a sharp decline will lead to a marked increase in the volume of consumption. There is a chance for a little influence of this kind in the brick business in competition with other building material, but it is very little. There is never likely to come a time when brick prices will advance enough to curtail building operations or seriously retard progress in competition with other building material. The competition that cuts prices most and hurts worst is between brick men themselves, and it is time to get rid of some of this baleful influence upon price making, time for competitive brick men to do a little figuring together on the problem of how to make prices.

## SIXTEEN DOLLARS FOR ONE.

If a man should offer you a proposition with a good chance to have one dollar invested yield you sixteen dollars in return, you would either think him a fool or a fakir, or you would jump at it quicker than a hungry trout at a fly. Still, there is before the brick fraternity right now what looks like a splendid opportunity to get a yield or return of sixteen dollars for one invested.

Here's the proposition: If the brick manufacturers will take up the exploitation earnestly and enthusiastically and the manufacturers of common brick will invest one cent per thousand in the Brick Boosting Bureau, a central organization for brick exploitation, and then put two cents more into local advertising, in which the Building Brick Bureau will assist in many ways, the total cost to the brick fraternity, with this amount for the common brick and the amount per thousand doubled for face brick, would involve an expenditure in round numbers of three hundred thousand dollars a year.

When we put that in a lump sum, it looks like a big lot of money to invest, or rather, to risk in a campaign of advertising. Yet, if any reasonable degree of intelligence is used—and we do not conceive of the brick fraternity expending this money in advertising without using proper intelligence—surely the result would be an increased demand for building brick of all kinds and with this increased demand there would be a lessening of price-cutting competition and certainly a good chance to get more out of brick, that is, to get a fair price.

Taking the minimum of price increase, fifty cents a thousand for common brick, and a dollar a thousand for face brick, an increase that should be easily practical with any kind of comprehensive campaign of co-operative exploitation, that is an increase that would hardly be felt by the builder, yet it would yield, in round numbers, to the brick fraternity five million dollars in return for three hundred thousand investment, and that would mean sixteen dollars to one, with a little margin to spare.

A Splendid Brick Paved Highway Near Dayton, Ohio.

Look at it! Look at this matter in the right light; think it over seriously and then ask yourself if it doesn't look reasonable. There is nothing suggestive of false promises or a fake proposition in the idea of exploitation improving the price of common brick fifty cents per thousand and the price of face brick a dollar a thousand. With this point conceded, the other is a matter of cold calculation, a matter of figures, for every dollar invested in systematic brick exploitation, as outlined by the committee which launched the Building Brick Bureau, there should be at least sixteen dollars in returns, and a splendid chance to double this and make it thirty-two or thirty-three for every dollar invested in advertising.

Doesn't that make the proposition look inviting enough that everybody ought to take a hand and enter into the work enthusiastically? Surely, if three cents per thousand spent in exploiting brick will increase the price fifty cents a thousand, you can afford to spend it.

## MIDSUMMER MEETING OF THE AMERICAN CERAMIC SOCIETY.

MORE than one hundred enthusiastic ceramists gathered at New Castle, Pa., August 25 to participate in the seventeenth annual mid-summer meeting of the A. C. S. The program, given in full in the August Clay-Worker, was carried out in every detail. The jaunts proved one of the most enjoyable outings imaginable. Prof. Orton and his old standbys, Purdy and Bleininger, were on hand early, as were other notables of the clay world. As will be seen by the accompanying photograph, President Mayer and Vice-Presidents Richardson and Gregory were among those who answered present when the roll was called.

The plants at New Castle proved very interesting, as did those in the other points visited. The great paving brick plant of the Bessemer Brick & Limestone Company was of itself a revelation, both as to the immensity of the plant and the perfection of mechanical equipment provided in each department. The continuous kiln, one of the largest structures of the sort in the world, was given special attention. It is anticipated that many who attend the national convention at Cleveland the coming winter will take advantage of the opportunity to visit this plant.

THE CLAY-WORKER.

A Group of Happy Delegates to the Mid-summer Meeting of the American Ceramic Society.

Such trips are conducive to good appetites, so that the luncheons and dinners served proved very popular and were much in the nature of family reunions, where the good cheer and social amenities were fully as enjoyable as the eats and drinks, and there was no lack of either.

The closing feature of the trip was a visit to the H. C. Fry Glass Company's plant, where the mysteries of turning silica into sheets of glass and the latter into beautiful table ware and decorative pieces were gone into, and few, if any, mechanical processes are more interesting. This firm's chief business is furnishing blanks for other glass cutting establishments, but they have a cutting department in which a beautiful line of cut glass is made and a trip through their store room is like a visit to an art establishment.

Final goodbys were said late Friday afternoon, when Prof. Orton, accompanied by a few of the faithful, took a train for Cleveland to attend a meeting of the executive committee of the N. B. M. A., held at the Stattler Hotel Saturday noon to consider the time and place of the next national convention. All the members of the executive committee now in active service, excepting Treasurer Sibley, were present and participated in a delightful luncheon at which ex-President Blair served as factotum Representatives of the Complete Building Show were present and outlined the character of the display intended, which embraces materials of all sorts necessary for the construction of permanent, unburnable buildings. The enthusiasm of the Cleveland members of the N. B. M. A. carried the day and being convinced that the best interests of the clay craft would be conserved by a meeting there, it was decided to accept the invitation and to arrange for a national convention at Cleveland February 20 to 26, 1916.

In the rules governing the procedure of the American Ceramic Society is one providing that the society shall meet at the same time and place as the N. B. M. A. when the latter meets north of the Ohio river and east of the Mississippi, so it is anticipated that, as usual, there will be a joint meeting of the two associations at the Buckeye metropolis at the time named.

### PROF. BLEININGER BACK TO HIS FIRST LOVE.

Those associated with Illinois University, at Champaign, will be glad to know that Prof. A. V. Bleininger has secured a temporary leave of absence from the Bureau of Standards of the United States which will permit him to again take charge of the clayworking department of the university, with which he was connected a number of years prior to his connection with the Bureau of Standards. The arrangement is intended to cover a period of five months during which the university officials will choose a new director for the department of ceramics, the position being made vacant by the resignation of Prof. Stull, as mentioned in the August Clay-Worker.

### THE BUILDING BRICK BUREAU.

The Building Brick Bureau is a central boosting bureau, established by a committee appointed for that purpose at the annual meeting of the N. B. M. A.

Its purpose is, first, to arouse interest among the brick manufacturers in the subject of exploitation of brick for building purposes, to the end that the use of building brick may be greatly increased and the industry enlarged and benefited thereby.

Second, to co-operate with and assist local organizations of brick manufacturers and individual manufacturers here and there in conducting advertising campaigns.

Third, to furnish specific data of relative costs of brick and other building material, together with the indisputable arguments that can be used in favor of brick, the best building material on earth.

Fourth, to furnish examples of attractive advertising copy, in leaflet and pamphlet form.

Fifth, to furnish pictures and outline plans of houses of varying designs of different sizes and cost, which may be used in local advertising to interest people in the building of attractive brick homes.

Sixth, to assist local brick manufacturers throughout the country in every way that it is practical to render assistance when problems confront them that require outside assistance.

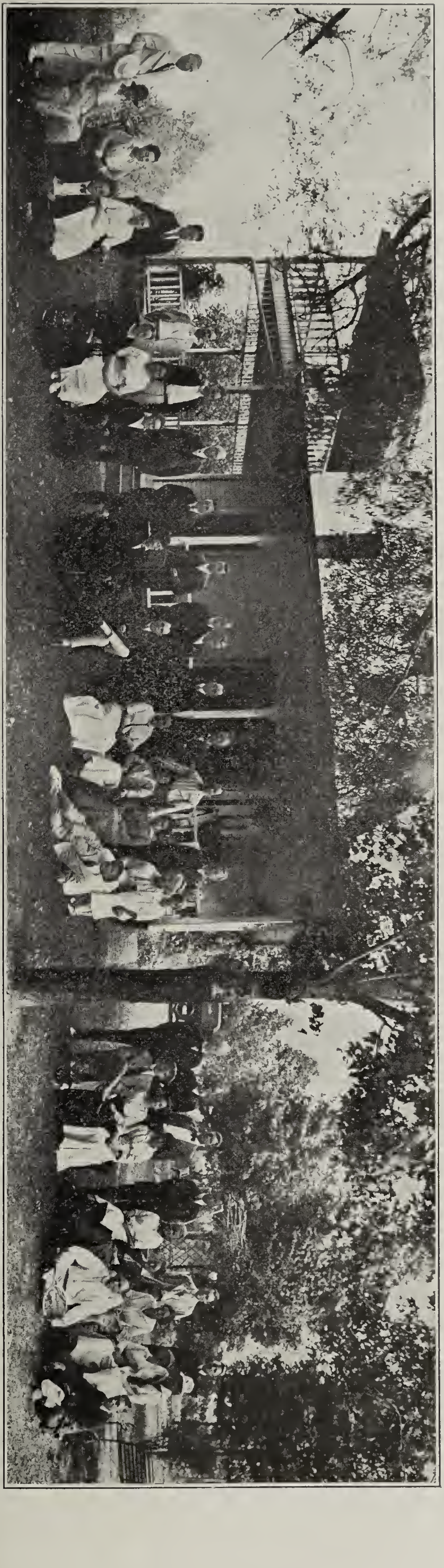
## DUNN LICENSEES ENJOY OUTING.

THE Dunn Wire-Cut-Lug Brick Company entertained their licensees Sunday and Monday, September 5 and 6, at Willow Beach, Conneaut, Ohio. This was their first outing and conference and from reports of the good times enjoyed will probably be made an annual affair. Mr. F. B. Dunn, the president, acted as host, his cottages and spacious summer residence being turned into a camp of good cheer and warm fellowship.

The entertainment for the two days consisted of launch parties on the lake, bathing and games of various kinds which delighted the brickmakers and their friends. Sunday evening a delightful musical program was rendered during the course of the dinner, an orchestra furnishing splendid music while vocal selections were made by several local artists. Monday afternoon the male members of the party met in a business conference in the offices of the company at Conneaut, while the wives of the delegates were entertained by the hostess, Mrs. F. B. Dunn.

In the conference were representatives of some of the largest brick manufacturing concerns in this country. The licenseed manufacturers of the Dunn Wire-Cut-Lug Brick and guests present were:

C. C. Blair, secretary and general manager Bessemer Limestone Co., Youngstown, O., and Mrs. Blair; Fred R. Kanengeiser, general superintendent Bessemer Limestone Co., and Mrs. Kanengeiser; J. G. Barbour, secretary Metropolitan Paving Brick Co., Canton, O., and Mrs. Barbour; H. S. Renkert, treasurer and general manager of the Metropolitan Paving Brick Co., and Mrs. Renkert; O. H. Renkert, general superintendent Metropolitan Paving Brick Co., and Mrs. Renkert; Spencer M. Duty, president of the Deckman-Duty Paving Brick Co., Cleveland, O., and Mrs. Duty; Chas. J. Deckman, Cleveland, vice president Deckman-Duty Paving Brick Co., and president of the National Paving Brick Manufacturers Association; H. M. Moatz, Cleveland, treasurer of the Deckman-Duty Paving Brick Co., and Mrs. Moatz; J. L. Murphy, president Hocking Valley Paving Brick Co., Columbus, O., and Mrs. Murphy; J. B. Wilcox, Alliance Clay Product Co., Alliance, O., and Mrs. Wilcox; F. L. Manning, general sales manager Peebles Paving Brick Company, Portsmouth, O., and Mrs. Manning; J. C. Carlyle, general superintendent Albion Vitrified Paving Brick Co., Albion, Ill.; B. J. Gallagher, general superintendent Veedersburg Paver Co., Veedersburg, Ind.; Ralph Simpkins, vice president Hydraulic Press Brick Co., St. Louis, Mo.; G. H. Francis, secretary and general manager United Brick Co., Greensburg, Pa.; W. H. Hill, president Murphysboro Paving Brick Co., Murphysboro, Ill.; W. C. Brown, secretary and treasurer Southern Clay Manufacturing Co., Chattanooga, Tenn.; J. M. Hoskins, vice president and treasurer Terre Haute Vitrified Brick Co., Terre Haute, Ind.; W. T. Blackburn, Paris, Ill., consulting engineer Dunn Wire-Cut-Lug Brick Co.; H. H. Smith, Cleveland, superintendent of the Deckman-Duty Paving Brick Co., and Mrs. Smith.



THE FIRST OUTING OF THE LICENSEES OF THE DUNN WIRE-CUT-LUG BRICK CO., WILLOW BEACH, CONNEAUT, OHIO.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-SECOND YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

236 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXIV. SEPTEMBER, 1915. No. 3.

## CURRENT COMMENT.

Let us make the Cleveland Complete Building Show a means to help boost the building brick game.

* * *

Gravity is the least expensive force going that you can harness up and make work for you when local surroundings make it practical.

* * *

Among the other desirable things, good roads will make it easier for the farmers to haul brick for building their homes, and this ought to help some.

* * *

The first place for brick on the farm is in home building, but it should not stop there, for barns, silos and other farm buildings are all the better from being built with brick.

* * *

That Bureau of Standards at Washington has had at least one sweet job brought before it, for it was called in to do testing and settle a dispute between buyers and sellers of Cuban molasses.

* * *

To be consistent the brick man should equip himself with a brick office as well as build a home with brick and in his own business generally practice as well as preach the doctrine of build with brick.

* * *

The Building Brick Bureau is the implement with which to straighten out that crimp in the common brick business and get enough more of them in use that every ear will show an increase. Take hold and lend a hand with it.

* * *

Many other states might well take pattern after the five states of Ohio, Indiana, Michigan, Illinois and Iowa, which produced 88 per cent of all the drain tile manufactured last year. The development of tile drainage is largely a matter of local industries and exploitation and in many other states there is room to spread out and follow in the footsteps of these leaders.

* * *

And that Industrial Relations Commission cost us half a million in good money, right when money is scarce all around.

* * *

All these good roads doings ought to help the drain tile trade some, and call for a few sewer pipes, too, for underdrainage is one of the essentials of good road building.

* * *

Cleveland is bestirring itself to pull off a big complete building show and now it is up to the clayworkers to bestir themselves that this building show may have brick and other clay products as a dominant feature.

* * *

The N. B. M. A. annual to be held at Cleveland February 20-26 may seem a long time off, but it is well to stick a pin in the date and begin making preparations to participate in this gathering, for there will be many things of special interest.

* * *

One of the things that always appeals about Cleveland is it has more good brick paved streets than any other city and more paved roadways leading into and out of it, which is one reason why it is the home of the Paving Brick Manufacturers' Association at the present time.

* * *

With carpenters in Chicago getting 70 cents an hour, some of the advantages of cheapness claimed for frame construction begin to disappear, for as compared to brick laying one of their important items of cheapness in the past was the lower cost of help for working lumber.

* * *

No matter what the personal preference of different members of the executive committee of the N. B. M. A. there was a prevading opinion that the right thing to do was that which seemed best for the organization, consequently on this basis Cleveland was selected as the place for the next annual meeting.

* * *

Some wonderful records are being shown as the result of active work for more than a year now on the "Safety First" idea. The Southern Railway shows a record of 16,500,000 passengers carried during a year with only one death from accident. The Louisville street railway shows a year without a single fatal accident, whereas the usual average heretofore has been fifteen, and with others who have taken up earnestly with the preventative idea there are just as striking results. This proves conclusively enough that the idea pays good returns when handled earnestly. Also it is a reminder that precautionary methods in clayworking and burning to reduce loss through waste will pay equally good returns for the effort.

## GOOD BURNING.

While the matter is not loudly nor extensively proclaimed, except indirectly by technical articles of instructions on the subject, yet one of the most important facts of the day in the clayworking industry is in that the art of burning has been very much improved. This order of improvement is found all along the line in all branches of burning from the finest pottery products to the commonest brick.

Taking common brick as an example, as a rule they are not only better burned than formerly, but a greater percentage of them are well burned. The old salmon or soft brick, which was one time a conspicuous item around the common brick yard, has now almost disappeared from those yards which use modern methods and are up-to-date in their burning. In a way this is one of the most important economic facts connected with clay working, for it means a better price and bigger returns to the brick man, and it means a better product all around for the brick user, a point that can be made to count heavily in the work of boosting brick as a building material

It is not only common brick, but all along the line we have better burning as the rule. We see the effects of it in the higher and wider variety of coloring in face brick, and we get evidence of it in the abrasive tests of paving brick—not only of a better quality of burning but more regular and dependable burning, more uniformity. In fact in taking stock of the progress made by the clay-working industry we are impressed with the thought that improvement in burning looms up as an important factor deserving of special notice.

## PROGRESS OF BRICK IN BUILDING.

The U. S. Geological Survey is now striving to get such details of reports of building operations from different cities that it will be able to set forth each year the relative amount of building done with different kinds of material. In this way we can get at the progress of brick in the course of time and be able to see when it is growing and whether we are getting results in the game of boosting brick.

In gathering reports of building operations for last year efforts were made to obtain detailed information from 157 cities. Replies were received from 147 of these and out of this lot 113 furnished sufficient details to permit the publication of figures by classes of buildings. In the 113 cities results of the tabulations are as follows:

| | |
|---|---|
| Total new buildings | $461,681,108 |
| Fire resisting buildings | 296,454,858 |
| Brick buildings | 181,957,682 |
| Wooden buildings | 165,226,250 |
| Other fire resisting buildings than brick | 114,497,176 |

This shows brick as leading all other materials in the buildings in these cities, that is the total of new brick buildings exceeds the total of frame buildings and the total of buildings made of other than brick that is termed fire-resisting material.

In the fire-resisting buildings other than brick there is evidently included the reinforced concrete and stone, hollow tile and what are termed iron-clad buildings, which may have either steel or wooden frame with sheet-iron walls There are quite a number of these in factory districts, and the more pretentious factory buildings today are largely of the daylight class, having simply a series of columns or piers and most of the space between is filled with steel sash and glass to insure plenty of light. This new type of building reduces the amount of other building material used no matter whether it is reinforced concrete or brick and it is quite a popular building.

The interesting feature in connection with this effort being made is to follow the progress of brick by comparing statistics from year to year and improving upon the detailed division it will be practical in the course of a few years to determine with reasonable accuracy the relative progress being made by brick and other building material.

## THE SILO TRADE SCRAMBLE.

This silo business with the farmer has been a sort of hurrah scramble all around, with material men whooping it up from three different sides, and the state and national agriculturists mixing in here and there to help keep the subject alive.

The first center of interest was on the matter of awakening the farmers to the benefits that might be derived from the use of silos. And, of course, every fellow with bells on him to awaken the farmer had an axe to grind. The cement man wanted to extend the sale of cement, the lumberman wanted to enlarge his lumber market, and the clayworkers wanted them to build with brick and hollow tile. So the farmer gets a lot of good information without going out after it, and in return he has contributed materially to the enlargement of trade for all the three interests.

The lumber folks are making more noise generally than any one else after this trade, and probably getting a large share of it. It is impossible to get exact statistics on the amount of silo work being done, or the relative quantity of different materials used, and if they could be gotten they would be out of date before they could be compiled and published, for this silo business keeps spreading out.

In this competition, as elsewhere, lumber makes its great plea on its cheapness, while clay products have the strong stand-by of permanence and stability. One of the weak points in the armor of the lumber propaganda is that lumber shrinks so in the summer when the silo is empty that it is hard to keep those built of staves from falling down, especially if a windstorm comes along. Even the more intricate forms of wood construction show some damaging effects from shrinkage in the summer sun, and it is these things which give the clay products man his chance to talk stability and permanence effectively. There should not be so much trouble in meeting cement competition, for good cement work should not be less expensive than burned clay. It is the lumber folks who put up the strongest fight with their low first-cost figures, and it is largely against this that the clayworker must wage his battle to get his share of the business out of the silo building on the farms The brick barn promoters and the silo material folks should join forces in this line of endeavor, for really the two things go together.

## WHY LUMBER IS USED SO EXTENSIVELY.

It is an interesting fact worthy of serious consideration, that the yellow pine lumber people have subscribed a fund of $300,000 a year, on a basis of 25 cents per 1,000 feet of lumber sold, to promote the use of lumber. The National Lumber Manufacturers' Association has its first $50,000 pledged for the same purpose and is starting into work; the Southern Cypress Association has been spending a big sum annually for several years in the same work, and in the West other associations are doing the same thing. It is perhaps safe to say that the lumber folks are booked to spend half a million dollars in the next year to boost lumber. Digest this together with the figures of the comparative value of lumber buildings and brick buildings, then consider this question: How much will the brick trade spend in the same time to boost brick?

## THE SCHOOLS AND THE CLAYWORKER.

While every man with a family has a direct interest in the schools of the country, there are here and there some who by the nature of the business they follow have another interest apart from this general and primary one, and numbered among them are the makers of brick and other burned clay products. Indeed, the interest is many-sided. There is the interest in trade or vocational schools that may include a teaching of bricklaying; there is an interest in the higher schools and colleges, where they educate engineers and architects, for it is important that they know about brick and its uses; and there is an interest in the fact that at quite a number of schools they analyze clays as a part of the school work, which may often be worth something to the clayworker who wants to know about the qualities of certain clay properties.

Taking it by far and large, the brick men and other clayworkers have a big share of interest in the schools, or should, and the opening of a new school year should open also new opportunities for the clay folks. It should be the order of the day to get in touch, and keep in touch, for the more the youngsters at school can be brought into contact with clay and clayworking, the more they are likely to turn to brick in later years There is room for all manner of good work in connection with the schools all along the line, from clay analyzing to bricklaying, and we hope every man in the industry will make it his business to get in touch with the schools of his community and see what he can develop that will help things along.

And let us not overlook that matter of giving prizes for the best essays on why we should build with brick Some made a start with this idea during the last school year with strikingly good results—results that should encourage many more to take up the matter this year. Do not hesitate or be backward about getting at it, either, for the lumber folks have their eyes on the schools and their possibilities for developing an interest in lumber. Woodworking has long been a fascinating feature of manual training departments, and the lumber folks will not only strive to capitalize this fact, but to go even farther with their interests. So, it behooves the brick manufacturers to be up and doing if they would benefit as they should. The drain tile folks have a chance to get in some good work through the schools, too. In fact, almost every branch of the clayworking industry can find something of interest in connection with the schools. Then, finally, the school folks themselves are now turning more than ever before to the idea of mixing work and vocational training more liberally in with the old idea of schooling. So let us turn to the schools, that both the youngsters and the industry may profit.

## RIP VAN WINKLE NO. 2.

### A STRANGE CASE OF SOMNAMBULISM DEVELOPED IN CHICAGO.

Dear old "Rip," though but a legendary character, and intended only as a horrible example of the drink evil, will always be dear to our hearts, such a lovable old sot was he. When he awakened from his twenty years' sleep he was much befuddled, for he thought he had slumbered for but a single night. Now comes a modern prototype who is similarly befuddled, though the situation is somewhat reversed. Our "Rip" No. 2 thinks he has been awake when it is quite evident that he has been slumbering—a recent preachment proves that, for he urges as something new and novel things that are quite trite—things that have been a regular part of the N. B. M. A. procedure for more than twenty years.

It's passing strange that a mortal in Chicago could sleep on utterly unmindful of important events of which he should have taken special heed. It is equally strange that our "Rip" thinks every one else has been asleep while he alone has been awake, for just the reverse is true.

It's a very strange case indeed; perhaps it may be accounted for on the theory that our "Rip" has merely been talking in his sleep and that it will be all sufficient to rouse him with the Vaudevillians hearty "Hey! Turn over, you're on your back." Or maybe, though, the sweet old melody, "Please go 'way and let me sleep," will be more to his liking. If so, far be it from us to disturb his slumbers, but please, "Rip," please don't talk in your sleep, for it is uncanny. If, however, you have acquired the habit and must chatter about something it might as well be the N. B. M. A., for it's a subject of vital interest to the entire clay craft and perchance you may sometime suggest something new. Sometimes sleep talk is interesting, but not often.

## PRICE IN COMPETITION.

One of the things that those in charge of government bureaus interested in our industrial welfare are beginning to realize and to comment upon is that in trade there are many men who think that competition is solely a matter of price. In other words, too many go upon the assumption that the man with the lowest price gets the business.

There is without question a lot of truth in the idea that price is the essence of competition. Also, there is much current custom in it, too much in fact, and that is the trouble. So much of our trade, no matter whether it is in brick or other products, actually centers around the matter of price that we are prone to overlook not only the errors which result from concentrating upon the price alone, but we pass by many of the important factors in the game of competition.

It is a well-known fact that there are many people who buy articles at higher prices from preference. This is true with brick manufacturers themselves in the buying of machinery. Once they are convinced that a higher priced machine will make better returns for the money invested, that is the machine they will logically buy. At least, that is the way it should be. The trouble with the situation, both in the marketing of machinery and the marketing of brick, is that we center too much thought on price as a dominant factor in competition. The right idea for business men to get the most out of right now is that of featuring other points of interest and value in offering their wares, to the end that not only those with something to sell, but those who do the buying also, will have other thoughts for consideration than the mere matter of price. The price is only one factor, and heretofore it has been made a more important factor than it should, so we hope that in the great campaign of enlarging the market for brick and other clay products, the price will not be made such a factor as to overshadow other considerations that are in many instances more important and more worthy of attention and discussion.

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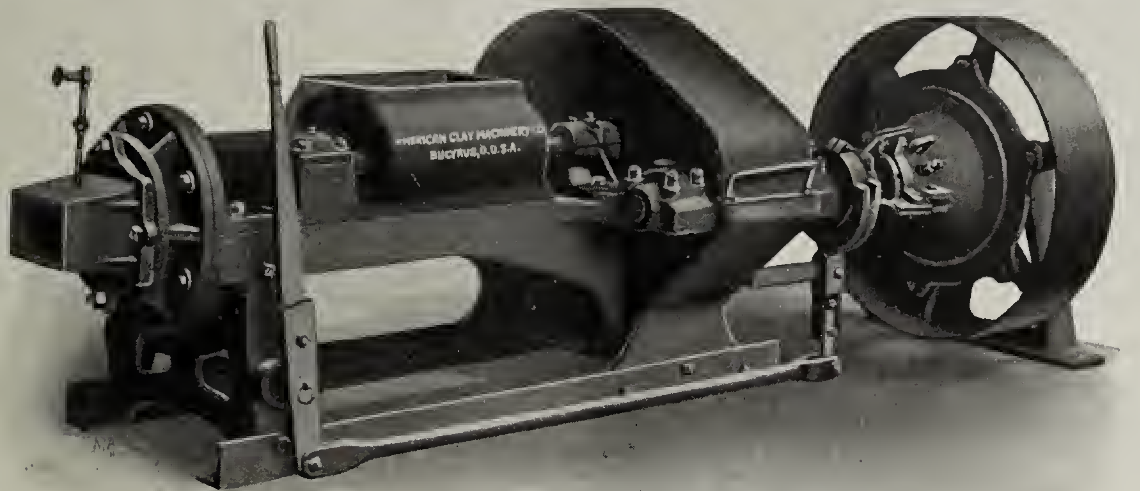
"GETTING THE MOST FOR A DOLLAR,"
has been given as a definition of good engineering such as is done by
**The Richardson-Lovejoy Engineering Company.**
[See page 333.]

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

The AMERICAN CLAY MACHINERY COMPANY
BUCYRUS, OHIO
The Haigh Continuous Kiln
BUILT RIGHT RUN RIGHT



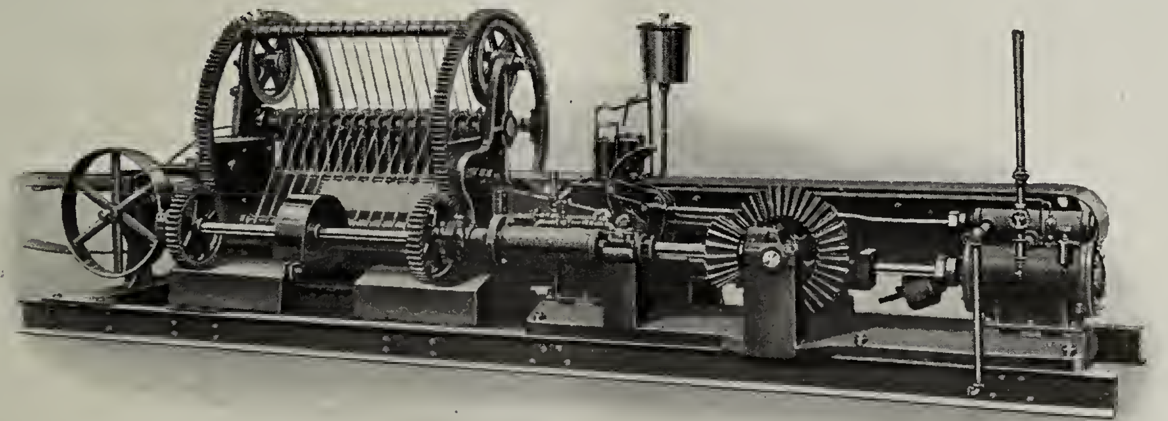
**American No. 328 Auger Machine**

This machine is designed for the manufacture of building brick and drain tile, also hollow building blocks, 4 inches by 5 inches and 5 inches by 8 inches. Not recommended for drain tile larger than 12 inches.

**Rated Capacity Per Hour**

| | |
|---|---|
| Building brick | 1,000 to 2,000 per hour |
| Drain tile, 4 in. diameter | 1,000 to 1,500 per hour |
| Drain tile, 6 in. diameter | 700 to 1,000 per hour |
| Drain tile, 8 in. diameter | 500 to 700 per hour |
| Hollow building blocks | 5 to 7 tons per hour |

The capacity is governed by speed at which the pulley is driven, nature and character of clay, size and kind of ware manufactured, and by management.



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A cutter of quality, strongly built, accurate in operation. It is driven with an easy, steady, positive movement. Get complete description.

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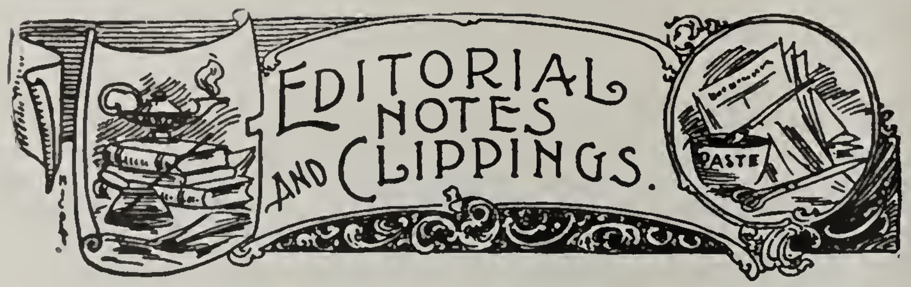

# EDITORIAL NOTES AND CLIPPINGS.

W. V. Deering and W. F. Castle have organized the Helena Ornamental and Pressed Brick Company, at Helena, Ark., with a capital stock of $12,000.

The Fayette Brick and Tile Company, of Fayette, Mo., has been incorporated by Carl Jaader, S. Coffman, and F. T. Riggs. The company is capitalized at $12,000.

J. B. Funk has brought suit against the Coral Ridge Clay Products Company, of Louisville, Ky., for $5,000 damages for injuries received by his son while in the employ of the company.

The National Drain Tile Works, at Streator, Ill., resumed operations the latter part of August after being closed six weeks, during which time the entire plant was overhauled and new machinery installed.

A number of improvements have been made at the Fairmount Brick Company at Monroe, Oregon, during the past summer including the installation of new machinery. In the future the company will manufacture face brick, hollow block and drain tile in addition to common builders.

Negotiations are being carried on at Temple, Texas, which will probably result in the establishment of a large brick manufacturing plant in that city. There is no brick plant in that immediate vicinity and as there is a good demand for brick such an enterprise would no doubt prove a very paying investment.

The strike of the Haverstraw brick yard employes, which began last July, ended September 13 when, with but three exceptions, all of the yards on the Hudson river began operations. However, it is thought that all of the plants will be running within a short time and will continue manufacturing to full capacity until stopped by the bad weather.

Kaolin property in Wilson county, Ga., will be developed by the Columbia Kaolin and Aluminum Company which has been incorporated with a capital stock of $600,000. The temporary address of the company is 204 Commercial National Bank Building, Washington, D. C. It is proposed to build a plant for washing and drying 40 tons of clay daily.

C. A. Young has resigned the presidency of the Eastern Paving Brick Manufacturers Association and at the meeting of that organization, September 4, Mr. G. W. Greenwood was elected in his place. It is believed that with the election of Mr. Greenwood an amendment to the constitution will be adopted, providing that only owners of paving brick plants shall be eligible for election to the presidency.

During the recent St. Louis floods a number of the brick manufacturers of that city sustained heavy damages. The Evens & Howard Fire Brick Co. estimates the damage to their plant at $20,000. William Knoesxel, superintendent of the Missouri Fire Brick Co., gives the damage to his plant as $15,000. George Bass, president of the Hydraulic Pressed Brick Company, places the damage to that plant at about $500.

The Washington Brick Lime and Sewer Pipe Company, of Spokane, Wash., report a marked increase in their business over 1914. Among recent orders booked is one for 100,000 brick to go to Seattle, Wash. The company also manufactures a high grade of terra cotta which is being shipped to towns in Canadian states, while seventy cars of sewer pipe for Butte, Montana. The company has a chain of plants including in addition to the one at Spokane, one at Freeman, a sewer pipe plant at Spear, and a plant at Clayton where both brick and terra cotta are manufactured, and a lime plant at Bay View.

An amendment has been filed by the Criss Pressed Brick Company, of Terrell, Texas, decreasing the capital stock from $30,000 to $20,000.

S. A. Duncan and W. W. Whitaker, of Atlanta, Ga., are interested in the establishment of a plant at Orlanda, Ga., for the manufacture of brick and tile.

The Marshfield Brick and Tile Co., of Marshfield, Wis., was incorporated recently with $25,000 capital stock by Louis Hartel, G. A. Krasin and August F. Baccus.

James Smith has filed suit against the Clay Products Company, of Brazil, Ind., for $10,000 damages for injuries he sustained recently while employed at the company's plant.

The Chicago Retort and Fire Brick Company, of Chicago, Ill., recently closed a contract for a large order for fire clay brick and special shapes to be used by a concern in the installation of generative by-product coke ovens.

The Bonnot Company, well known manufacturers of clayworking machinery, at Canton, Ohio, have had a very successful season and now have under way plans for a new machine shop.

The Corinne Tile Plant, at Corinne, Utah, is being enlarged and improved. Several new machines will be installed as soon as the new buildings are ready, making this one of the largest tile factories in that section.

The Detroit brick manufacturers are always winning new honors for themselves and this time John S. Haggerty, the well known brick man of that city has been elected president of the Michigan State Fair Association.

Michael J. Hurley, a stockholder in the Universal Clay Company, has brought suit to have a receiver appointed for that firm. He asks that the receiver be appointed to take charge of the company's affairs until its finances are straightened up.

After having in bankruptcy nearly a year the property of the Marshalltown (Iowa) Sewer Pipe and Tile Co., was taken over recently by the bondholders. Negotiations are already under way for the operation of the plant. G. F. Stansberry, of Gilman, Iowa, is in charge.

The Barr Clay Company, of Streator, Illinois, is the latest acquisition to the family of the Dunn Wire-Cut-Lug Brick Company's licensees. This is a company of the first importance in the middle west and its standing both as to business methods and quality of brick is of the very highest.

The Portsmouth Clay Products Company, Portsmouth, Ohio, was recently incorporated by C. F. Carlisle, Dan W. Conroy, L. F. Haldeman and others. The concern is the outcome of a merger of the Building Material Department of the Portsmouth Paving Brick Company and the Kentucky Fire Brick Company.

The Belden Face Brick Co., of Canton, Ohio, is building a new plant at Port Washington, Ohio, where they will manufacture the same high class of face brick as is now turned out at the Canton plant and will be in the market for a full equipment of machinery, driers, kilns, etc. The plant is to have a capacity of 40,000 brick per day.

Under the heading "No life but teaches some great lesson" the Pasadena (Cal.) Star gives an interesting sketch of Mr. Charles Henry Frost, founder of the Los Angeles Pressed Brick Company, to whom they refer as a "successful business man who is to be counted as notable." Mr. Frost first became identified with the brick business in Chicago where he was manager and director of a pressed brick company for ten years and in 1887 went to California where he founded the Los Angeles Pressed Brick Company which has always been a successful concern, with plants located at Los Angeles, Santa Monica and Richmond. Mr. Frost's latest invention is the perfection of the Frost radial sewer block which has been

(Continued on page 328.)

# Barrett's PAVING PITCH

## When the block is worn out the Pitch still clings

WHENEVER an old, pitch-filled block pavement is torn up, the pitch filler will be found clinging to the blocks when they are piled up on the sidewalk.

You can hardly knock it off; in fact, the only way to make the pitch let go is to subject it to such heat that it will melt and flow away.

No matter whether the pitch has been in the pavement five years or thirty years this condition will still be the same. Moreover, after twenty or thirty years the pitch is still chemically and physically good.

If new paving pitch were not so cheap the old pitch in a twenty-year old pavement could be melted and scraped from the old block and used over again in a new pavement and put to work for twenty years more.

Good pitch, such as Barrett's Paving Pitch, is absolutely inert to the action of rain and frost and weather. The tendency of pitch to cling firmly to the block is responsible for the fact that Barrett's Paving Pitch maintains a perfect, waterproof seal throughout the pavement, protecting the foundation from water and frost.

No matter how the block may contract or expand in varying temperatures, the pitch adapts itself to the varying width of the joint and never lets go of the block.

Every joint is an expansion joint with Paving Pitch and no special expansion joints are needed, consequently a pitch-filled pavement cannot crack or swell up or explode. It will not thrust manholes or curbing out of position in hot weather. It is free from the stresses which characterize a cement-filled pavement at every turn of the street and every intersection.

*Booklets free on request. Address our nearest office.*

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TRADE B MARK

### EDITORIAL NOTES AND CLIPPINGS—Continued.

meeting with great success ever since it was put on the market a few months ago.

The capital stock of the Ross Clay Products Cofpany, Denison, Ohio, has been increased from $100,000 to $150,000.

M. J. Gregg and T. H. McMichael are interested in the establishment of a brick manufacturing plant at Tuscaloosa, Alabama.

The brick plant of S. C. Reck, at Rapid City, S. D., was badly damaged by fire recently which started from an overheated kiln.

The Jackson-Eagleton Brick Company, of Maryville, Tenn., has been organized with the intention of erecting a brick plant with a daily capacity of 100,000 to 150,000 brick.

Mr. R. D. T. Hollowell, secretary-treasurer of the American Face Brick Association, advises us that he has recently moved his office from Park Building to 1314 Fulton Building, Pittsburgh.

The Chicago Retort and Fire Brick Company, Chicago, Ill., recently purchased 160 acres of farm land near Ottawa, Ill., which is underlaid with fire clay sufficient to last the company for fifty years or more.

The Ramsey Enamel Brick Works at Cumberland, Md., resumed operations the latter part of August after a shut down of several months, with enough orders on their books to insure a steady run for some time to come.

Earl E. Litz, proprietor of The Standard Brick Company, at Mountain View, N. J., has filed papers in bankruptcy against himself and his concern. It is more than likely that the creditors of the brick company will ask for the appointment of a receiver.

Warden McManus, of the penitentiary of Santa Fe, N. M., recently installed machinery for making hollow building brick as well as drain tile and has been having very good success in the manufacture of clay products.

J. B. Prouix, brick manufacturer of Epping, New Hampshire, died at his home in that place recently. He is survived by his wife, five daughters and three sons. The brick business will be continued under the management of Thomas Levesque.

Two employes who were cleaning the soot out of a kiln at the Ferris Brick Company's plant at Wooster, Ohio, found the work going too slow to suit them so they used powder which exploded prematurely and both men were badly injured. It is believed that the burns will not prove serious.

The Diamond plant of the American Sewer Pipe Company, at Uhrichsville, Ohio, resumed operations the middle of August after being shut down six weeks. The company has increased its force of employes from 125 to 150 and they expect to keep the force running full time for an indefinite period.

A new Ohio concern is that of the New Philadelphia Paving Block Company recently capitalized at $150,000. An option has been taken on a farm at New Philadelphia, Ohio, on which an unusually fine deposit of clay has been located, and plans are now under way for the erection of a plant for the manufacture of paving block. J. DeWitt is at the head of the enterprise.

Oliver Tillbury, for many years a well known brick manufacturer of Towanda, Ill., committed suicide recently by hanging. It is believed that despondency over the death of his wife, which occurred some three years ago, was responsible for his act. Mr. Tillbury was born in 1837 and had lived in Towanda for 57 years and had been engaged in the manufacture of drain tile until recent years.

Building operations are under way which, it is said, will make the Crown plant of the Robinson Clay Products Company, at Tarral, near Canal Dover, Ohio, one of the largest clay plants in the world. It is expected that the new plant and the additions to the pipe shop will be finished by January 1 and give employment to from 50 to 200 men. This plant is under the management of Geo. Polen and Herbert C. Enck.

The Queisser-Bliss Company, Cleveland, Ohio, announce that Mr. C. A. Bliss has resigned as secretary of that company and his interests and good will have been acquired by the other members of the company. Mr. A. E. Gunn, who has been with the company five years, originally as salesman and through dint of energy and strong capabilities has earned his advancement, has been elected secretary to succeed Mr. Bliss.

R. Chambers and Leander Larson have purchased the brick plant at Bemidji, Minn., and will operate same to full capacity.

The Paducah Clay Company, of Paducah, Ky., has been organized by N. D. Lindsey, Luther Carson, L. T. Barradell, and R. E. Winston.

The Colfax Tile Company has recently been reorganized and Henry K. Lee, of Crawfordsville, has been appointed manager of Indiana for the plant which is located at Colfax, Ind.

A new clay products firm recently incorporated at Fort Dodge, Iowa, will be known as Bradshaw & Company. The company is incorporated at $30,000 by H. R., E. P. and Geo. H. Bradshaw.

The plant of the Melvin (Ohio) Brick and Tile Company was totally destroyed by fire the middle of August. The loss which was partly covered by insurance, is estimated at $10,000. The plant will be rebuilt.

The George Frid Brick Company, Ltd., Hamilton, Ontario, Canada, has been incorporated with a capital stock of $40,000 to manufacture brick, tile, pottery, etc. The directors of the company are Margaret J. Frid, James A. Forrest, John E. Frid, manager, and others.

The plant of the Chapman Brick Company, at Todmorden, Ont., Can., was badly damaged by fire August 30, which started in the dryer. It is thought the fire was caused by the building being struck by lightning. The dryer was completely destroyed, but a bucket brigade was able to save the rest of the plant.

The plant of the Adamantine Clay Products Company, at North Mountain, near Winchester, Va., was burned to the ground September 1. The plant was erected four years ago and was equipped with modern machinery. The loss is estimated at $50,000 on which there was an insurance of $37,000. The plant will probably be rebuilt at once.

Albert Veneklassen, president of the Zeeland Brick Company, died at the home of his son Benjamin Veneklassen, at Zeeland, Mich., August 16. He was the son of the late B. J. Veneklassen, the founder of the Zeeland Brick Company, and became associated with his father in the brick business when just a boy. He was 57 years old and is survived by a wife and four children.

I. G. Poston has disposed of his interests in the Martinsville Brick Company, Martinsville, Indiana, and his son Ed. I. Poston will take his father's place as president and general manager of the Martinsville Brick Company. The plant was established six years ago by Mr. I. G. Poston who has had associated with him his son Emmett V. Poston. Mr. Poston and his son Emmett announce that they will probably locate either in Illinois or Ohio where they will engage in the manufacture of paving brick.

Notwithstanding that this has been what is known as an unusually slow building season, the demand for the product of the Oskaloosa (Iowa) Vitrified Brick Company has increased to such an extent that the company has started to enlarge the plant for the purpose of increasing the capacity. The work of enlarging the plant will be under the direction of the President, H. H. Phinney, and Manager Bridges, who will visit some of the well known brick plants in Iowa and Illinois before starting on the work.

The Central Michigan Clay Products Company, Williamston, Mich., has recently been organized with a capital stock of $100,000 and expect to erect a factory sometime this fall with an initial capacity of about 35,000 face brick and building tile per day. The tests of their material have proven very satisfactory and the officers of the company feel very sanguine as to the outcome of the project. George W. Akers is president, L. S. Kendrick, vice president and general manager, and H. H. Hammond, treasurer of the company.

The plant of the Sunset Brick & Tile Company, Gonzales, Texas, was sold at public auction September 7 under a deed of trust held by the Gonzales State Bank and Trust Company. It was bid in and purchased by the above named bank for the sum of $10,000 for the plant, all land belonging to the brick company and all property, including 500,000 brick and eighteen head of horses and mules and other personal property belonging to the company. This plant in the past has been one of the best paying concerns in the state. It is understood that the purchasers will start the plant to working on full time within the next thirty days.

## REFRACTORY EFFICIENCY ENGINEERING.

(Continued from August number.)

### Uses for Fire Brick.

This is entirely too broad a question to dwell on and give the reader much valuable information, as each case should be considered by itself and must be handled in that way, if the best service is to be obtained. This part of the work is shrouded in so much mystery that each brand of fire brick would have to be discussed by itself, but if theory would work out in a practical manner it would be easy to draw valuable conclusions and get the correct article. The heat resisting power depends on so many other factors that any heat test made by a concern except by comparison of one brick with another is of little value. If one could come to definite conclusions from chemical composition it would make the subject much easier, but many experiments prove that such conclusions are faulty. Two different brands of fire brick of the same chemical composition will not often serve the same purpose even if made by the same process and used at the same plant. All theory in this line has proven erroneous time and again and while the chemical composition of fire brick has something to do with the ilfe of such brick in certain places, yet it cannot be depended upon for results. It is unfortunate that such is not the case for in that way much improvement could be made from time to time. It is evident to the reader that the important part of the fire brick business is the placing of them in the work and unfortunately few men who sell this ware are well versed in the uses and conditions surrounding the places where fire brick are used. This is the part of refractory business which will be given much attention in the future. It would be an easy matter if all malleable, heating, purrling and blast furnaces used the same kind of fuel, were constructed alike, operated under the same conditions and made the same class of material. It is true, however, that such is not the case and anyone who has given much study to this work is more astonished from time to time as the difference is observed in the same general type of furnace in one plant with another and the various kinds of ware produced in similar kinds of furnaces. Several kinds of fuel and products are found in different parts of the country, according to the conditions. This naturally brings out the point that although a fire brick may give good results in a certain kind of furnace in one plant, it may fail utterly in some other mill for the same type of furnace. The same is true in boilers, kilns and almost every place where refractory material is employed. Hence a refractory efficiency engineer must know all these conditions to recommend the brand that will give the best results.

### Conditions Which May Affect the Life of Fire Brick.

We are often asked how much heat will this or that brand of fire brick withstand? A "novice" can tell you at once, but a man who knows the fire brick business will admit he does not know until he learns all other factors surrouding the place. They may withstand over 300 degrees Fahr. in one place and fail at 200 degrees in another. However, most fire brick will withstand a very high degree of heat if subjected to that condition alone and they seldom fail in the work for deficient heat resisting power.

It is of the utmost importance that the man placing the fire brick knows whether the heat rises and falls rapidly, for even if the brick will withstand high temperatures, they may fail utterly when called upon to meet rapid variation of same. For instance, sudden exposure to atmospheric condi-

(Continued on page 330.)

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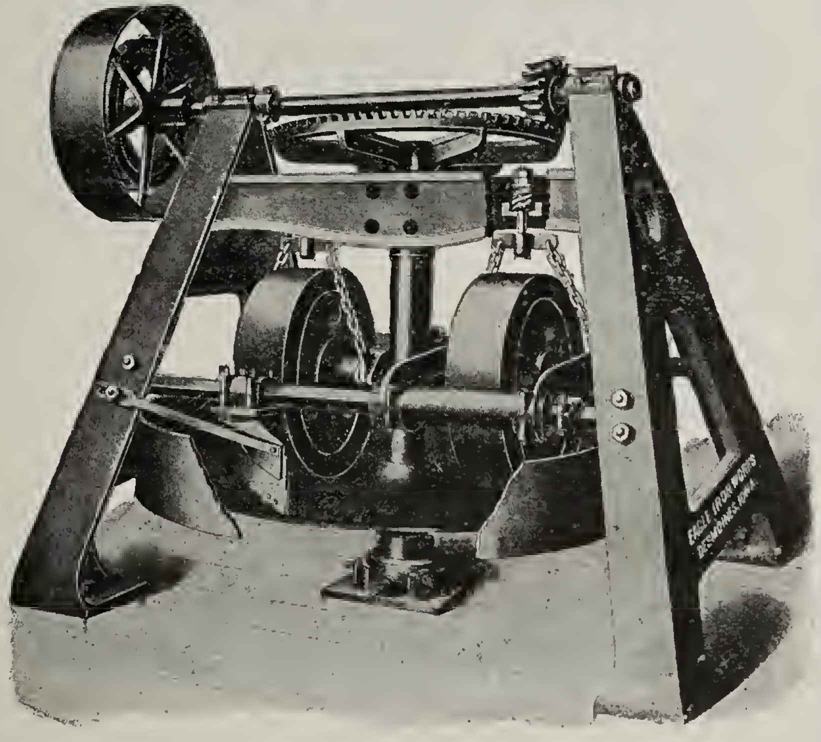

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## REFRACTORY EFFICIENCY ENGINEERING.

(Continued from page 329.)

tions, when the brick are heated to a high temperature, requires a different kind of brick than if cooled slowly.

Friction plays an important part in service obtained, for while a brick may be produced which will withstand high temperatures, it may fail when called upon to resist both high heat and friction. Here, again, is shown the importance of consulting a refractory engineer.

Chemical action also plays havoc with fire brick and even if the brick will resist both high temperatures and friction, they may fall down when called upon to meet the chemical action with the other conditions.

Low temperatures with severe friction and possibly chemical action will also need different "medicine" in fire brick work. The brick may withstand the temperature and not be taxed to half its capacity, yet the results may be very poor because it fails to meet the physical and chemical action.

Improper combustion chambers must be considered when placing fire brick. This is something of the utmost importance, for nothing will shorten the life of the birck any more or show worse results than to have combustion chambers of improper proportions.

We wish to call the attention of the reader to the importance that draft plays in the life of your furnace. If this is not figured out just right, considering location of plant, kind of fuel and size of fire boxes and every other factor, the result will be disastrous. A good refractroy engineer has learned by experience and study that this must be carefully considered. We have seen fire brick work last four years in places where the draft is correct, while other similar furnaces have melted the fire brick out in a few days or weeks. Too much importance cannot be given this matter when building furnaces, kilns or any similar work.

Different kinds of fuel also require differently made fire brick. A brand which will give good results in a gas fired furnace may fail when used in a coal fired or an oil consuming furnace. This is by no means a small factor to consider when directing the placing of fire brick in your mill.

The method of feeding this fuel will also have some bearing on the life of the brick. Fire brick which will give good results in hand fired furnaces may be entirely unsuited for use in furnaces where mechanical feed is employed.

Fire brick may stand all the above conditions, but prove worthless when called upon to stand up under a heavy load at a given temperature. It must be admitted that fire brick at the top of a high wall do not have the same service to perform as those in the same furnace at the lower courses. Consider the load the lower ones must withstand while the furnace is at a high temperature. This is an important item, which is not often taken into consideration when refractory work is being done.

Severe abuse by operators is something which requires thought when selecting the right brick. One operator may take great care of his furnace and others may misuse the fire brick work. That will often increase or decrease the life of the brick, as the case may be. For instance, allowing fire brick to be exposed to weather conditions before use is the worst thing the user can do. They absorb moisture even from the air. We have seen fire brick piled in the open, where rain, snow and frost affected them. Brick used in this manner will always fail and the fire brick maker gets the blame. Furnaces, kilns or any other refractory work newly constructed or repaired should be carefully and slowly dried out before using. We wish it were possible to impress this on the minds of the consumers of fire brick as thoroughly as we know it. Many thousand dollars worth of brick work is rendered useless or of little value because someone has placed the work in operation before the moisture has been driven from the green brick work. Many fire brick fall down for this reason alone and frequently some other factor is given as the cause. Proper refractory efficiency engineering will overcome this. It is of further importance that different parts of a furnace should have different kinds of brick, as no one brand will give the best results in every part of the same furnace. This is noted especially where a plant has different types of furnaces and trying to use the same brand of fire brick. It is better to carry a stock of several kinds, than to pay the penalty of false economy. There is only one way for this to be worked out to the best advantage and that is for each manufacturer to know his own product and the consumer to give him all the facts.

### High-Grade Fire Brick.

The word high-grade fire brick is often improperly used and all brands are high-grade fire brick for some classes of work because they will give better results in one or more places, than other brands. The method of making does not necessarily entitle them to the term "High-Grade," nor are they entitled to that term by any other than the results obtained. Our contention is that all fire brick are high grade and when they do not give good results they are simply out of place and the salesman is to blame.

### Expansion and Contraction.

Now we have come to the last condition we will mention, but by no means the least important. Possibly nothing is less considered and more important than the question of expansion and contraction of a certain kind of fire brick in the work. A fire brick may withstand high temeprature, but be useless, because at some given degree of heat it will either expand or contract. We have seen fire brick expand 20 per cent. when the temperature was increased from 2000 to 2500 degrees. That same brand may withstand much higher temperatures than many others, but the usefulness of any fire brick is over when extreme expansion takes place. Imagine what would happen to a furnace if all the fire brick in same expanded 20 per cent. when a certain temperature was reached. We have seen other brands which instead of expanding would contract fully as much as the other one expanded. The result in that case is just as bad as in the former. Therefore, much consideration must be given the heat question before such brick are used. These brick have their place and will give good results if care is taken when recommending same. Where such brick are used one should be sure that the temperature wlil not rise to the point where the brick will begin to expand heavily. This will show the importance of full knowledge on the part of the company furnishing the brick. Again the real benefits of refractory efficiency engineering are exemplified. We could go on and mention many other factors of much importance, but we give a few to show that the only way to get efficiency in your fire brick work is for the maker and user to get close together and enjoy each other's fullest confidence. If you do not believe this, just try it, and see how it works out. You will be astonished, provided the brick man knows his business and you give him all the facts in the case. Some places require hard burned brick, others medium burned, and the best results are obtained in other parts of furnaces from soft burned brick, provided all shrinkage has been eliminated from same. In special places dense fire brick are the best, while in other parts of furnaces a porous, spongy brick will last the longest. Special, large shapes will often make a more lasting piece of fire brick work, while in others that is the most disastrous refractory engineering. It will seem at a glance that if the consumer furnishes all the facts and helps the producer in such cases and allows full investigation the results must be much better. This, of course, implies that the manufacturer

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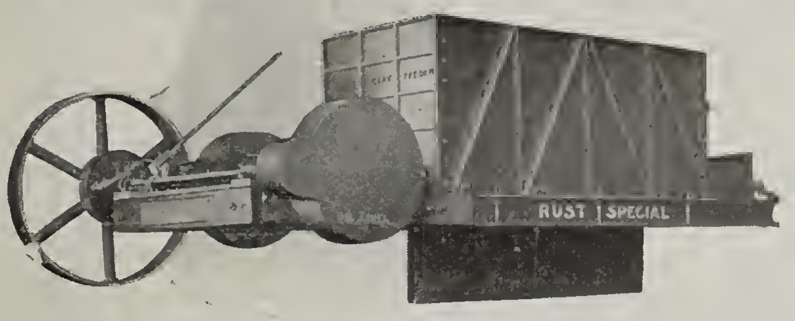

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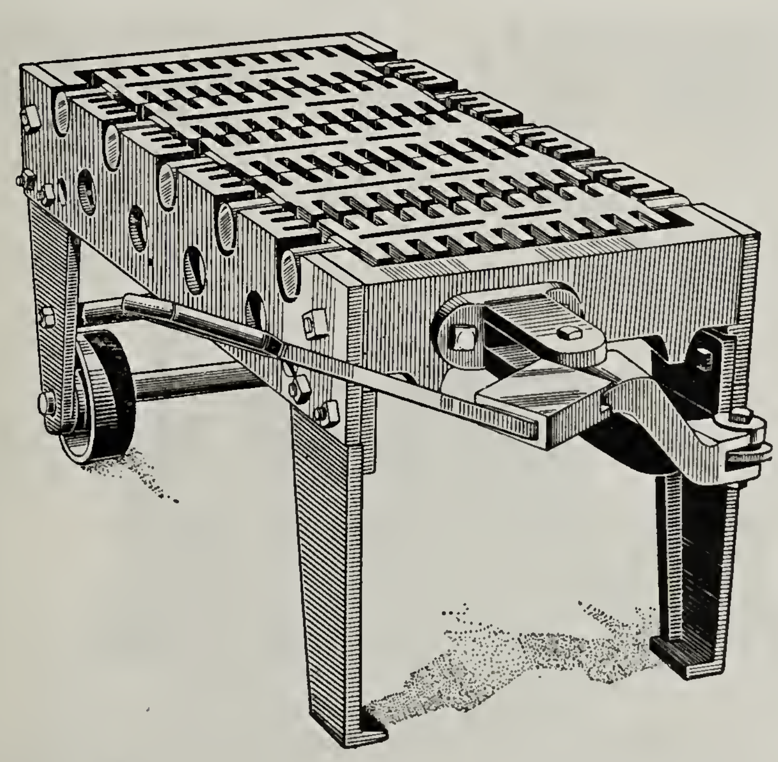

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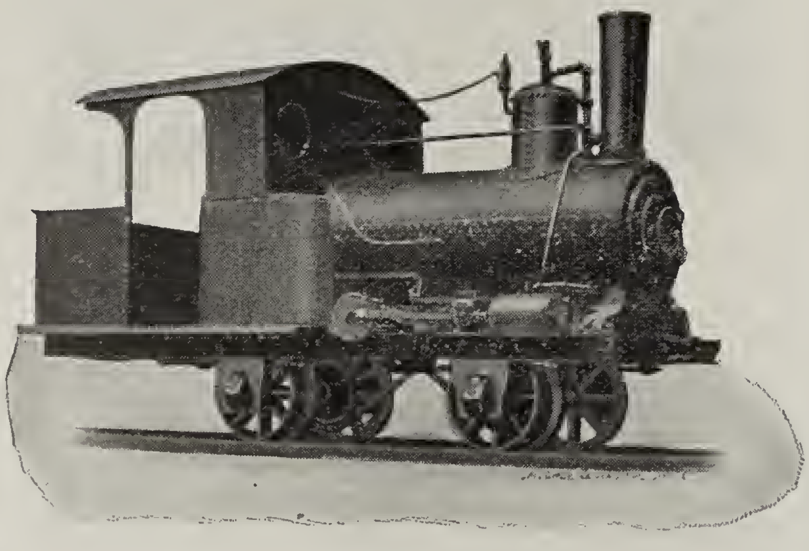

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## REFRACTORY EFFICIENCY ENGINEERING.

(Continued from page 331.)

is first fully equipped with knowledge of his own products and is honest in his convictions. The maker should, however, first know all about his own goods and be thoroughly familiar with how each of his brands will act under this or that condition. Any fire brick salesman who does this will have no time to "knock" his competition and tell where they failed to give results. He will be too busy learning about the uses and how he can improve his own to get better results from their installation. It is a fact much deplored by the better class of fire brick manufacturers that some men selling refractory materials use methods beneath the dignity of gentlemen, to sell their goods. Every time they secure an inquiry for material or know that a purchaser is in the market, they begin to "knock" any other brand the prospective customer may have used in the past. They feel that the best way to sell their goods is to tell the user where and when the fire brick of some other manufacturer has failed to give good results. Sometimes they even resort to untruths, but it is a well known fact that such men seldom know very much about the line and never "Wear well."

In Refractory Engineering much care should be given the matter of fire clay dust for mortar and also the subject of laying up these brick. Many serious mistakes occur in this direction both in the use of too much mortar or of the improper kind. The dust should be very finely pulverized and of the proper grade to match the brick work. Many fire brick masons use entirely too much mortar and the joints are too thick, the results of which will be very short life in the work. Brick, of course, should be uniform in thickness and then the machanic, who lays them up in the wall, should be very careful to get the thinnest possible joint. In fact, it should not be mortar at all. The best work is obtained when the fire clay is soaked for a time in water and then thinned down to the thinnest kind of a "dip," something in appearances to molasses or soup. Remember all thick joints between the brick will contract and allow the walls to weaken. If the brick are "dipped," instead of laid in thick, heavy mortar joints, that part of the shrinkage will be eliminated. Improper engineering in the refractory line will surely prove very disastrous both to the consumer and the manufacturer. The user sooner or later loses faith in the fire brick business as a whole and the particular manufacturer has lost the trade. Fire brick made by one process or another will give better results in certain places than brick made by other methods. Thus it will be seen that often high priced fire brick are used where a cheaper grade will give better results and the purchaser could save six or seven dollars per M on the original purchase price. It is also equally true that the purchaser often buys brick on price only, whereas the economic policy would be to pay the price for the proper article. All "hand made" fire brick are not the same, nor are all "stiff mud" products alike. That depends on the class of fire clay used in them. One may stand high temperatures without any expansion or contraction, while others may fail because of an excess of or a certain degree of heat. Therefore, the selling or placing of fire brick is much like the distribution of lubricants. Users of oils would scarcely purchase black oil for a high speed engine. Most disastrous results would follow the use of crude oil as a cylinder lubricant. It pays to consult a physician when you are ill; it is wise to consult your attorney when legal matters are to be considered; an electrical engineer is the best man to talk about your generator; a mechanical engineer is the best man to prescribe for your engine or machinery; why not consult the refractory efficiency engineer when you wish to use fire brick.

### Conclusion.

In concluding we wish to summarize all this information by saying that it is the purpose of this booklet to show that the man who makes the fire brick knows more about his product than anyone else; and the man who uses the refractories should know more about his work than any other person. If these two get close together the result should be "better fire brick" for every purpose. The fire brick manufacturer should know what kind of fire brick he can make and if he is a student and thoroughly investigates the conditions he should be in position to produce an article best suited for the purpose. If he cannot make and furnish the proper kind of brick it is the duty of the manufacturer to tell the consumer frankly that such is the case. Any fire brick maker, who wishes to do the best for the trade in general, will always do that, provided he has a conscience at all. It is both unfortunate and true that many consumers of fire brick do not want to furnish much information regarding the conditions where the fire brick are used. In some places it is impossible for the person selling the refractories to get into the mills or examine the place where these brick are placed. In other places the buyer will not go into detail with the manufacturers as to his use at all, except in a general way. We do not know just why this should be, for the user will be benefited to a greater extent than any other person by making a careful study of "cause and effect" with the refractory engineer.

## KNIFING THE BRICK INDUSTRY.

THE mooted reason for the existence of trade unions is that they were forced into being by industrial conditions which made it incumbent upon workers to organize in order that they might live. They exist, we are told, in order to better the condition of the worker, reduce hours of labor to reasonable number and raise wages to legitimate levels. To these purposes none can take exception, but the unions have fared far from the fields of their proper endeavor.

From being the shield of honest workers they have become the refuge of incompetents; they have developed into the worst enemy of the efficient and ambitious worker. In their zeal to shorten hours and raise wages they have all but destroyed many trades, and have in fact ruined many industries.

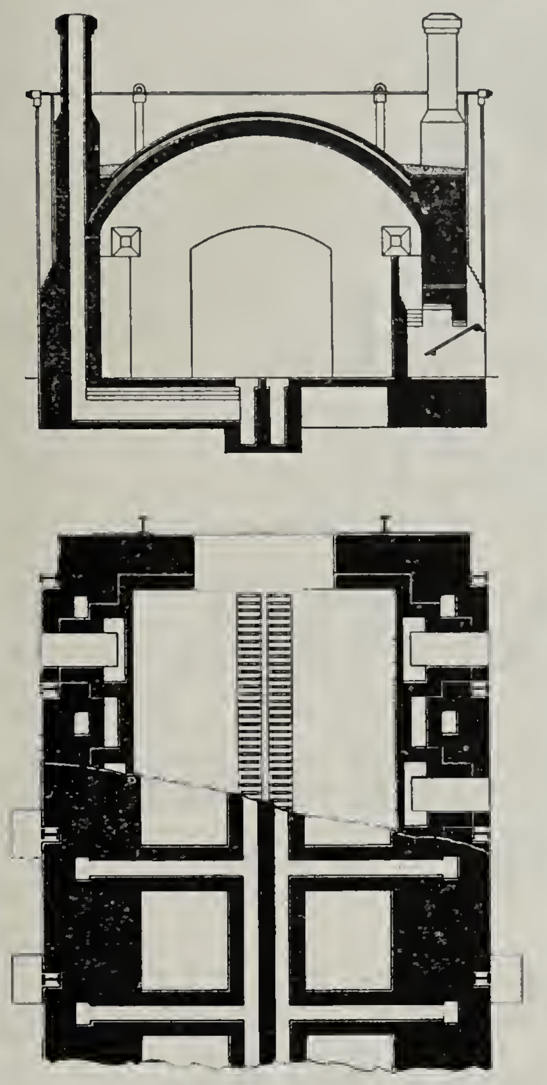
Word comes from Louisville, Ky., that unionists have labored so assiduously in that city that the trade of brickmaking is on the decline. An architect writing in the Louisville Evening Post records that thirty years ago there were over 500 bricklayers in that city. They earned $4.50 for ten hours labor. There was a union which was a local body with local interests at heart. The cost of laying a brick wall was $3.50 a thousand.

As years passed the old order changed. The union used its power to shorten hours and raise wages. It followed the usual union tactics of intimidation to impose the closed shop on non-union workers. The result is easily seen. Formerly Louisville consumed 90,000,000 brick a year, now it consumes less than 40,000,000 in spite of the fact that the city is much larger and has twice its former wealth. There are now about 200 bricklayers. There were once twenty brickyards; today there are not four. The raw materials for the manufacture of brick are abundant, natural conditions are ideal; logically brick should be a chief manufactured article. Louisville should be a brick town, in fact it is wood; the city has suffered but the union has prospered.

## WANTS TO CREATE A MINERAL BRICK.

William Fartoute Munn, in making his confessions as a consulting chemist in Munsey's for June, says that he has a dream which is to create a mineral brick which will stand a heat test of 4,000 degrees F. He claims that all existing fire brick, when put under exceedingly great heat, melt along the edges, which necessitates frequent repairing. He must be hard to please not to find what he wants for most every purpose in brick that are already being made.

AN EDUCATION IN KILNS---Continued.



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**IMPROVE THE QUALITY OF YOUR WARE.**

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## TEN YEARS IN COMMON BRICK.

IN a way the reviewing of the past ten years in the common brick industry is a reminder of that famous story about ten nights in a bar-room, for while that story furnished a strong impression of the need for temperance, the impression was no more striking in its way than that which comes from the ten-year record in brick as a reminder that it is time to be up and doing something. Common brick at the end of the year 1914 scored the lowest annual value on record since 1900—just fourteen years back—and it showed up with a deficit as compared to the ten-year average of nearly $10,000,000, the exact figures being $9,460,142. Nor is that all the indictment. Back in 1900 there were 6,475 active plants reporting, while in 1913 (the last year for which figures on the number of plants are available) the number of active plants reporting was only 4,965.

We have, therefore, these striking facts to contemplate: A loss of over two thousands plants, amounting to more than a third of the total, and a loss in annual production of nearly ten million dollars. Isn't that just about as striking a lesson for the brick industry as was furnished for temperance by the famous story picture of ten nights in a bar-room? And in this case it is a matter of stubborn facts and not fancy word picturing for effect; it is facts taken from the official reports of the U. S. Geological Survey. There is appended herewith the figures for the ten-year period ending with last year. Study them awhile and satisfy yourself of the facts.

Annual Production of Common Brick.

| Year | Value | Average Price |
|---|---|---|
| 1904 | $51,768,558 | $5.97 |
| 1905 | 61,394,383 | 6.25 |
| 1906 | 61,300,696 | 6.11 |
| 1907 | 58,785,461 | 6.00 |
| 1908 | 44,765,614 | 5.73 |
| 1909 | 57,251,115 | 5.85 |
| 1910 | 55,219,551 | 5.99 |
| 1911 | 49,885,262 | 5.89 |
| 1912 | 51,796,266 | 6.05 |
| 1913 | 50,134,757 | 6.20 |
| Ten-Year Average | 53,229,666 | |
| 1914 | 43,769,524 | 6.12 |
| Deficit, 1914 | $9,460,142 | |

There are explanations and excuses for certain fluctuations now and then, but in this ten-year record of brick are some things that are too big and too plain to be explained away by causes which are beyond the control of the brick manufacturers themselves. It is a plain case of other people exploiting successfully other building material while the brick people have been negligent and backward, both in pushing their product and in boosting the price. All around us in all lines prices of everything have advanced considerably, and the brick men have had to pay more for help—considerably more. Also they have of late years been turning out a greatly improved product, better burned and worth more generally, still the price of brick has remained almost stationery, being actually lower in 1914 than in 1905. The price is only one factor, but it is one worth remembering, for upon the price depends the chance for profits.

Do you need any stronger appeal than is presented here in the way of a call to arms in support of the Building Brick Bureau? We can all easily agree that there ought to be some boosting of brick that will get for it the place it is entitled to in the building world—which is the best place of all and should call for a much bigger volume of brick than is being used. Also there is perhaps but a single opinion on the matter of price—that we ought to get more for brick. The big question is, how?

That is the question the Brick Bureau was created to solve, but to solve it there must be co-operation from the members in the form of support for the bureau. It is a big job to recover ten million dollars of lost trade, a job practically impossible without a central national organization, but with such an organization properly supported financially it can be solved. The organization has been properly outlined and started, and now how big it may become and how much it may accomplish for the great common brick industry depends directly upon the support and co-operation extended by the industry itself. Are you going to do your part?

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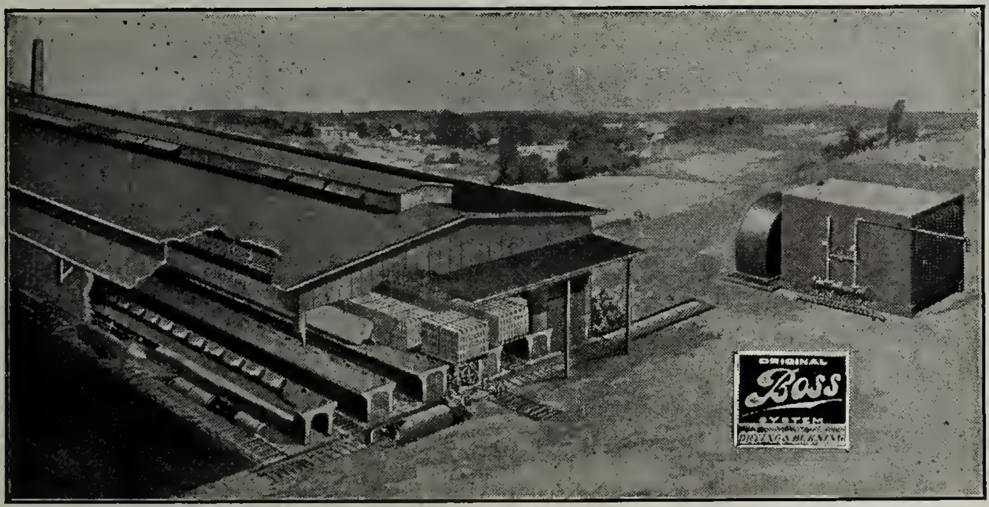


The Boss Ten-Hour Unit-Control Exhaust Steam Dryer.

**Mr. Brickmaker:**

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

NO CLAY TOO TENDER.

Ask us to show you how we do it.

**JOHN C. BOSS COMPANY**
Elkhart, Indiana

**WEBB WIRES WEAR WELL**

WRAPPED
TWISTED
SOLDERED

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

**The WEBB WIRE WORKS,** New Brunswick, N. J.

Written for The Clay-Worker.

## PACIFIC COAST NEWS.

THE PRESENT BUILDING season on the Pacific coast does not offer much reason for rejoicing in the building trades it is true, yet at the same time the demand for clay products has kept up quite steadily. The volume of business is below normal in almost every quarter, but not so far below as to indicate a need for radical changes in business policies. San Francisco manufacturers, and those on the coast generally, are simply lying low, waiting patiently for a general business revival, and not operating beyond the conservative requirements of trade. In San Francisco there appears to be considerable building activity, but very little of the work is of special importance and much of it does not require clay products in large quantities. The civic center scheme of the city is gradually progressing toward completion. The City Hall is up and being finished in the interior, the Civic Auditorium is completed and has been in use for several months, and now sealed bids have been called for for the fine public library. The work on the large plaza in front of the City Hall is about finished. With the completion of the library, the Civic Center will assume pretty much the aspect originally planned. The library, of course, will be constructed in architectural harmony with the City Hall and Auditorium—that is, with granite the predominating material. Brick and terra cotta will also be largely used.

The big event of the exposition, as far as the building trades are concerned, will be "American Builders' Week," October 18 to 23. Plans for making the week a success are being prepared by various committees of manufacturers, dealers and contractors. A very large attendance of those interested in the building trades is confidently expected, judging by communications already received by local people. October is usually one of the most pleasant months in San Francisco, neither too warm nor too cool, and notable for balmy sunshine. The trade winds, which are annoying to strangers very often in the midsummer, are over by this time. Within the next month definite plans for entertaining visitors and providing for their comfort will have been completed. None should fear, it may be well to mention, that hotel and restaurant prices in the exposition are exorbitant. Very few hotels have made any material increase in their rate, and it is quite possible to visit San Francisco this year and live comfortably as cheaply as in any other large city. Special information regarding "American Builders' Week" may be had by those interested on applying to the "Publicity Committee, American Builders' Day, care of General Contractors' Association, 110 Jessie street, San Francisco."

The National Convention of the National Brick Manufacturers' Association was originally planned to take place in San Francisco on August 26, but in view of the fact that Builders' Week is to come in October, it has been thought best to change the date of the convention to October 20. At this time the association will meet, therefore, and the official headquarters will be at the Model Brick Home at the exposition. Prospective visitors are urged to send notice of their coming in order that plans for entertainment may be more accurately arranged.

The Brick Home at the Exposition has made a decided hit with the visitors. No neater and more attractive dwelling house exhibit is to be seen on the grounds, and there are a number of exhibits of the class. So eager are people to enter the brick bungalow that on some days they must be admitted by relays. The box furniture, designed and executed by Miss Brigham, who resides in the house, as well as the other furnishings, serves to give a most comfortable and cozy air to the interior. Miss Brigham and her assistants are kept pretty busy answering questions.

Street and sewer work in San Francisco is going ahead steadily, but there is not any unusual activity in these lines. A few streets are being paved with brick. Sewer plans along the beach have been delayed. It was intended to put in an 18-inch sewer to relieve the situation temporarily, but this has been deemed inadvisable. An efficient system will be installed later.

The United Materials Company has been having a very fair business in high-grade roofing tile this summer. The company has just completed supplying tile for the roof of the postoffice at Hanford, Cal., and is just beginning shipments of tile for the new postoffice at Chico.

The Los Angeles Pressed Brick Company, which has a branch plant at Richmond, Cal., has changed the name of the latter to the Richmond Pressed Brick Company. Business at the Richmond works has been pretty steady all summer.

The Los Angeles Pressed Brick Company has filed a complaint with the California Railroad Commission against the Southern Pacific Company and the Santa Fe, alleging unlawfully collected charges for the delivery of carload freight from and to industry tracks. Reparation is asked in the sum of $1,100 from the Santa Fe and $477.50 from the Southern Pacific.

N. Clark & Sons have completed the furnishing of architectural terra cotta and brick for the new West Oakland branch of the Oakland Savings Bank. The building has a beautiful front of classical design, with artistic terra cotta relief work. This branch bank is only one of a number of branches contemplated by the parent institution. The Clark company is also supplying glazed terra cotta for a new modern store building on Geary street, near Mason, San Francisco.

Gladding, McBean & Co. report a number of jobs of minor importance, but say the season is backward on big work.

F. W. Gomph, agent for the Pacific Freight Tariff Bureau, has filed an application for authority to put in effect a rule for safer shipping of brick on flat cars. To reduce the number of loss claims he wants all brick loaded in pyramid form and protected by stakes and boards.

Stockton, Cal., is planning extensive sewer improvements. The council has awarded to the Anglo & London-Paris National Bank, of San Francisco, the contract for sale of $230,000 worth of sewer bonds.

The Livermore Fire Brick Company, which has been operated under the ownership of R. C. Penfield and W. S. Dickey since about the first of the year, reports a very satisfactory business for the season. This concern produces a high-grade clay product, which is steadily appealing to a wider and wider market on the coast. The California Brick Company, located at Niles, Cal., is under the same management, and has been running steadily with an average output. T. L. Myers, who for twenty-eight years has been on the Pacific coast in connection with the American Clay Machinery Company, is general manager of the two concerns.

A deal has been consummated whereby the large clay deposits six miles north of Oroville, Cal., will be developed on a paying basis. Tests have demonstrated the high merits of this clay, and for a starter a hundred tons a day will be used in the brick industry at Livermore. The clay is brought to Oroville by auto truck and shipped south by rail.

E. Fernholtz, president of the National Briquetting and Clay Working Machinery Company, of Los Angeles, is in San Francisco, calling on friends in the trade and visiting the exposition.

The Union Brick and Tile Company, of Seattle, Wash., has filed articles of incorporation. The capital stock is $150,000, and the incorporators are C. P. McCormick, Jas. A. Murphy, Jay H. Kugler, J. E. Page, H. H. Hillman and George H. Doerr.

There has been organized at Bay View, Wash., a clay products concern with the name of Star Brick and Tile Plant.

The Lake Union Brick and Fireproofing Company has filed articles of incorporation at Seattle. SUNSET.

San Francisco, September 3.

# Classified Advertisements

**FOR SALE, WANTED, ETC.**

**Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.**

## FOR SALE

### FOR SALE OR RENT.

On very reasonable terms, a most desirable face brick plant. Location, Eastern Pennsylvania. Big money in it for capable brickmaker with very small capital. Address,

BOX 8—X. Y. X.,
8 1 dm Care Clay-Worker.

### FOR SALE.

Down delivery attachment for Fate Imperial machine, also automatic silo block cutter, practically new.

CARLINVILLE CLAY CO.,
9 1 d Carlinville, Ill.

### FOR SALE.

Brick, tile and hollow tile works, located on four railroads. Plant splendidly equipped; plenty clay; good trade; control or complete plant for sale. Grand chance.

E. E. LEADER,
Monmouth, Ill.

### FOR SALE.

One Stevenson 9-foot iron frame dry pan, latest model and guaranteed to be in first-class condition. Ready for immediate delivery. Address,

J. S. MILLER,
7 3 cm Bolivar Pa.

### FOR SALE.

Good farm land, 268 acres in Knox Co., Ind., ½ mile from R. R. Five to seven foot vein of first class fire clay, also deep vein of good shale. Will sell mineral alone.

L. H. BATES,
8 3 c Bloomfield, Ia.

### FOR SALE CHEAP.

Brick plant; excellent clay; 3 kilns, 5 acres, all necessary tools. Good market for output. 22 miles from Pittsburg on B. & O. R. R. Will sell at two-thirds the original cost.

MARS BRICK & TILE CO.,
8 3 dm Mars, Pa.

### OPPORTUNITY.

For Sale Cheap—Finely equipped clay plant in western Missouri. Good clays and shale. Good location.

Address, BOX 9—TILE,
9 1 c Care Clay-Worker.

### FOR SALE, CHEAP.

Chambers No. 5 brick cutter, side cut, 24 feet offbearing belt. Used but few months, absolutely good as new.

STANDARD BRICK MFG. CO.
8 Furniture Bldg.,
7 3 cm Evansville, Ind.

### FOR SALE.

One No. 9 Brewer augur machine, $450.00. One 7-ft. American dry pan, $160.00. One clay plow, $25.00. One Quincy clay gatherer, $35.00. All in good condition.

NORMAN CLAY TILE CO.,
9 1 c Nevada, Mo.

### FOR SALE.

One Monarch No. 6 soft mud brick machine and sander. This machine made less than a million brick. Was bought for experimental purposes and we have no further use for a soft-mud machine.

NILES FIRE BRICK CO.,
8 2 d Niles, Ohio.

### FOR SALE—A BARGAIN.

Brick, tile and hollow-ware plant, southwestern Wisconsin, 5 30-ft. down-draft kilns, fire brick lined, waste heat driers, machinery in A1 condition, ten acres red burning clay. Center of dairying and farming district. Great field for silo building.

Address, BOX 8—WIS.,
9 1 cm Care Clay-Worker.

### FOR SALE CHEAP.

One 27-inch circular center feed, open delivery Johnson Filter Press, having twenty-four filtering chambers.

One thirty-inch circular with thirty-five filtering chambers.

One rotary sand dryer, thirty feet long, four feet in diameter, built by the Iroquois Iron Co. Address,

THE KAOLIN COMPANY,
456 Fourth Avenue,
9 3 cm New York.

### FOR SALE

One Dean steam pump and receiver, with automatic float control, both in excellent condition. Will sell at attractive price.

HIDE, LEATHER & BELTING COMPANY,
227-229 S. Meridian St.,
Indianapolis, Ind.

### FOR SALE.

Brick plant. Will sell for one-half original cost. Best brick town in the state. Manager and half owner sick, reason for selling. Will sell controlling interest. Give buyer long lease of grounds.

CARL BAYER, Manager,
W. F. BASLER, Sec.-Treas.,
8 3 cm Hooper, Neb.

## WANTED, ETC.

### WANTED.

One man to operate a Marion revolving steam shovel in brick yard. Answering to this, state your lowest wages for steady employment. Plant located in Southwest.

Address, BOX 9—BUTLER,
9 1 d Care Clay-Worker.

### WANTED.

$25,000 for making changes in our plant, to make paving and face brick from the best deposit of shale in a radius of 200 miles; no local competition. Good position to interested party. Address,

"HALE,"
7 3 cm Care Clay-Worker.

### WANTED.

A thoroughly practical mechanical engineer, about 30 years of age. Must have ability, some knowledge of clay-working equipment, and be a pusher. To such a person, good opportunities will be given. Address,

BOX 8—COMPANY,
Care Clay-Worker.

### WANTED.

For industry manufacturing vitrified clay hollow ware, a man having technical training in ceramic engineering, together with practical experience. Give full particulars of practical experience and technical training and state when and where the latter was obtained. Also state salary expected and give references. Address, BOX 9—CANADA,
9 1 cm Care Clay-Worker.

### WANTED.

Position as superintendent by man of 20 years' experience. Am not of the talkative kind, results must do that part. Have been at two plants in last ten years, over three years at present one of 75M capacity.

MOTTO—Run plant as economical as is practical. Two last plants as references and others if desired.

Address, BOX 9—R. C. G.,
9 1 c Care Clay-Worker.

## Classified Advertisements—Continued.

FOR SALE.

Brick and tile plant. Excellent shale. Three kilns. Will sell for half original cost. Address,

SHALE BRICK & TILE CO.,
9 6 cm Winterset, Iowa.

WANTED—POSITION

By practical man as manager or superintendent fire or face brick factory. Familiar with any color or texture.

BOX 9—MO.,
9 1 d Care Clay-Worker.

WANTED.

Position as superintendent, who is thoroughly familiar and capable of handling any process of manufacture. Am 48 years old and married. Am strictly temperate. Best of references. Address, BOX 9—C. L. B.,
9 1 d Care Clay-Worker.

WANTED.

Position by machinist and electrician. Am first-class, been nine years in present place, but desire change. Used to stiff mud, soft mud and dry press machinery in motor-driven plant. References. Address, BOX 9—C. S.,
9 1 d Care Clay-Worker.

SITUATION WANTED

By a man who thoroughly understands the clay business from pit to office, including the selling end; also thoroughly understands the manufacture of high grade face brick, fire brick, common brick, sewer pipe and fire proofing also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of fuel and the successful handling of all kinds of dryer troubles and kiln troubles; a first class handler of labor to get results. Want to get with a concern where ability will be recognized. Address,

BOX 8—TEXAS,
8 tf d Care Clay-Worker.

FOR SALE.

A GREAT BARGAIN.

An Oliver Typewriter, most recent style, just as good as new, having been used as a demonstrator only. Carries factory guarantee. Will be sold for half price for cash. Address

BOX 6—OLIVER,
Care Clay-Worker.

**Elevator Buckets**

We carry in stock at all times a large supply of Elevator Buckets, including Caldwell Seamless Steel, Regular Riveted and various styles of Malleable Iron.

All sizes and gauges for handling different materials.

Special Buckets made to order.

*Send for Catalog No. 38.*

**H. W. Caldwell & Son Co.**
17th St. and Western Ave.
CHICAGO, ILL.
NEW YORK: Fulton Bldg.
Hudson Terminal, 50 Church St.

**HOTELS STATLER**

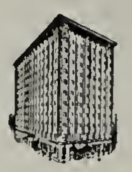
**BUFFALO—CLEVELAND DETROIT**

**An *Interested* Service**

WHEN we say Hotels Statler offer a "complete service" we mean that every guest gets what he *wants* in a Hotel Statler. He is served by well-trained, unobtrusive employees who are in the background till the moment they're wanted, and are there right at hand *and interested.* He gets this service whether he spends $1.50 or $20 a day.

Every—*every*—Hotel Statler room has private bath; outside light and air; circulating ice water; writing desk with plenty of stationery, etc.; local and long distance telephones; pin-cushion, with needles, thread, buttons, etc.; candle for a low night-light, and numerous other unusual conveniences. Morning papers delivered free to every guest room.

Hotels Statler lobbies and public rooms are cheerful, luxurious, and comfortable.


BUFFALO
450 Rooms
450 Baths

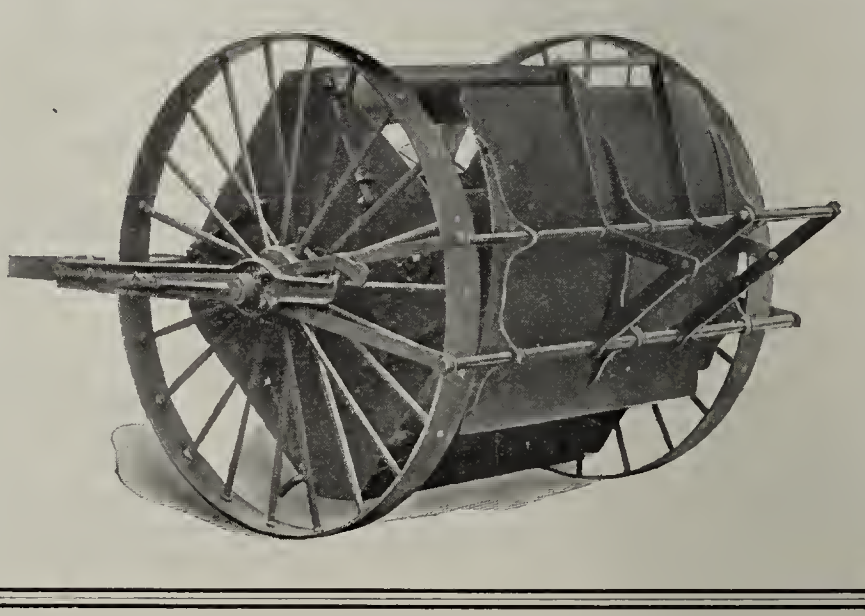
DETROIT
800 Rooms
800 Baths

CLEVELAND
700 Rooms
700 Baths

**THE QUINCY IMPROVED GATHERER**

used in connection with our SPECIAL CLAY PLOW is adapted for taking clay or shale from the surface of the field. Actual tests and testimonials from brick, tile, cement and pottery manufacturers in nearly every state in the Union verify our claim that with their use about one-half of the cost of doing this work can be saved.

**LECHTENBERG BROS.**
Successors to Central Iron Works
Quincy, Ill.



## Classified Advertisements.

**MANGANESE**

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**
MINERS AND GRINDERS.

*A man's mail will reach him where no mortal can.*

**Mailing Lists** 99% **Guaranteed**

covering all classes of business, professions, trades or individuals. Send for our complete catalogue showing national count on 7,000 classifications. Also get special prices on fac-simile letters and addressing.

**Ross-Gould** 493 N. 9th St. **St. Louis**

**Pamphlets Suitable for Distribution by Paving Brick Manufacturers**

VITRIFIED BRICK THE BEST MATERIAL FOR SURFACING PUBLIC HIGHWAYS, by Herbert S. Casson.

BRICK PAVEMENTS AS AN INVESTMENT, by W. T. Blackburn.

IDEAL ROADWAYS, by T. A. Randall.

TRUTH IN NEW JERSEY CEMENT ROAD WORK.

STANDARD RATTLER TESTS FOR PAVING BRICK.

FACTS ABOUT ASPHALT PAVEMENTS.

Specimen copy of any one of these pamphlets sent on request. Price in lots of 100, $2.00. Will quote you prices on larger quantities.

**T. A. RANDALL & CO., Inc.**
**Indianapolis, Ind.**

Special Arrangement for "MONTHLY" Readers.

**No Reason to Worry**

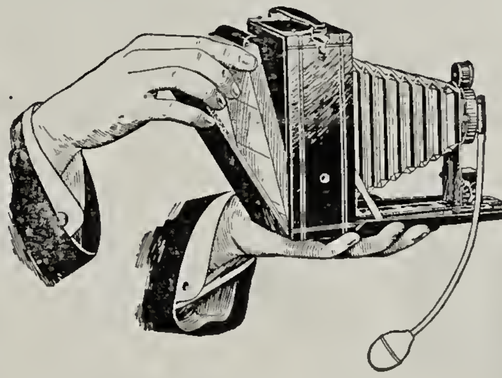
About that Accident or Illness
Which Might Happen---If You Hold One of These POLICIES.

| | | |
|---|---|---|
| FORM "S-76" | FORM "S-75" | FORM "S-74" |
| Special | Special | Special |
| **Accident & Sickness** | **Accident & Sickness** | **Accident & Sickness** |
| $4.00 Yearly | $6.00 Yearly | $10.00 Yearly |
| No Dues. No Assessments. | No Dues. No Assessments. | No Dues. No Assessments. |
| Loss of life.....$1,500.00 | Loss of life.....$2,500.00 | Loss of life.....$5,000.00 |
| Loss of both eyes, hands or feet.. 1,500.00 | Loss of both eyes, hands or feet.. 1,250.00 | Loss of both eyes, hands or feet.. 2,500.00 |
| Loss of one hand or one foot.... 375.00 | Loss of one hand or one foot.... 750.00 | Loss of one hand or one foot.... 1,250.00 |
| Loss of one eye.. 150.00 | Loss of one eye.. 250.00 | Loss of one eye.. 500.00 |
| $10.00 Weekly Accident Benefit. | $15.00 Weekly Accident Benefit. | $25.00 Weekly Accident Benefit. |
| $10.00 Weekly Sick Benefit. | $15.00 Weekly Sick Benefit. | $25.00 Weekly Sick Benefit. |
| $25.00 Emergency Relief. | $50.00 Emergency Relief. | $100.00 Emergency Relief. |

Send for application blank at once to

INSURANCE DEPARTMENT MANTEL, TILE & GRATE MONTHLY
UTICA. N. Y.

**Open back—drop in pack—close back—that's all you do to load a**



**Film Premo**

The smallest, the lightest, the easiest to load and operate of all cameras—and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

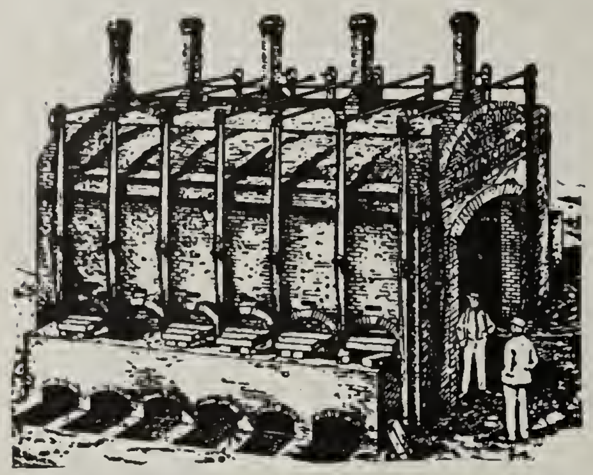
Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it to-day.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

**Rochester Optical Division**
Eastman Kodak Co., Rochester, N.Y.

Mention THE CLAY-WORKER
When writing to Advertisers,
Mention THE CLAY-WORKER

E. SCHMATOLLA
Consulting, Designing & Constructing
**Engineer and Patent Attorney**
To the Manufacturers of
Brick, Lime, Magnesia, Silica & Ceramic Wares.
150 Nassau St., New York, U. S. A.



**The Yates Patent Down=Draft Kiln
Also Continuous Down=Draft.**

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

ALFRED YATES,
SHAWMUT, PA.

---

**If...**

**You Want
to Sell
or Buy...**

**Second-hand Claywork-ing Machinery, Tile Mills, or anything pertaining thereto.**

**If...
You Want
a Man**

**for any position or a position in any connection with the Clayworking Trades use the**

**For Sale
and Want
Columns
of...
The...
Clay=Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

TABLETS OF RECORD in Metal, Marble and Stone for Exterior and Interior of Public Buildings, Office Buildings, Banks, Churches, etc. Designed and Executed to Client's Instructions and Limit of Expense designated. Correspondence Invited.

*Illustrated data and photographs sent on request.*

**J & R LAMB**
Studios, 23, 25, 27 Sixth Ave.,
New York.

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OAK HILL
GAS RETORT
AND
FIRE BRICK
WORKS

**The Parker-Russell
Mining and Manufacturing Co.**
ST. LOUIS, U. S. A.

*FIRE CLAY AND SILICA PRODUCTS OF QUALITY FOR SERVICE---ESPECIALLY FOR KILN CONSTRUCTION.*

---

**Chicago Retort & Fire Brick Co.**

**"AJAX"
Fire Brick for
Building Kilns**

GENERAL OFFICE;
208 South La Salle St.
CHICAGO, ILL.

'Phone
Wabash 6131

---

**Books of Interest to the Clayworker**

REFRACTORIES & FURNACES, by F. T. Harvard, E. M. Price $4.

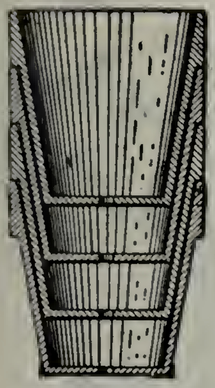
Gives much valuable information relative to the properties, preparation and application of materials used in the construction and operation of furnaces.

CERAMIC GLAZES, price $10.00.

The book is remarkable for its systematic thoroughness, no more finely arranged charts of glazes in the way of careful gradations, coupled with extensive variations, could well be imagined.

Sold by

T. A. RANDALL & CO. (Inc.). Indianapolis.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.
Capacity in 10 hours:
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "
Write for Circular and prices.

The Rockwood Mfg. Co.,
1801 English Ave. INDIANAPOLIS, IND.

New Books Which Are Being Offered To the Trade:

HOLLOW TILE HOUSE, by Fred'k Squires, Price, $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

CEMENT, CONCRETE & BRICK, by A. B. Searle, Price, $3.00.

A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

SOLD BY

T. A. RANDALL & CO. (Inc.) Indianapolis, Ind.

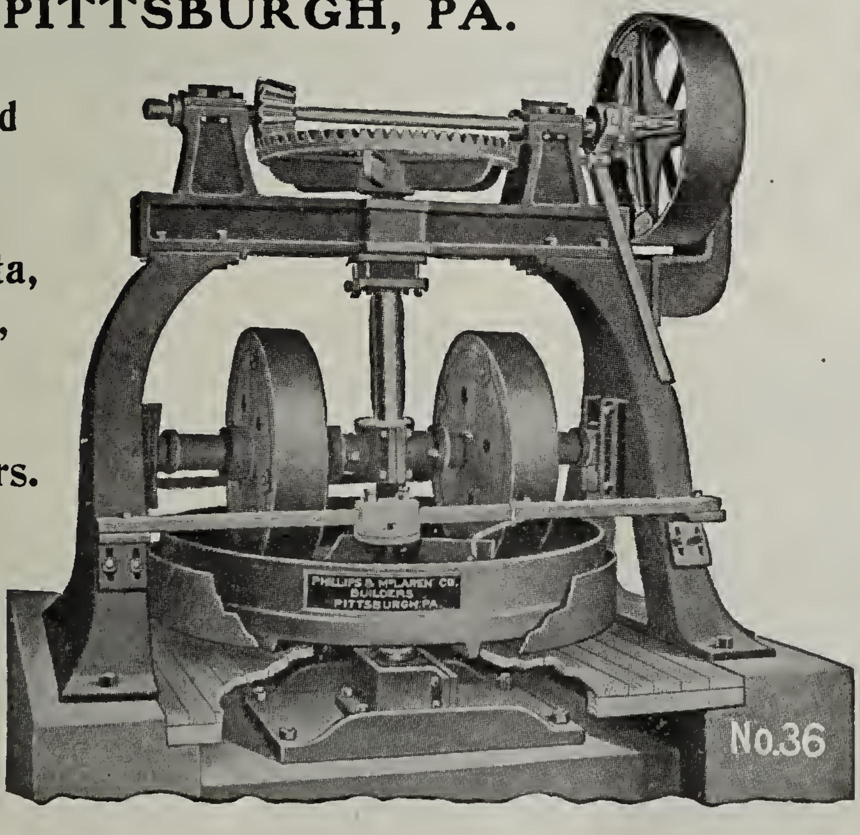
PHILLIPS & McLAREN CO.

PITTSBURGH, PA.

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
Stephen Girard Bldg.
Philadelphia, Pa.



PHILLIPS & McLAREN CO.
BUILDERS
PITTSBURGH, PA.
No.36

$2.00 THE CLAY-WORKER ONE YEAR (IN ADVANCE) $2.00

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.
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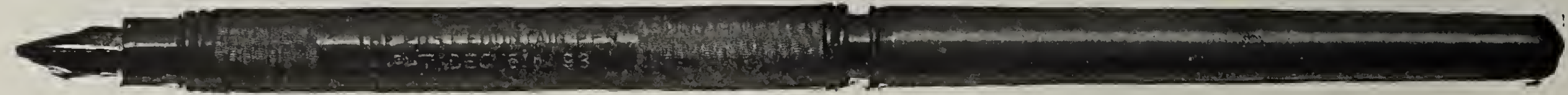

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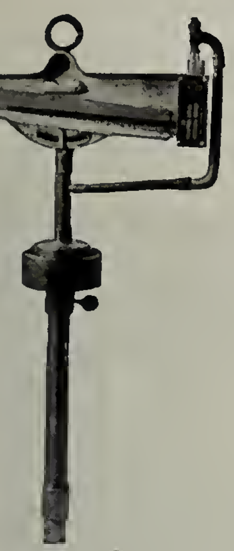

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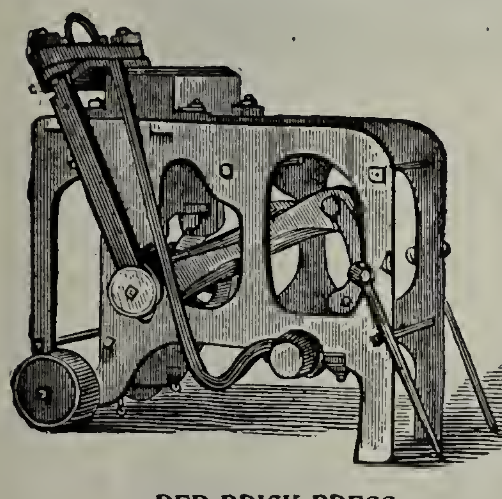

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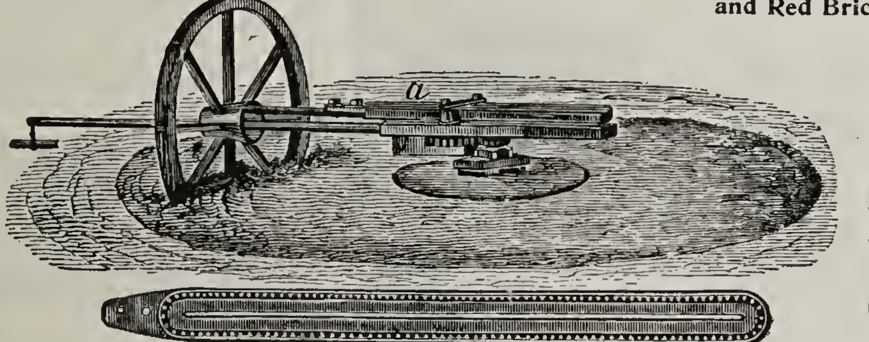

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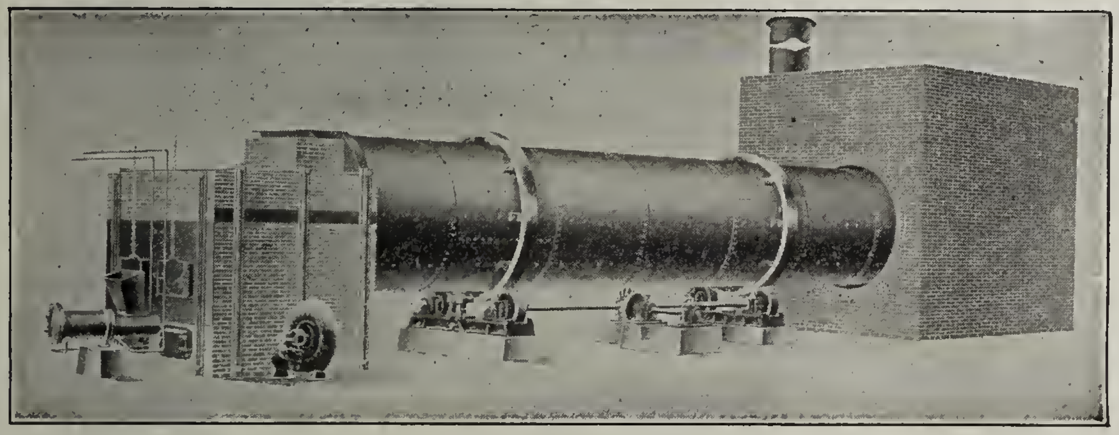

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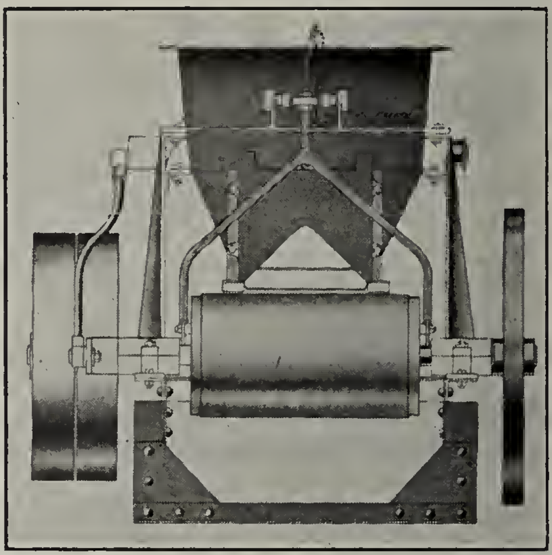

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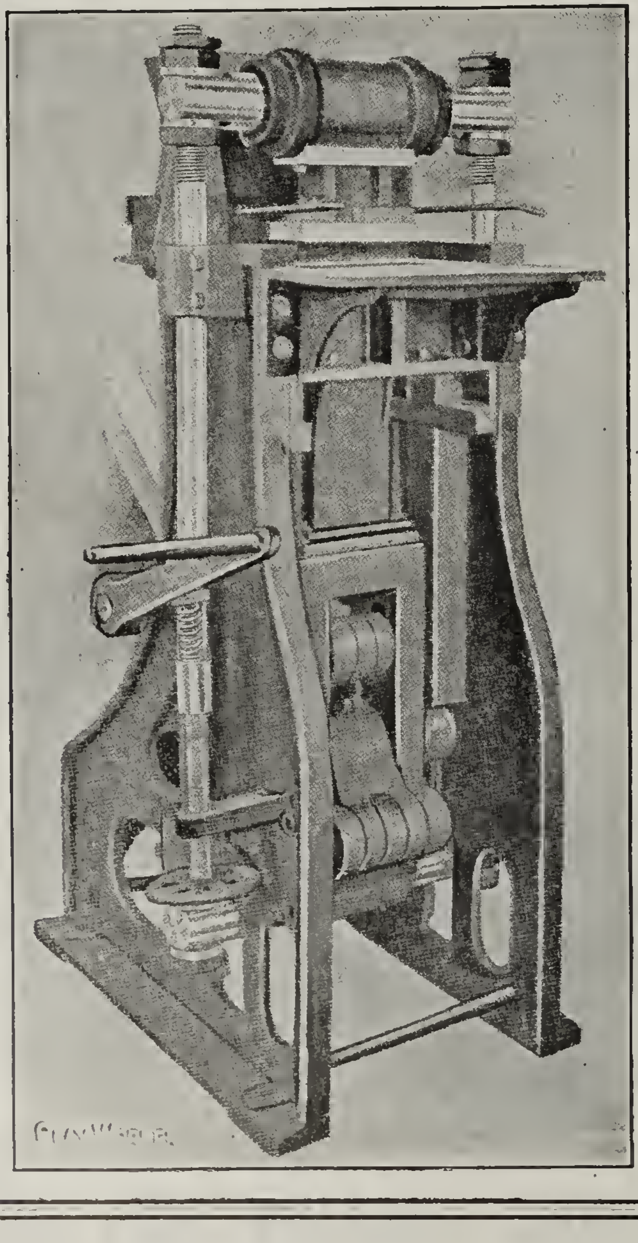

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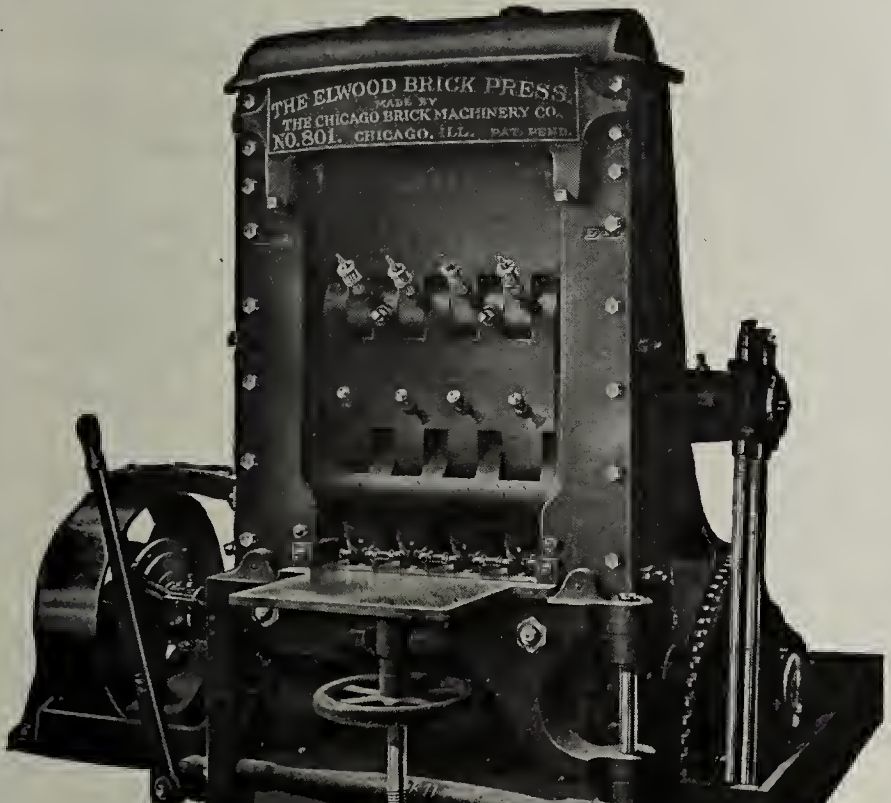
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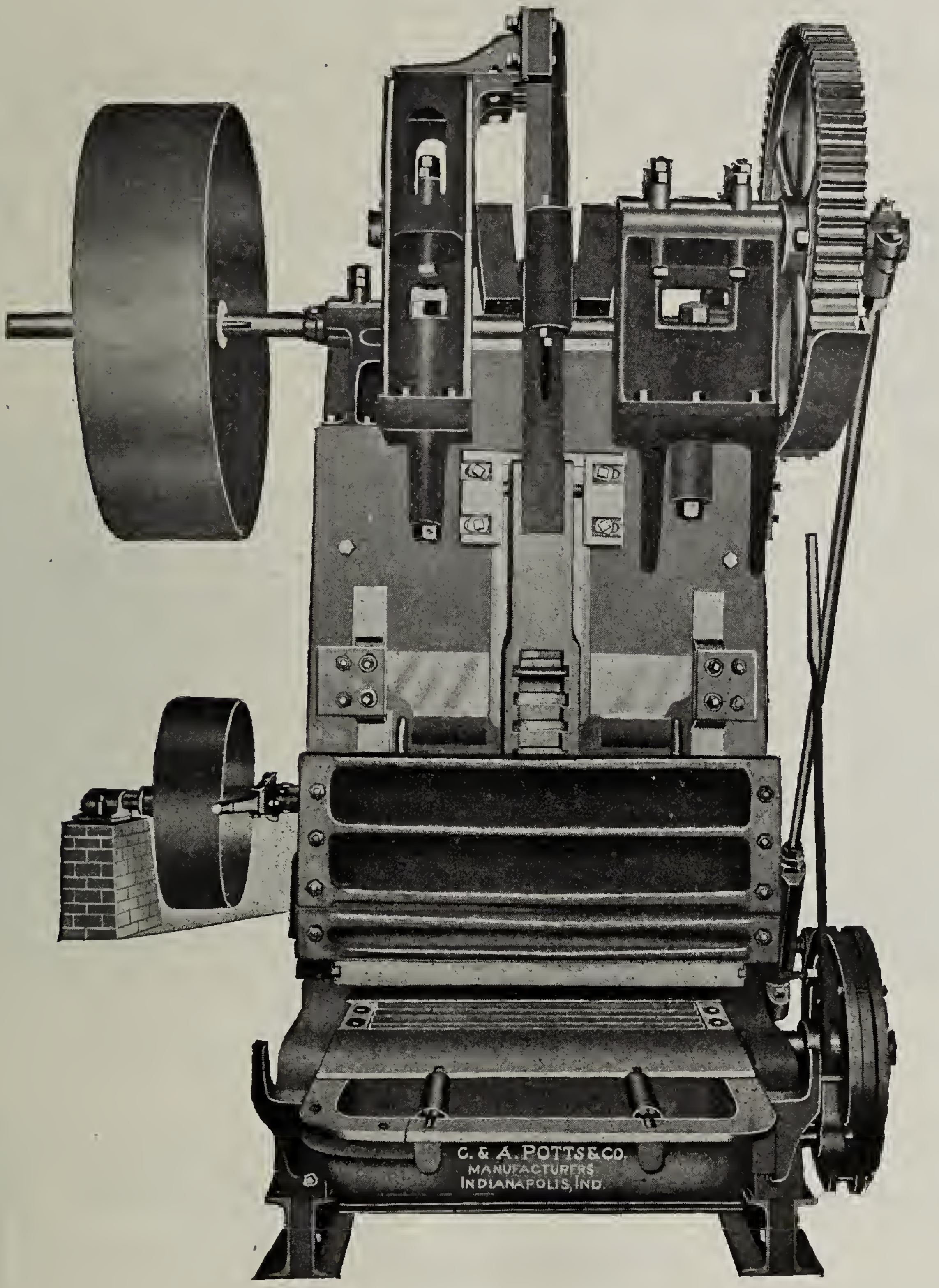

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It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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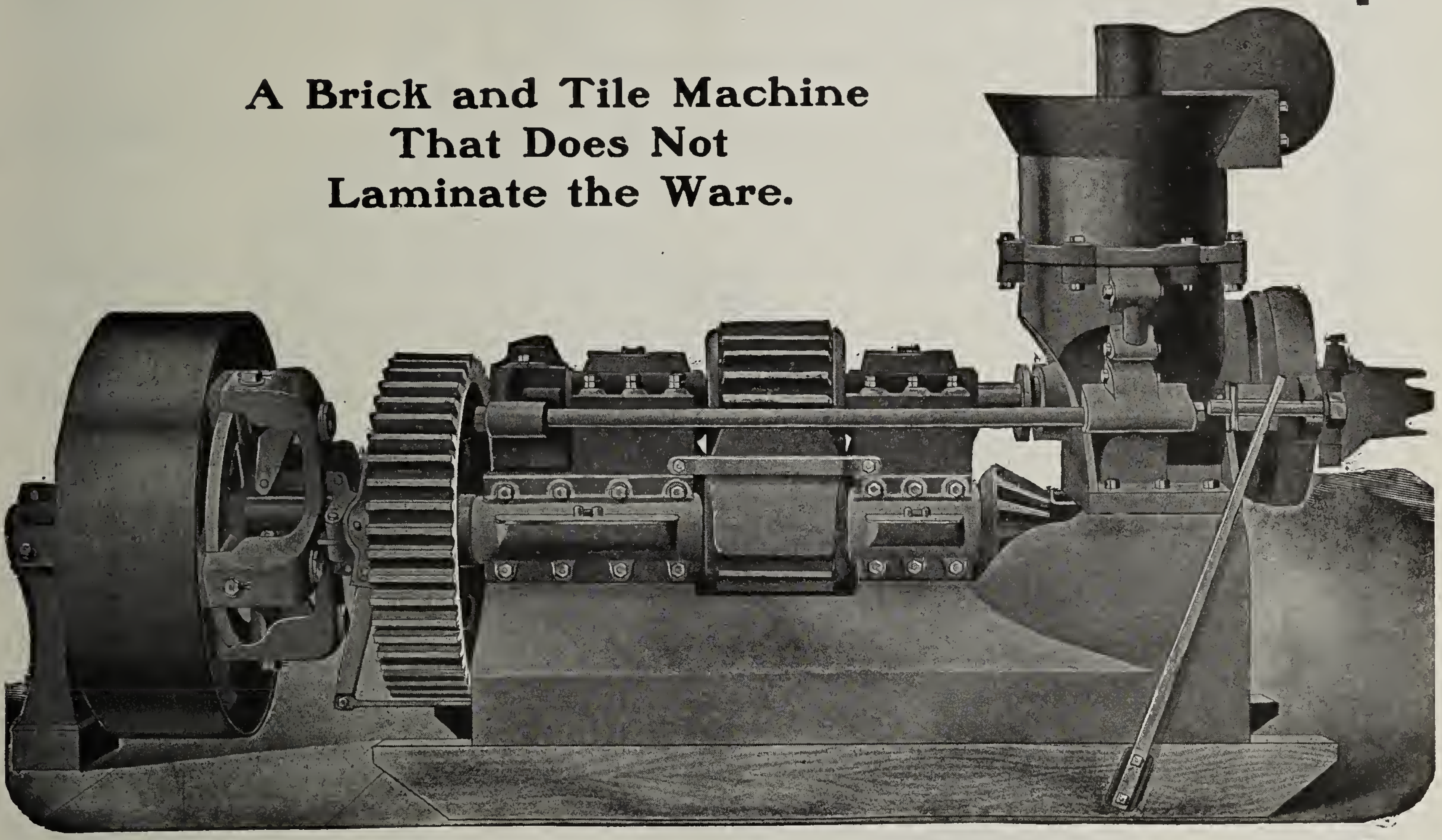

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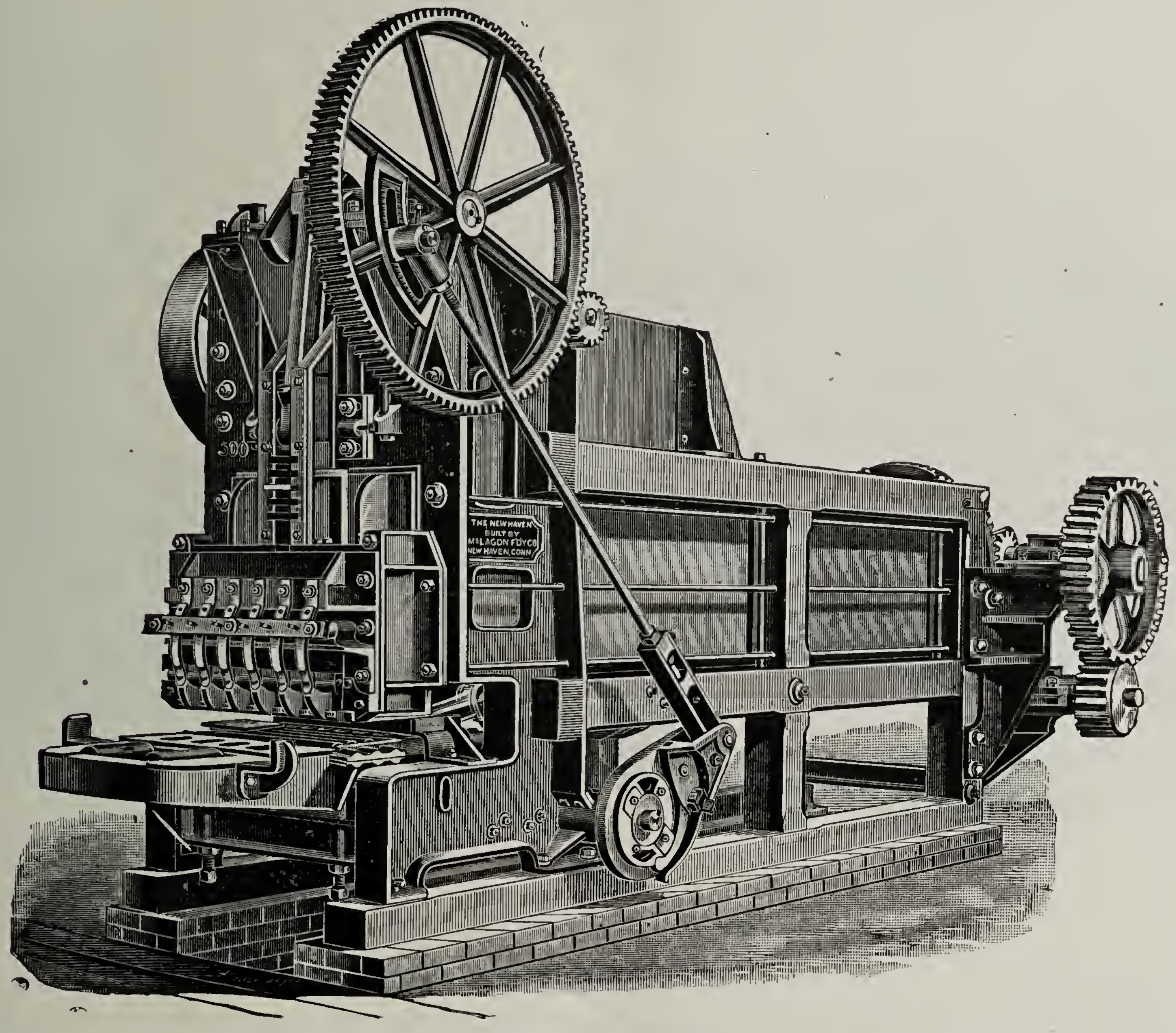
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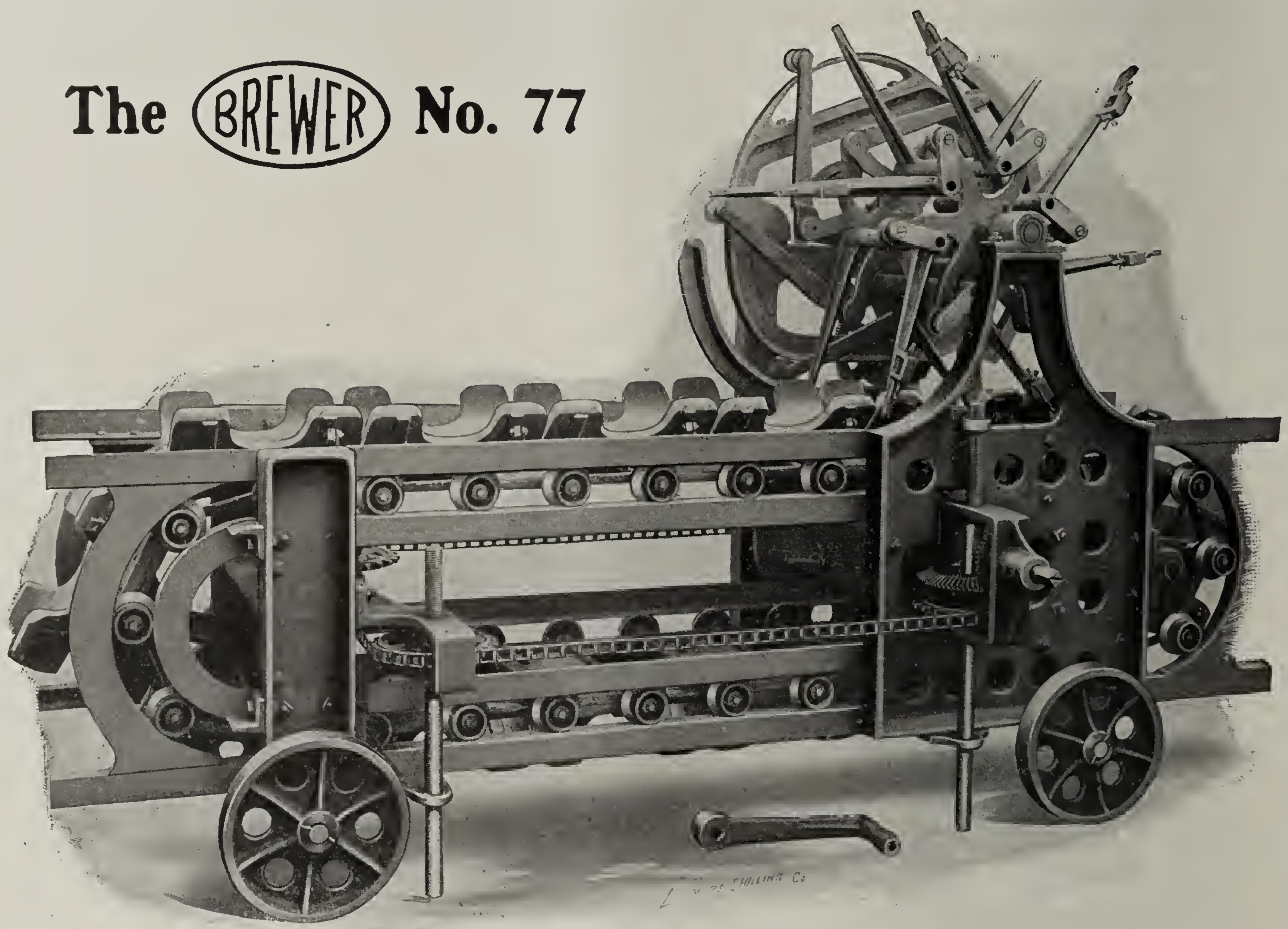

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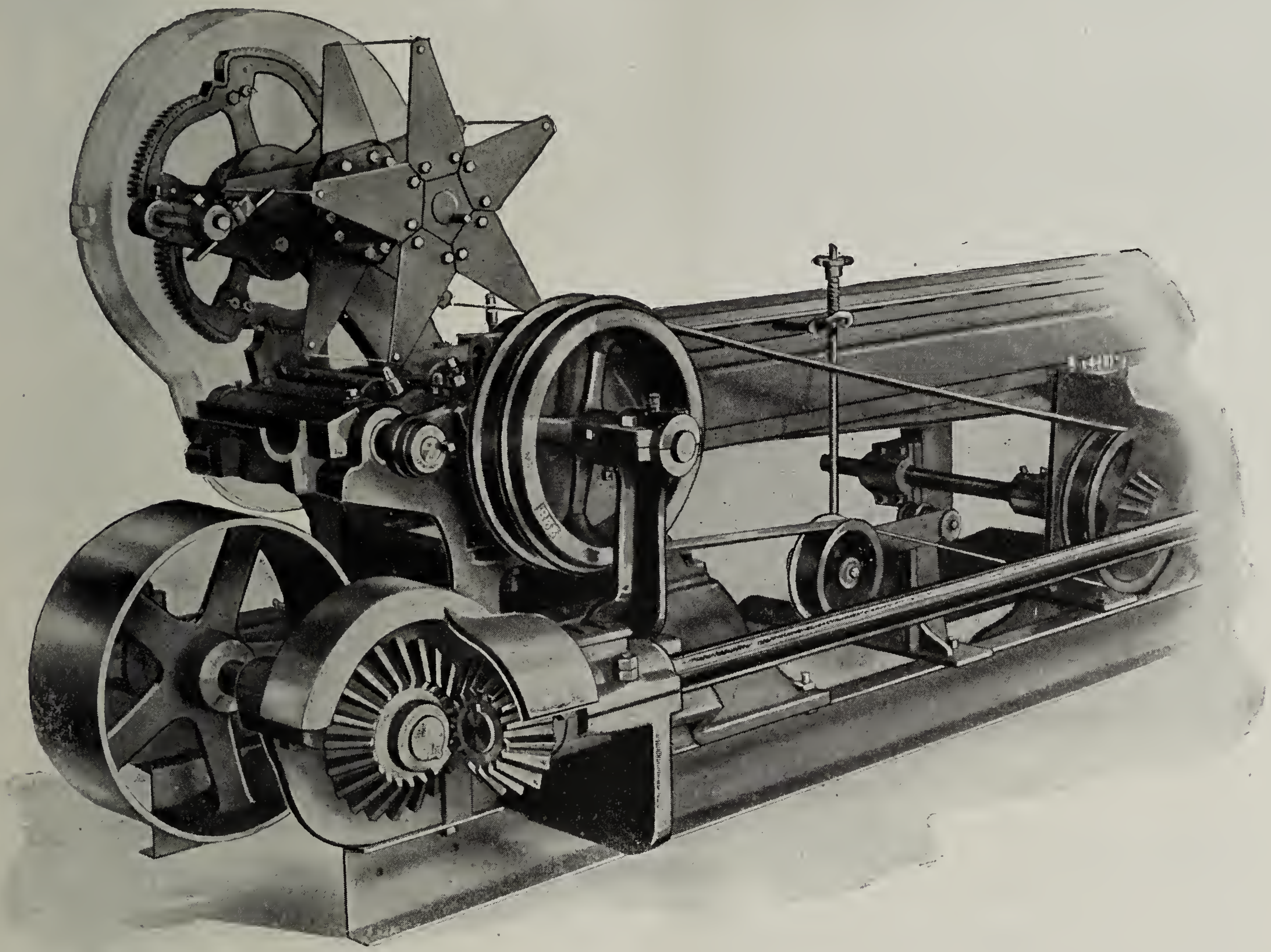

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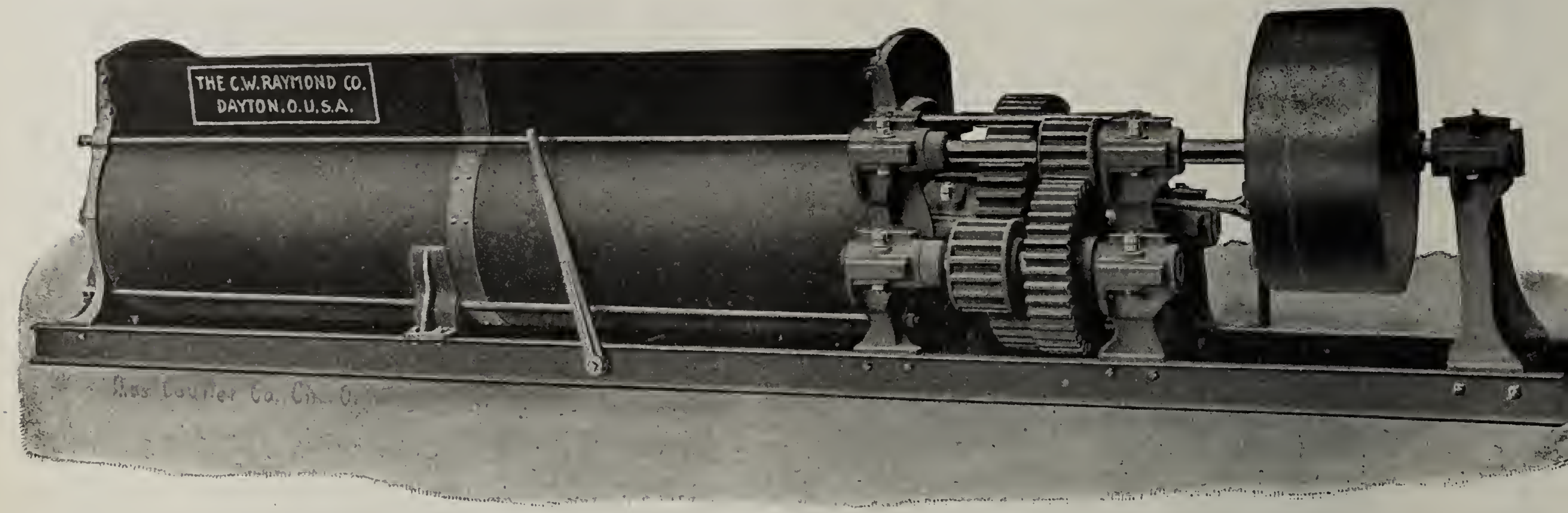

Is reached when one is found that REALLY PUGS THE CLAY THOROUGHLY without falling apart; that does not require an overabundance of power in order that the clay will feed out of the machine; that does not force the clay down the chamber in balls instead of working it down smoothly—well pugged. We want you to know that our

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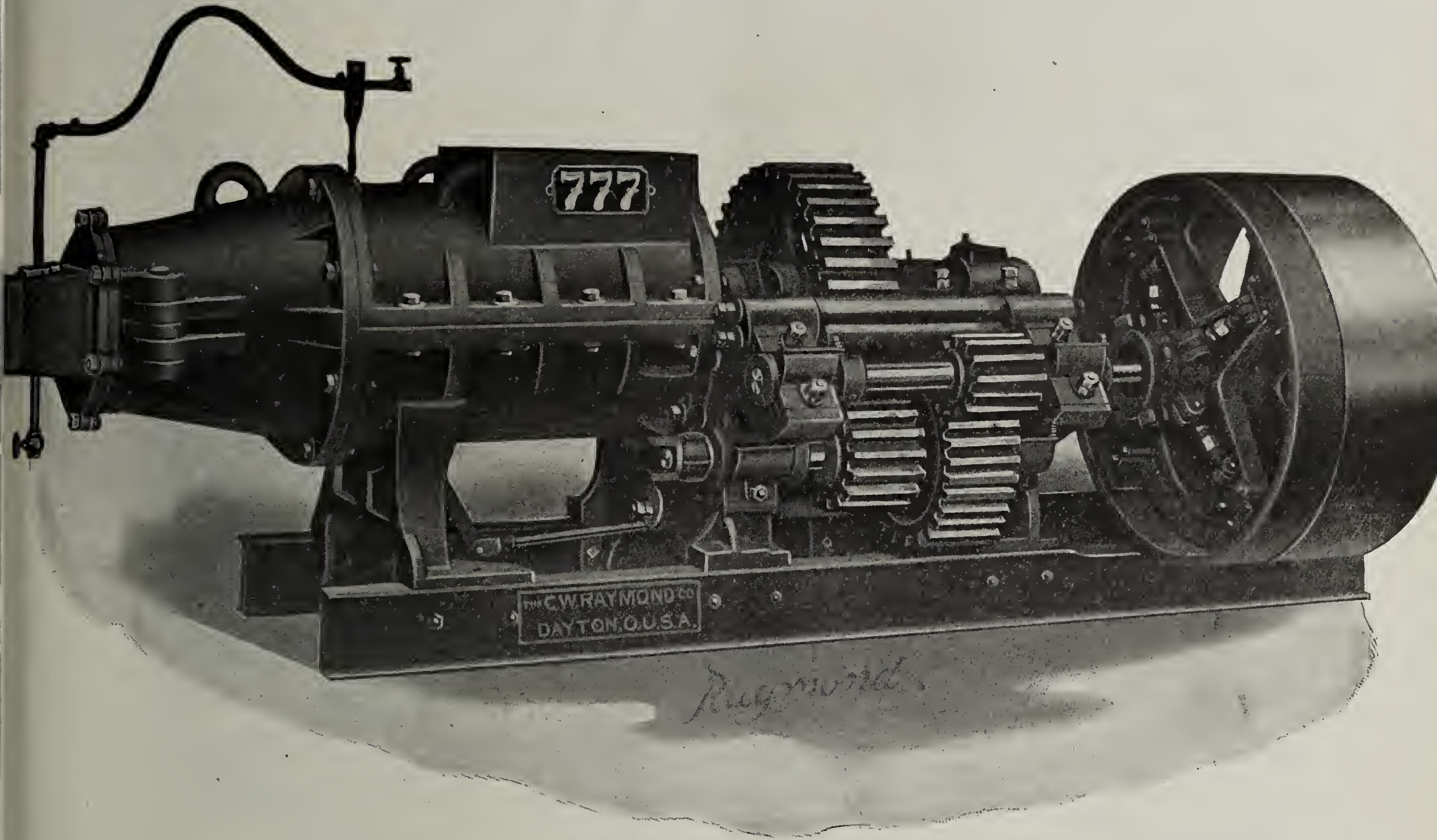

While this machine is practically the same one that has found favor among many brickmakers, there are improvements on it which have caused it to be called the "NEW 777."

All of the shafting has been made larger and stronger, to safeguard against any possible excessive strain. The nozzle and the bearings also, are larger so that now, the "777,', while built along the same lines as the old one, is a better, stronger and greater "NEW 777" Shafting, bearings and nozzle are the same size as those on the larger machines. Generous sized gears, 10-in. face, with extra heavy teeth, which mesh perfectly, obliterate lost motion and breakdowns. The latest friction clutch pulley is included in the equipment. The front legs extending down the inside and double bolted through the skids, frees it from vibration. Capacity of 40,000 to 60,000 building brick per 10 hours. Approximate weight, 14,000 pounds. Cannot be duplicated anywhere. Interested? Write us.

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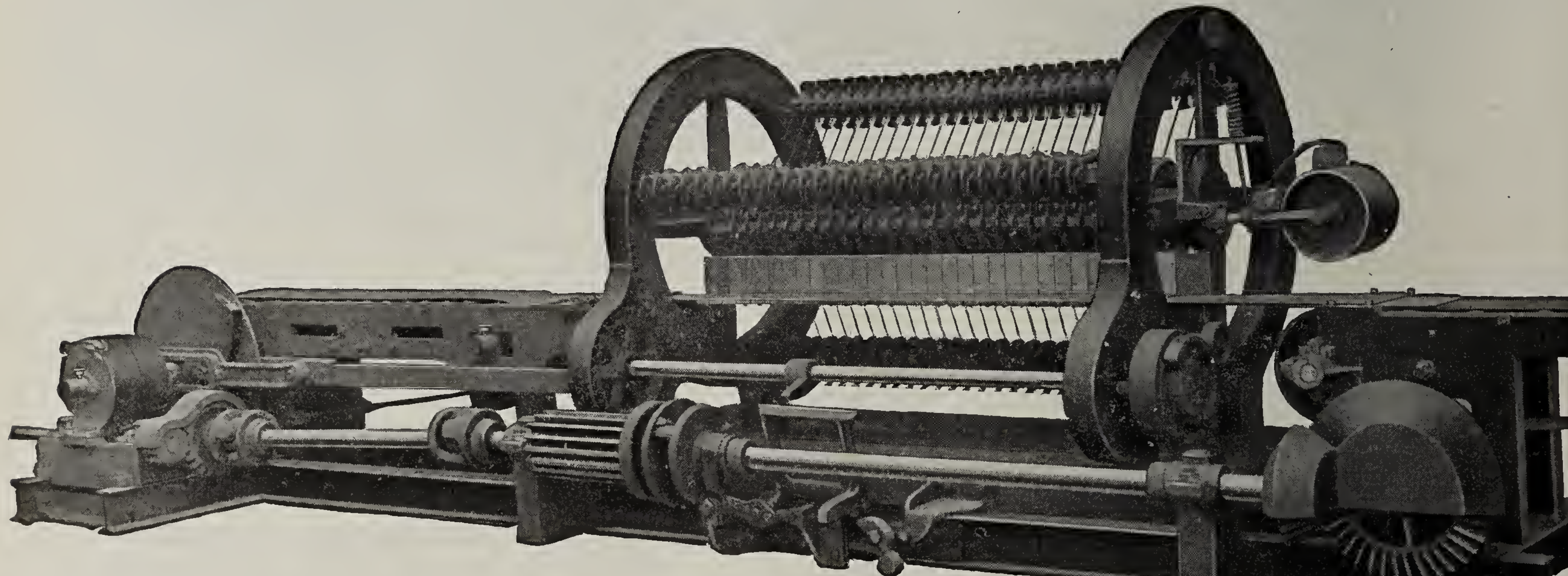

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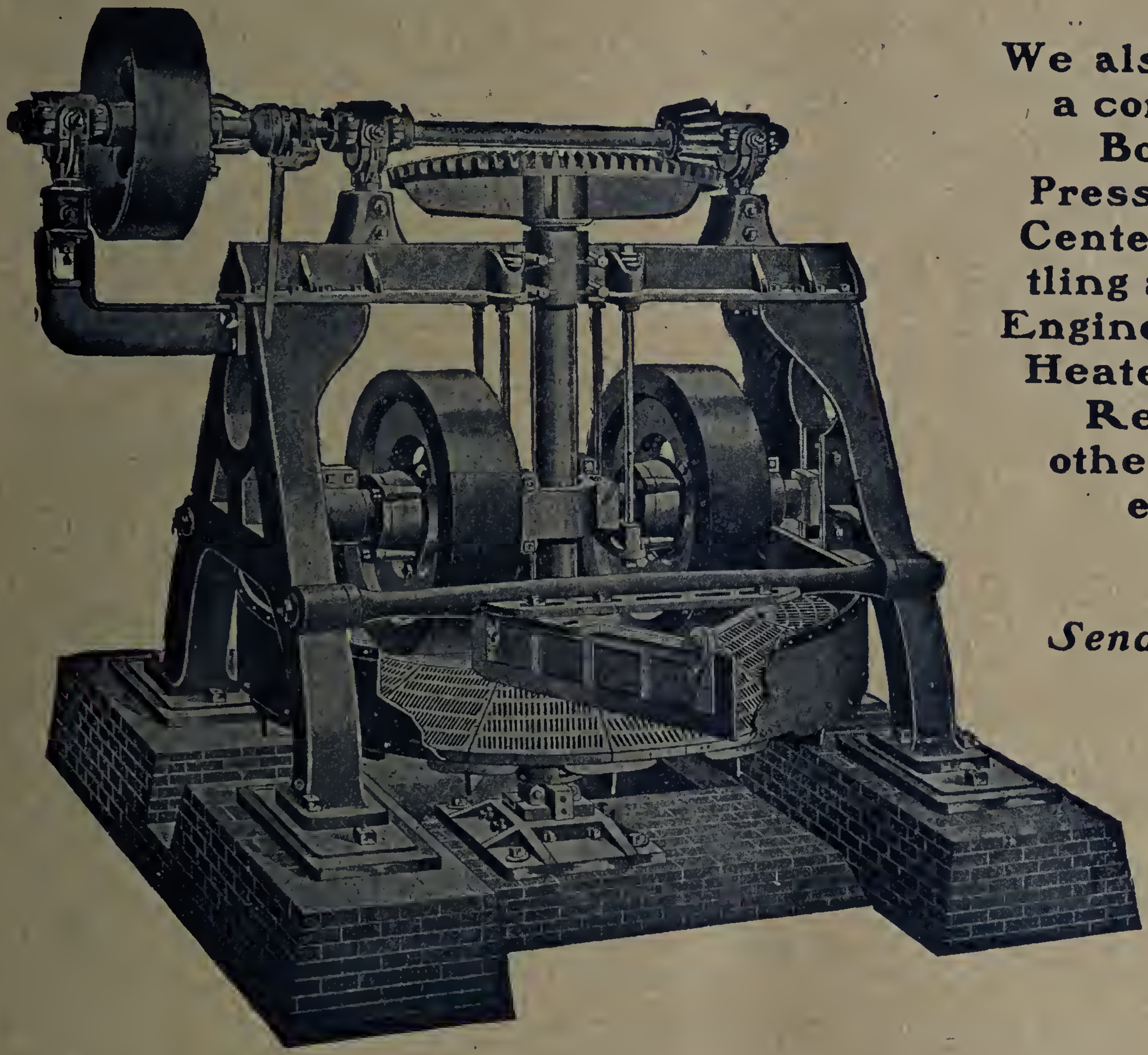

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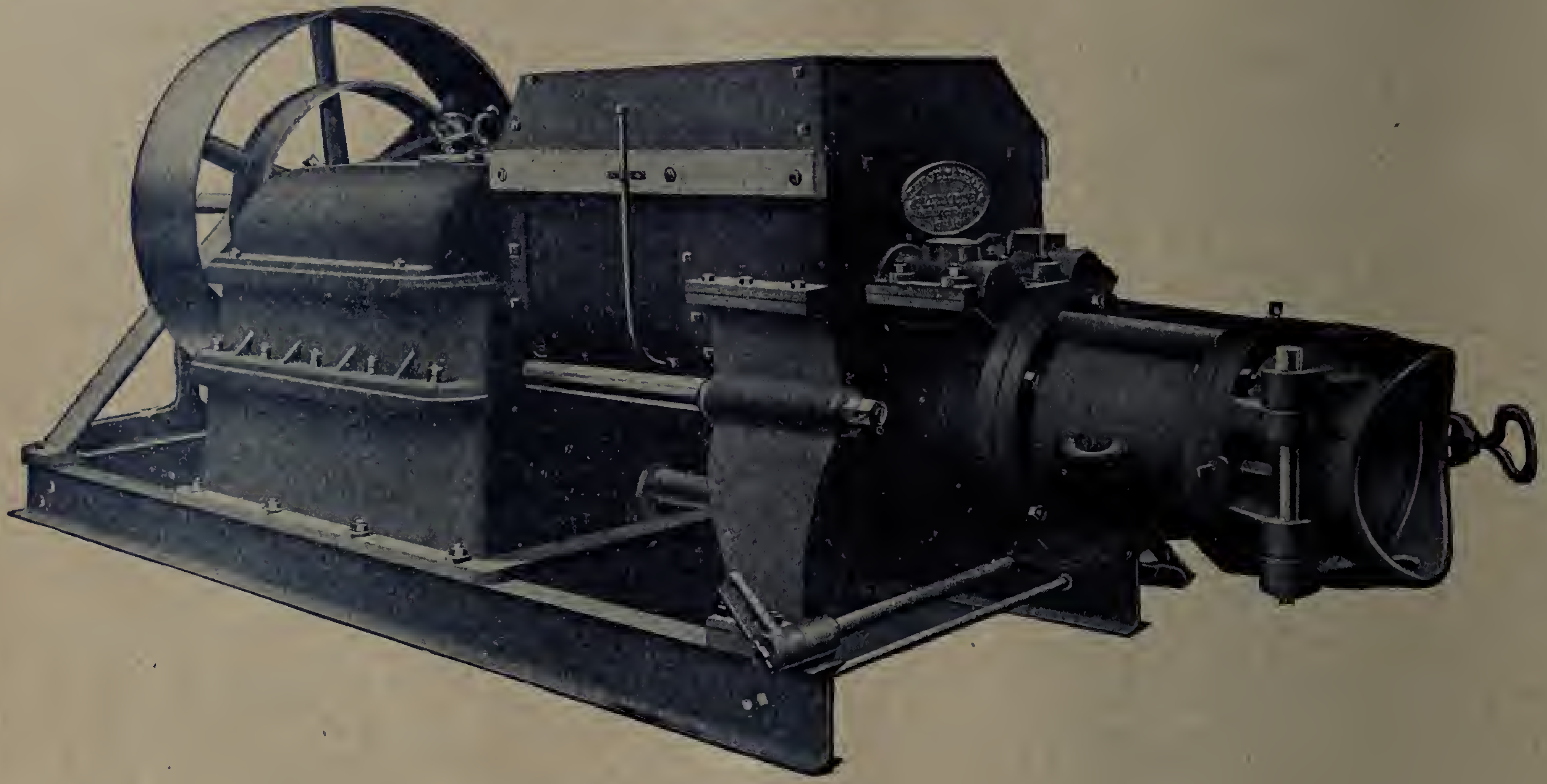
*Quality hinges on two things—mechanical perfection and the best material.*

*These factors enter into the product of the House of Fate.*



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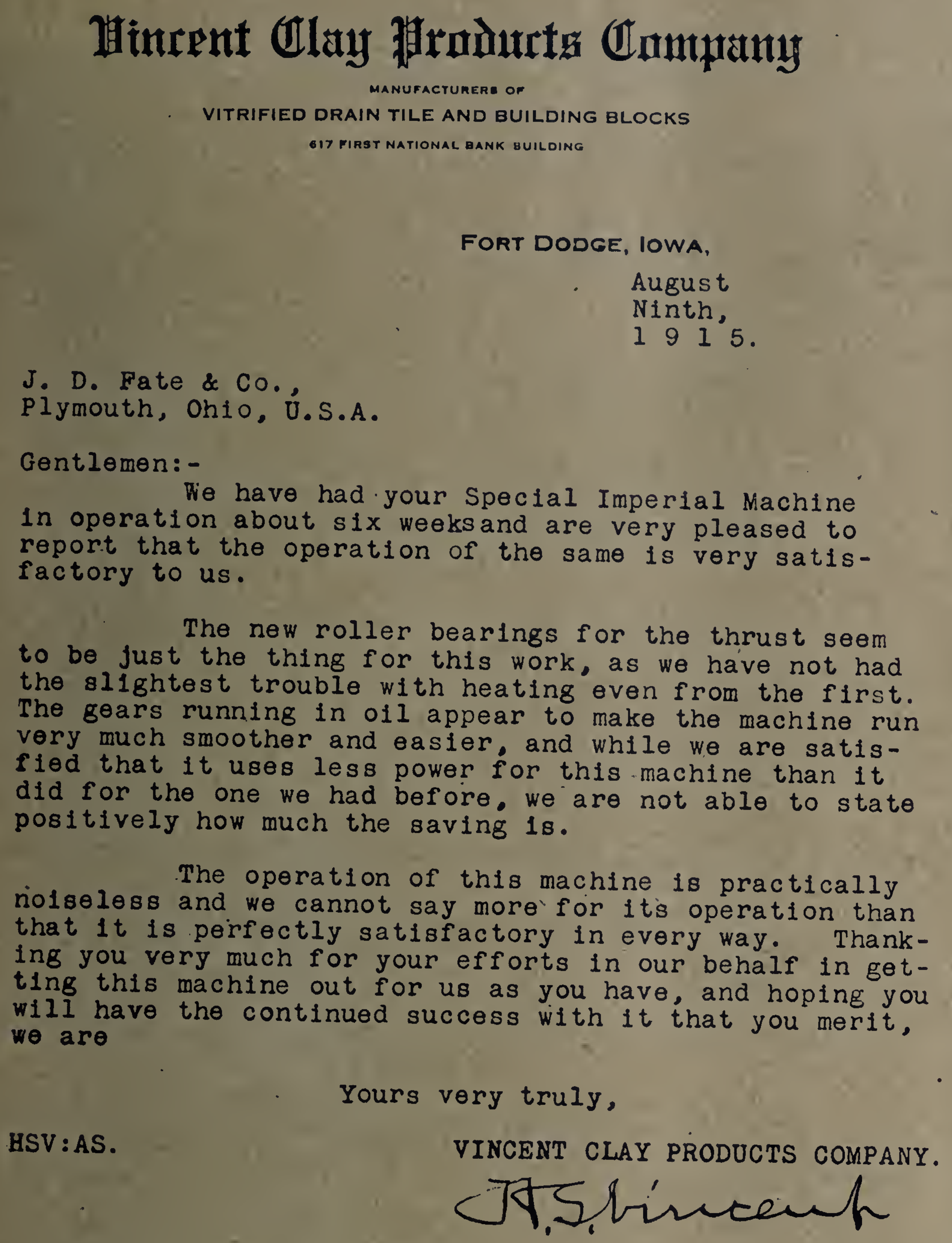
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



**Vincent Clay Products Company**

MANUFACTURERS OF
VITRIFIED DRAIN TILE AND BUILDING BLOCKS
617 FIRST NATIONAL BANK BUILDING

FORT DODGE, IOWA,

August
Ninth,
1915.

J. D. Fate & Co.,
Plymouth, Ohio, U.S.A.

Gentlemen:-

We have had your Special Imperial Machine in operation about six weeksand are very pleased to report that the operation of the same is very satisfactory to us.

The new roller bearings for the thrust seem to be just the thing for this work, as we have not had the slightest trouble with heating even from the first. The gears running in oil appear to make the machine run very much smoother and easier, and while we are satisfied that it uses less power for this machine than it did for the one we had before, we are not able to state positively how much the saving is.

The operation of this machine is practically noiseless and we cannot say more for its operation than that it is perfectly satisfactory in every way. Thanking you very much for your efforts in our behalf in getting this machine out for us as you have, and hoping you will have the continued success with it that you merit, we are

Yours very truly,

HSV:AS.

VINCENT CLAY PRODUCTS COMPANY.

H. S. Vincent

## Read Carefully This Letter.

Note that the Thrust Bearing does not heat—not even when first started.

Note that with the gears running in the enclosed oil chamber, the machine runs smooth and easy.

Note that less power is required than with the machine with small thrust and open gearing.

The machine referred to in the above letter is the same as the "H" Special shown on the opposite page, except that it is a regular combined machine with a full length pugging tub. It has in addition the large roller thrust bearing to take the severe backward thrust of the auger shaft, large well proportioned shafting throughout—iron rim friction pulley, with our new positive working clutch, adjustable from the outside; and is an entirely self-contained machine.

It is a machine that any clayworking plant may well be proud to own and operate.

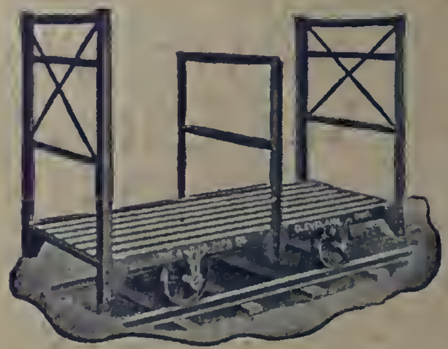
Why not take up with us now your needs for next season in the way of new equipment.

---

# The J. D. Fate Company

## Plymouth, Ohio

Wsetern Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives

Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
**1189 Marquette Road, Cleveland, Ohio**

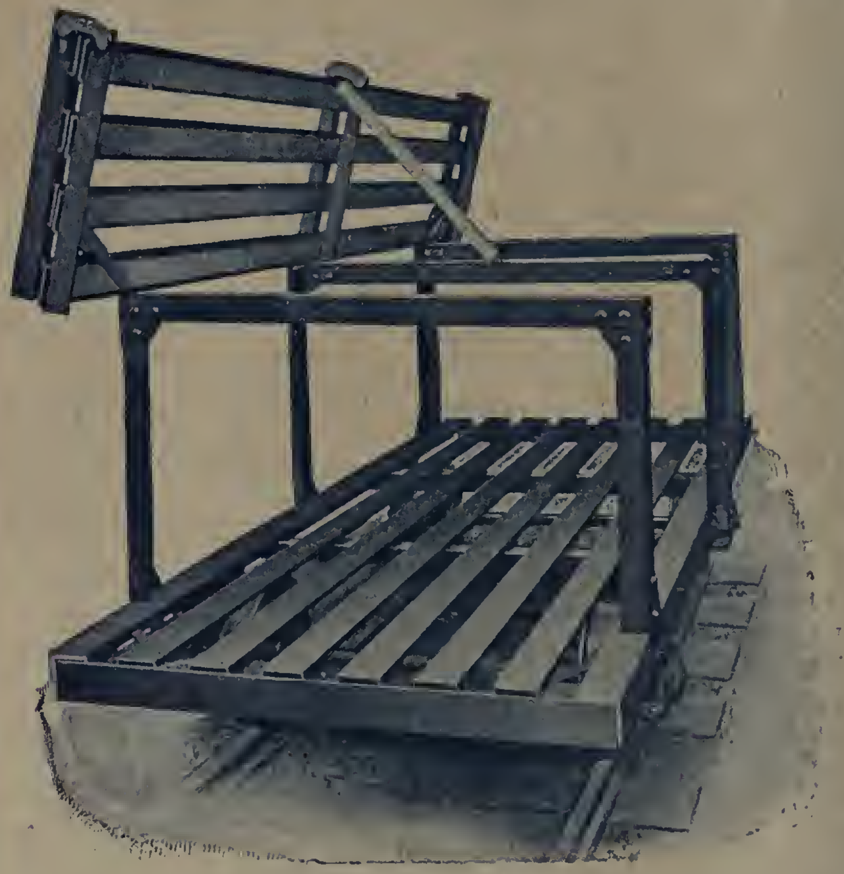
**BAIRD**

**POT MOLDING MACHINERY**

We specialize
Machines
for the
Manufacture
of Pottery
and Guarantee
Every One We Sell

***Write us for information***

**Baird**
**Machine & Mfg. Co.**
**54-56 Jefferson Ave.**
**Detroit, Mich.**



With Chase Flexible and Reversible Bearing and Folding Deck.

**Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.**

**The Chase Foundry & Mfg. Co., Columbus, O.**

**"LAKEWOOD LINE CARS"**

**Dryer Cars**
**Rack Cars**
**Dump Cars**

LAKEWOOD NO. 166

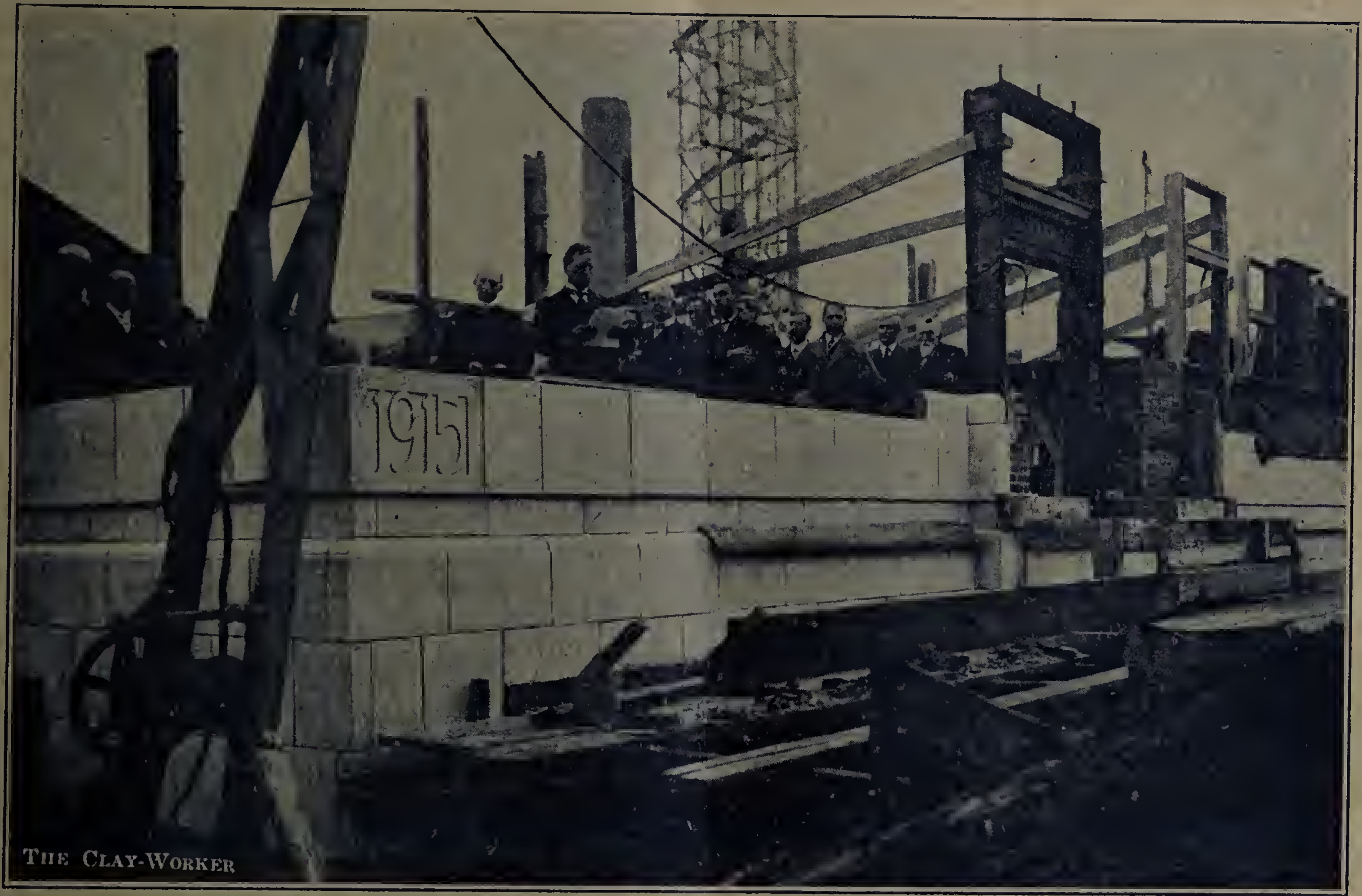
Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
**Cleveland, Ohio**

Chicago: 506 S. Canal St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802.
Baltimore: Munsey Bldg. Kansas City: N. Y. Life Bldg.

OCTOBER, 1915

# THE CLAY-WORKER



Laying the Corner Stone, a Terra Cotta Block, of the Ceramic Engineering Building of the University of Illinois, September 27. See page 381.

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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BUYERS' READY REFERENCE LIST
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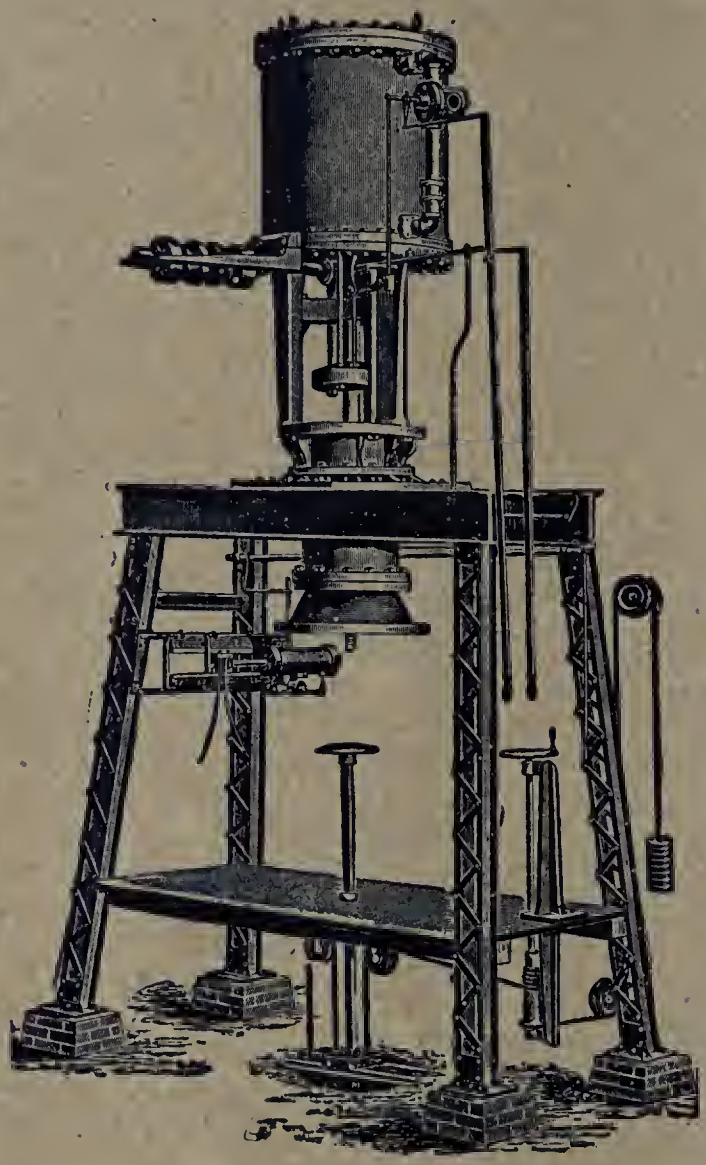
All men get stung sometime. Some men get stung all the time, except the ones who buy PIONEER CLAYWORKING MACHINERY.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

---

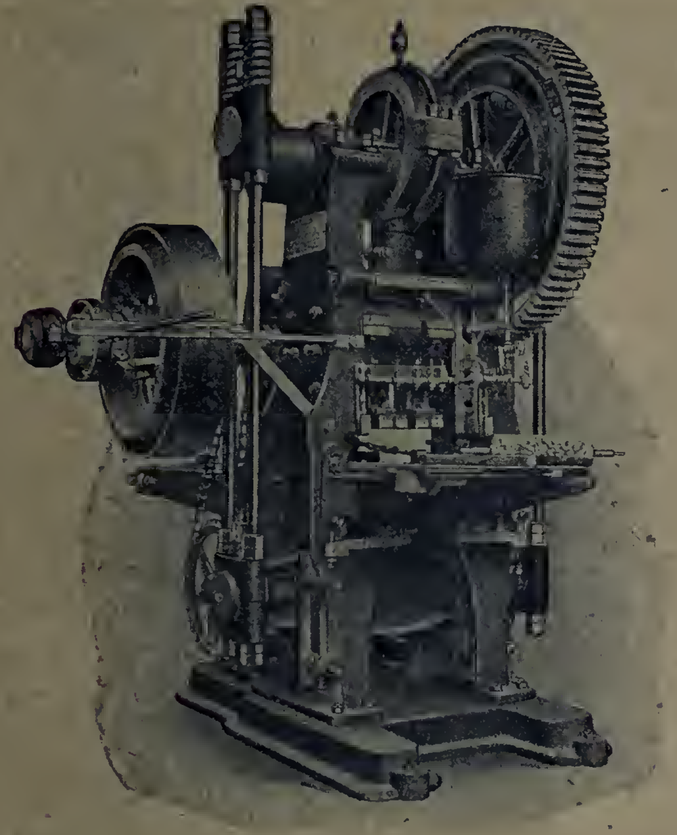
**THE TAPLIN, RICE-CLERKIN CO.**

**Akron, Ohio**

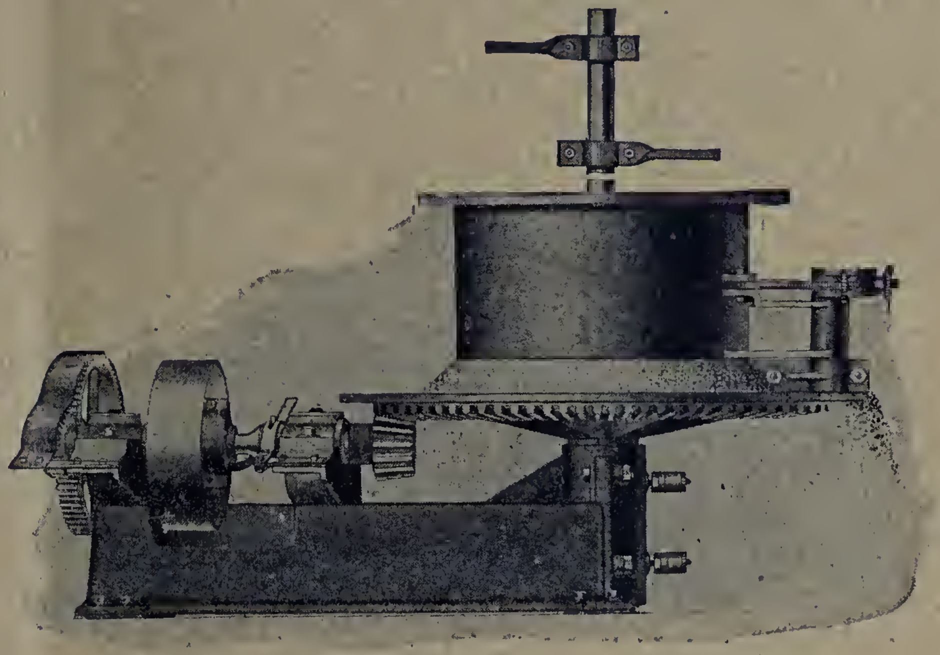
The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

**We manufacture a complete line of machinery for Brick and Hollow Ware.**

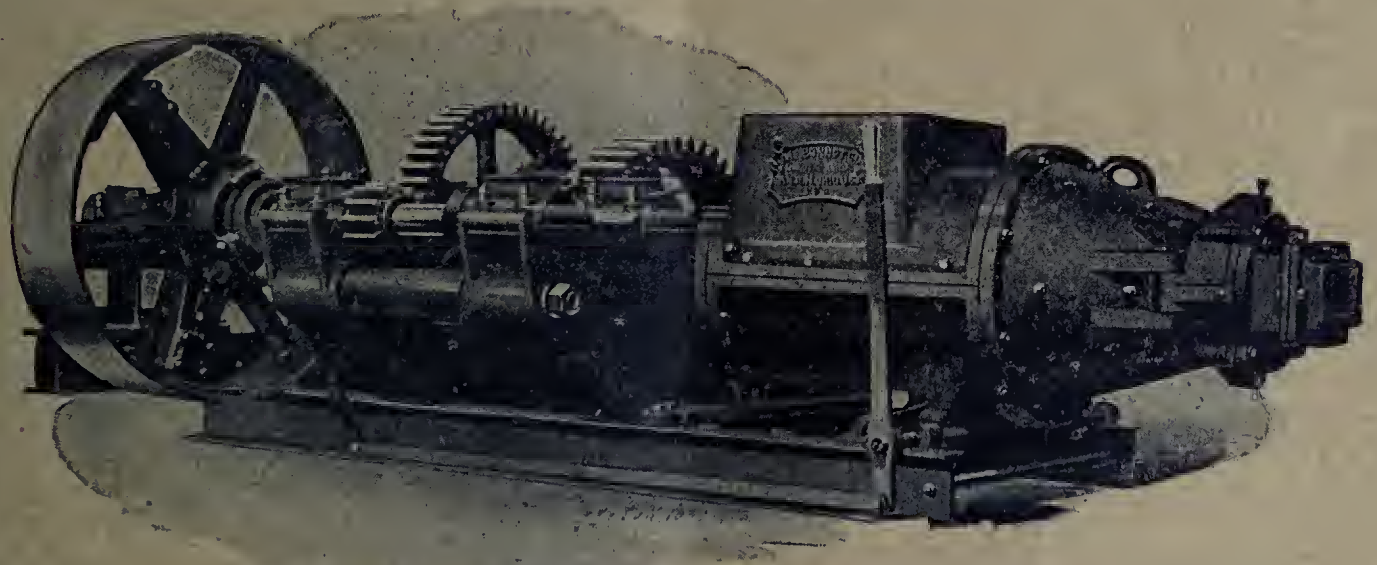
Complete catalog sent on request.



BONNOT REPRESS.



CLAY FEEDER.



AUGER MACHINE, 50,000-70,000 CAPACITY.

# THE BONNOT COMPANY

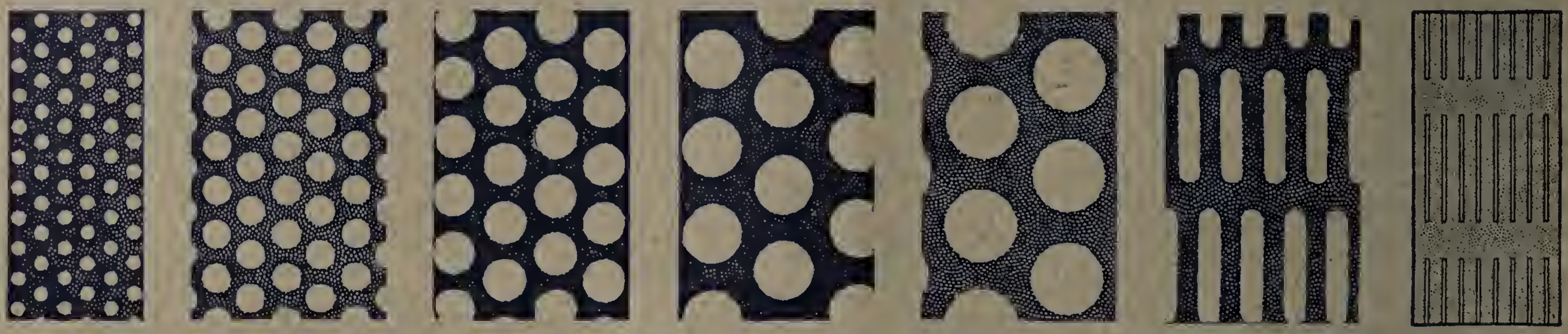
909 N. Y. Life Bldg., KANSAS CITY, MO. CANTON, OHIO
211 Higgins Bldg., LOS ANGELES, CAL.

Mention THE CLAY-WORKER.

PERFORATED STEEL SCREENS

FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

**Five Men will Load Sixty Thousand Brick per Day**

and do it easy. They can increase this to seventy-five thousand when necessary to get out rush orders.

Some of the letters we have on file from users of the Mathews Gravity Brick Conveyer give some startling figures. Several manufacturers claim that their men have handled brick on the conveyer at the rate of five thousand per hour.

If you make the mistake of considering what a Gravity Conveyer System will cost without regard for what it will save in salaries, you cannot accurately estimate its value as an investment. We can point out many other advantages, upon request.

SPEED
The MATHEWS WAY
MATHEWS GRAVITY CARRIER COMPANY
The SAVING WAY
ECONOMY

**No Power Required**

to run this conveyer. Just the weight of the brick resting on the steel, ball-bearing rollers causes them to run down a straight line of conveyer or turn right-angle corners without injury or danger of falling off.

RODGERS

RODGERS FOR DRYERS

# YOUR MONEY'S WORTH

in service, equipment, results and satisfaction—that's what you get when you transact business with the L. E. Rodgers Engineering Co.

You are *served* personally by our Mr. L. E. Rodgers, designer of

## RODGERS WASTE HEAT DRYERS,

every detail of your drying problem being worked out under his personal supervision.

You receive, for your money, *equipment* better than which it is impossible to build.

Rodgers designed and equipped Dryers *always* give *results* and results mean *satisfaction*.

Whether building a new plant, or remodeling an old one, if you want your

## MONEY'S WORTH

you can get it by intrusting your work to the

## L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists
Brick Works Engineers

Largest Manufacturers of Brick Drying Equipment in the United States

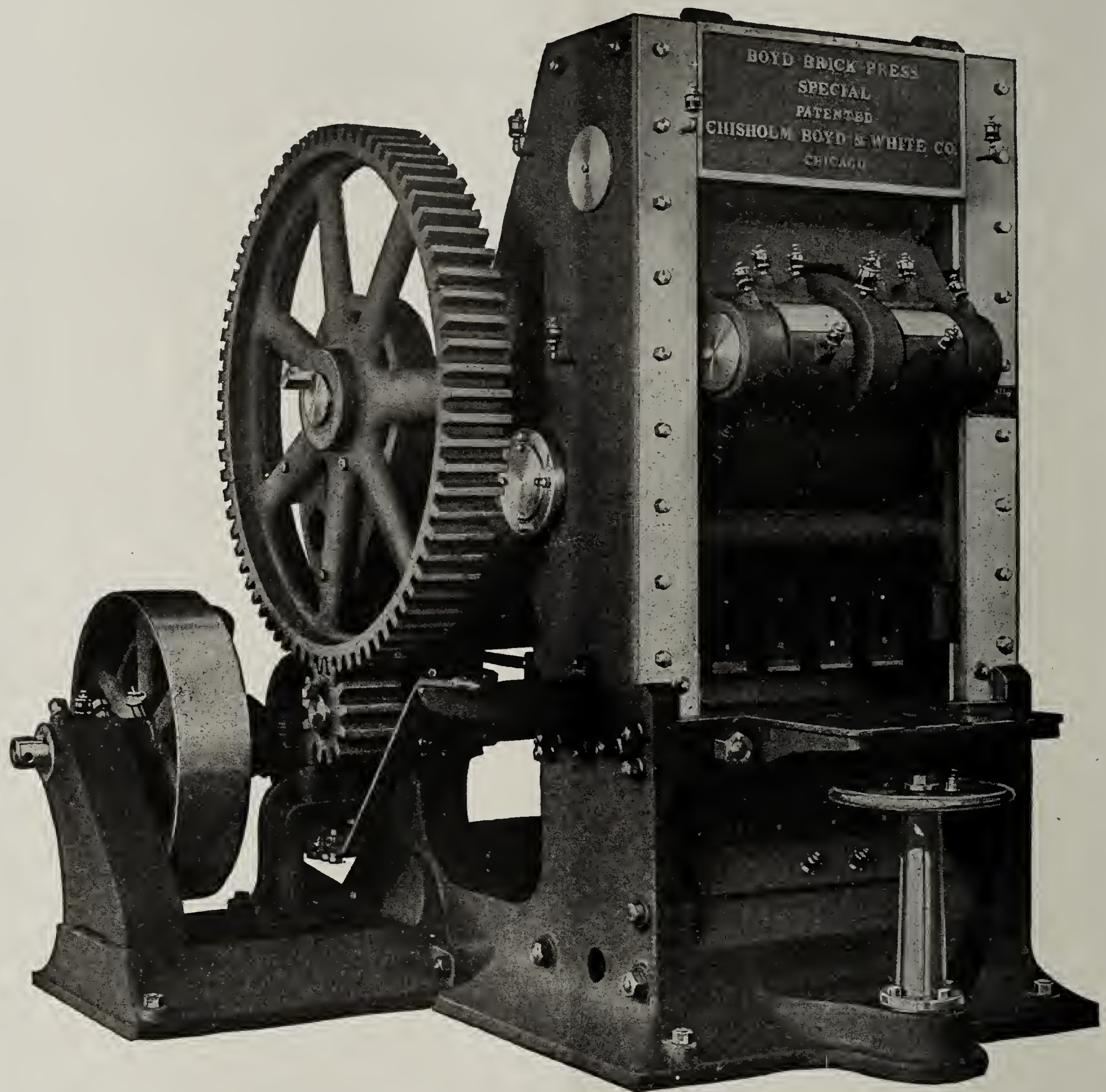
General Offices and Works

O
H ZANESVILLE, I
O

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED=PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

**Ammeters.**

The Brown Instrument Co.

**Analysists and Chemists.**

Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

**Arch Cutting Apparatus.**

Ceramic Supply & Con. Co.

**Automatic Clay Bin Emptier.**

Fate Co., The J. D.
Raymond Co., The C. W.

**Automatic Cutting Tables.**

(See Cutting Tables.)

**Barrows and Trucks.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Barytes, Carbonate of.**

Roessler-Hasslacher Chem. Co.

**Bearings, Roller.**

(See Supplies.)

**Belting.**

Ceramic Supply & Con. Co.
Gandy Belting Co.

**Belt Conveyors.**

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

**Blowers.**

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Boilers.**

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.

**Brick (Building).**

Bloomfield Clay Co.
Kushequa Brick Co.
Purington Paving Brick Co.

**Brick (Fire).**

Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

**Brick (Paving).**

Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

**Brick Conveyors.**

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.

**Brick and Tile Machinery.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Mchy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Brick Machines (Soft Mud).**

American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.

**Brick Machines (Stiff Mud).**

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The
Chambers Bros. Co.
Fate & Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Brick Machines (Dry Press).**

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.

**Brick Recutter.**

Raymond Co., The C. W.

**Brick Setting Machinery.**

American Clay Machinery Co.

**Buffing Machinery.**

American Clay Machinery Co.

**Burning and Drying Systems.**

American Clay Machinery Co.
American Blower Co.
Boss, John C.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Yates, Alfred.

**Cars.**

(See Dryer and Dumping Cars.)

**Castings.**

American Clay Machinery Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

**Ceramic Engineers.**

Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

**Clay Crushers and Pulverizers.**

American Clay Machinery Co.
American Pulverizer Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Clays.**

American Clay Machinery Co.
Bloomfield Clay Co., The

**Clay Dryers.**

American Process Co.
Schaffer Eng. & Equip. Co.

**Clay Feeders and Mixers.**

American Clay Machinery Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Marion Mach., Fdy. & Sup. Co.
Raymond Co., The C. W.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.

**Clay Gatherers.**

(See Scrapers.)

**Clay Steamers.**

American Clay Machinery Co.
Raymond Co., The C. W.

**Clay Technologists.**

American Clay Machinery Co.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

**Clutches.**

(See Supplies.)

**Coloring Materials.**

Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

**Cones.**

Orton, Edward, Jr.

**Conveying Machinery.**

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

**Continuous Kilns.**

American Clay Machinery Co.
Raymond Co., The C. W.

**Contracting Engineers.**

Ceramic Supply & Con. Co.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

**Couplings.**

(See Supplies.)

**Cutting Tables (Brick & Tile).**

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Cutting Wires.**

American Clay Machinery Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Mittler Wire Mfg. Co.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

**Dampers.**

(See Supplies.)

**Dies.**

(See Supplies.)

**Disintegrators.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Drills.**

Ceramic Supply & Con. Co.

**Drain Tile Machinery.**

(See Brick & Tile Machinery.)

**Drums, Hoisting and Winding.**

(See Supplies.)

**Dryers.**

American Blower Co.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

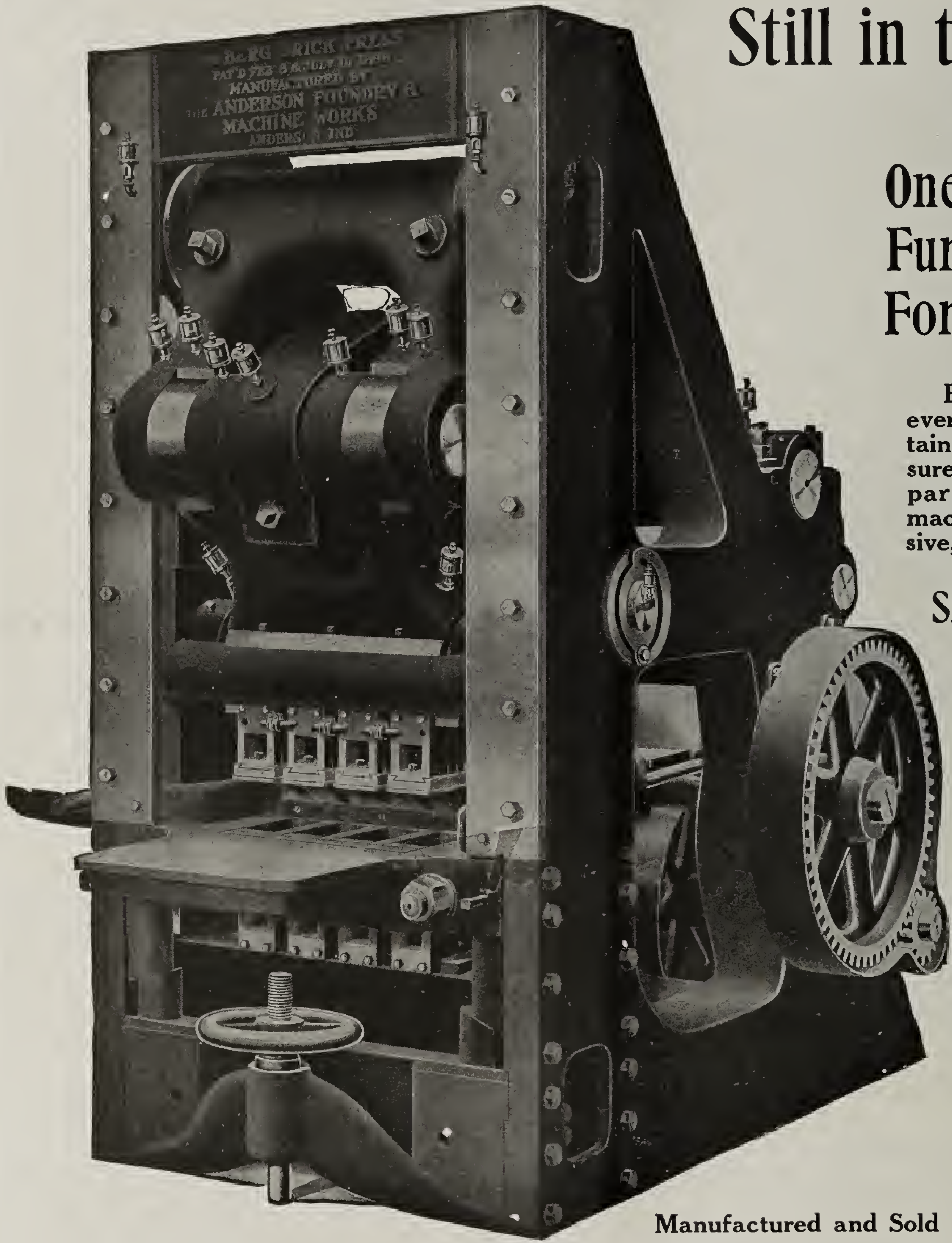
**Dryer Cars.**

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.

(Continued on page 369.)

NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



Still in the Lead

and

One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

SHIPPED IN ONE PIECE.

All Machines Are Equipped With

CUT GEARING.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

### Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.

### Electric Instruments.

Brown Instrument Co., The
Thwing Instrument Co.

### Electric Shovels.

Thew Automatic Shovel Co.

### Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

### Electrical Locomotives.

Atlas Car & Mfg. Co.

### Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.
Westinghouse Elec. & Mfg. Co.

### Elevating Equipment.

(See Conveyors.)

### Engines.

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

### Engineers.

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

### Fans.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Filler (Paving).

Barrett Mfg. Co.

### Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

### Fire Clay.

Bloomfield Clay Co.

### Floor Tile.

Chicago Ret. & Fire Brick Co.

### Flower Pot Machinery.

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The
Taplin-Rice-Clerkin Co.

### Friction Clutch Pulleys.

(See Supplies.)

### Furnaces.

Brown Instrument Co., The
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

### Gas Fire Continuous Kilns.

Raymond Co., The C. W.

### Gears.

(See Supplies.)

### Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Grates.

American Clay Machinery Co.
Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.

### Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

### Gravity Haulage.

American Clay Machinery Co.

### Grouter.

Marsh-Capron Mfg. Co.

### Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

### Hollow Blocks.

Smith, W. W.

### Hand Winch.

(See Supplies.)

### Hangers.

(See Supplies.)

### Hoists.

(See Supplies.)

### Hollow Brick Machinery.

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Illustrators.

Lamb, J. & R.

### Insurance.

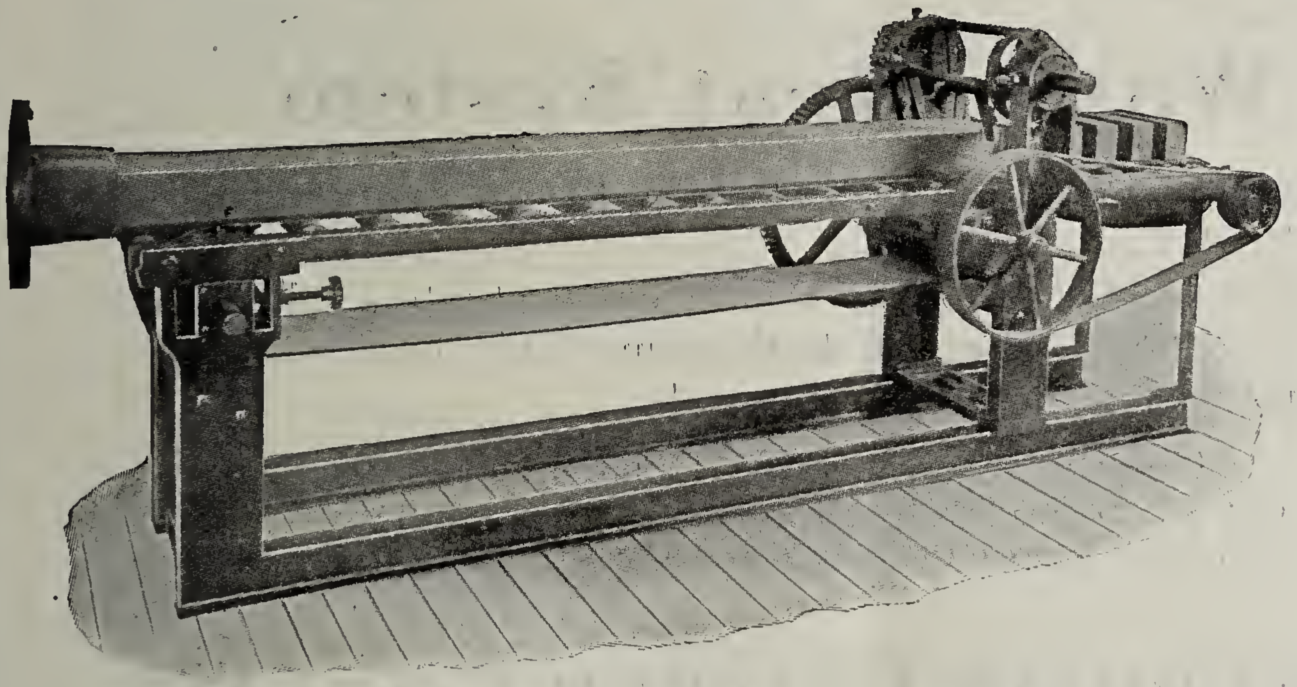
Mantle, Tile & Grate Monthly.

### Jacks.

(See Supplies.)

(Continued on page 371.)

MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

MUELLER BROS.

1436 Macklind Ave. (on Frisco Tracks) ST. LOUIS, MO.

The Layton, Pa., Plant of the Kier Fire Brick Co.

**BUILD WITH BRICK**

# 25,000 Silica Fire Brick

**are being dried every day by the**

**Sirocco**

TRADE MARK.

# Waste Heat System

are dried economically at the Layton, Pa., Plant of the Kier Fire Brick Co.

They decided to convert their waste heat into a valuable drying element. You can do the same. The cost is small as compared to the results obtained.

Our Brick Engineering Department will lay out a Sirocco System for you, by the installation of which **you** can turn a **waste** into a **gain.**

## AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

BRANCH OFFICES

New York, 141 Broadway
Rochester, Insurance Bldg.
Philadelphia, 605 Hale Bldg.
Pittsburgh, Empire Bldg.
Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.
Kansas City, R. A. Long Bldg.
Seattle, 538 Central Bldg.
Dallas, Texas, Southwestern Life Insurance Bldg.
San Francisco, Cal., 667 Mission St.
Los Angeles, Central Bldg.
Montreal, Que., Can., 301 McGill Bldg.
Indianapolis, 1462 Lemcke Annex.
Boston, Mass., 120 Milk St.

## Buyers Ready Reference List—Continued.

### Kilns.

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Klose, A.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred

### Kilns, Doors, Castings and Frames

(See Supplies.)

### Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.

### Knives.

(See Supplies.)

### Locomotives.

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

### Manganese.

(See Coloring Materials.)

### Mechanical Draft.

American Clay Machinery Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

### Mineral Paint.

(See Coloring Materials.)

### Molds (Brick).

American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.

### Mold Sanders.

American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.

### Mortar Colors.

(See Coloring Materials.)

### Motor Trucks.

Fate Co., The J. D.

### Oil Burners.

Sehurs Oil Burner Co.

### Paints.

(See Coloring Materials.)

### Pallets.

Fouts Co., The C. C.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

### Pans (Dry and Wet).

(See Dry and Wet Pans.)

### Paving Brick or Block.

(See Brick.)

### Perforated Sheet Metal.

Caldwell & Sons, H. W.
Ceramic Supply & Con. Co.
Harrington & King Perf. Co.

### Pitch (Paving).

Barrett Mfg. Co.

### Plows.

(See Scrapers.)

### Poidometers.

Schaffer Eng. & Equip. Co.

### Portable Track.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### Pottery Machinery.

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Roekwood Mfg. Co.
Taplin-Rice-Clerkin Co.

### Power Plant Equipment.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

### Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Pulleys.

(See Supplies.)

### Pulverizers.

American Clay Machinery Co.
American Pulverizer Co.
Fate Co., The J. D.
Taplin-Rice-Clerkin Co.

### Pumps.

Ceramic Supply & Con. Co.
Dean Bros. Steam Pump Wks.
Potts & Co., C. & A.

### Pyrometers.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

### Rails and Railway Equipment.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Ceramic Supply & Con. Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

### Rattlers (Paving Brick).

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

### Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

### Represses.

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Con. Co.

### Revolving Steam Shovels.

American Clay Machinery Co.
Thew Automatic Shovel Co.

(Continued on page 372.)

**Reduced Operating Costs**

Reduced cost is what every brick manufacturer wants now when the denand for brick is slack.

Our power engineers have convinced many owners of the economy of Westinghouse Motor Drive. The plants that are so equipped today are the ones which are saving money.

Give our power engineers a hearing. Their services are free.

**Westinghouse Electric & Manufacturing Co.**

Sales offices in all
large American cities

East Pittsburgh,
Pennsylvania

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Clay Machinery Co.
American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.

### Sand Dryer and Sand Sieves.

American Clay Machinery Co.
Ceramic Supply & Con. Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Lechtenberg Brothers.
Eagle Iron Works.

### Screens.

American Clay Machinery Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Lakewood Engineering Co.
Raymond, Co., The C. W.
Taplin-Rice-Clerkin Co.

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

American Clay Machinery Co.
Thew Automatic Shovel Co.

### Steam Specialties.

American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steam Traps.

American Clay Machinery Co.
American Blower Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Switches.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., H.
Brewer Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

American Clay Machinery Co.
Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

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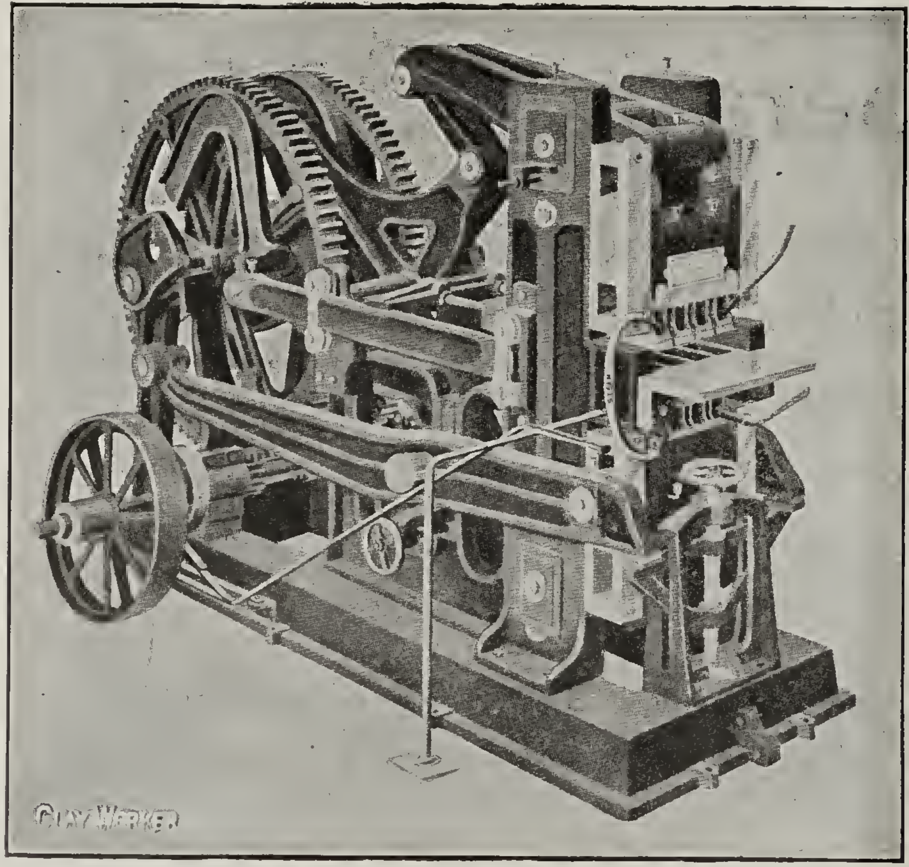


## Special Mold Box
In The
## Fernholtz Brick Press

The Mold is the heart of a brick machine and our press is fitted with a specially designed mold box which produces bricks with sharp, straight edges and corners. The Mold Box being assembled before placing it in the machine makes it possible to change molds in the shortest possible time.

Our press has many other special features which are fully explained in our catalog which we want to send to interested parties.

## The Fernholtz Brick Machinery Co.

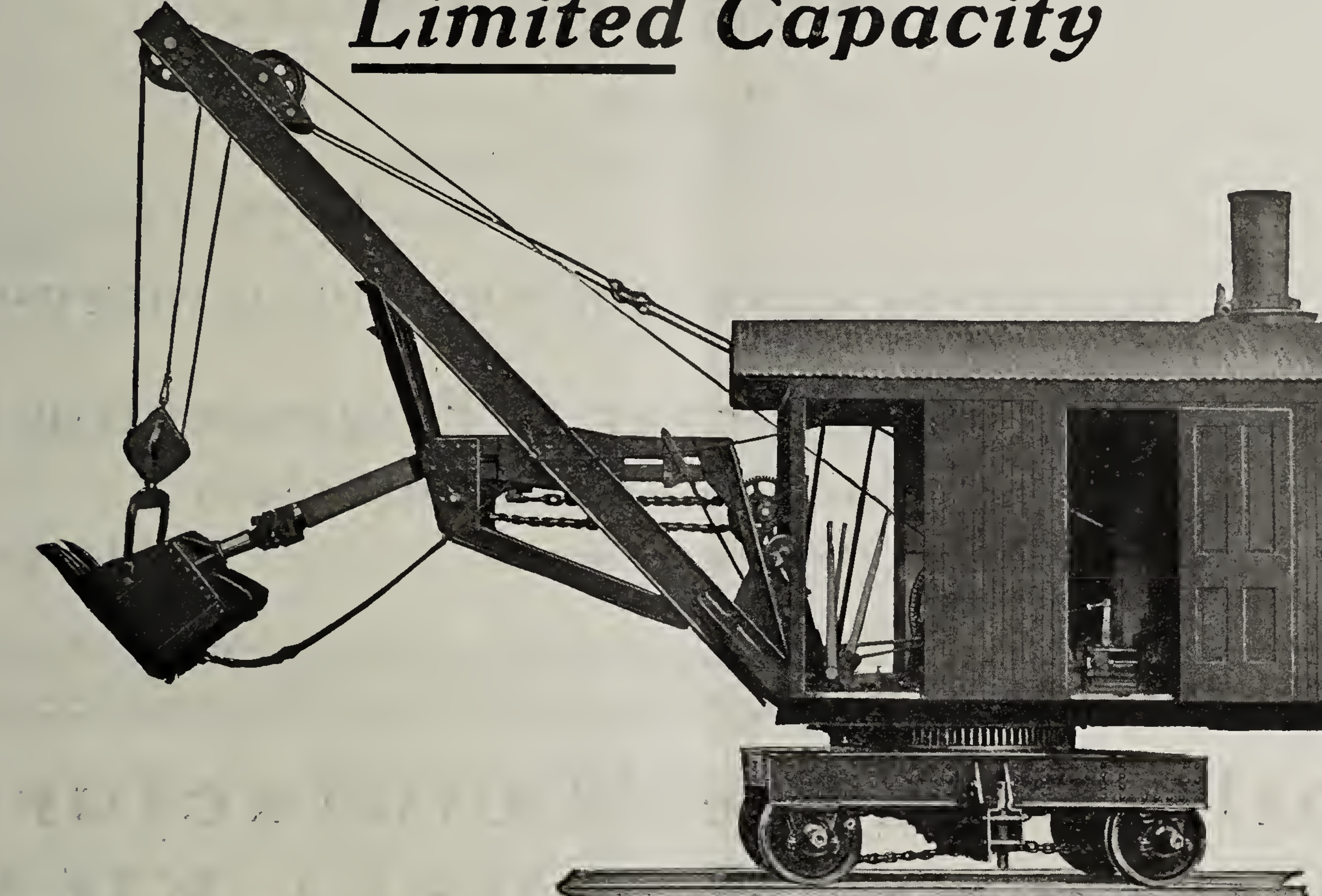
Boyle and Vandeventer Aves. ST. LOUIS, MO.

THE THEW SHOVELS

FULL CIRCLE SWING THEW HORIZONTAL CROWDING MOTION STEAM SHOVELS

# Type A0---A Smaller Thew Shovel

## *For Clayworking Plants of Limited Capacity*



MORE than 400 Thew Shovels are in use in clayworking plants, a fact which conclusively proves the adaptability of these shovels to this industry.

Until recently the Type 0 Shovel, weighing 18 tons, was the smallest and most generally used machine and the range of sizes adapted for clayworking varied from that up to Type 4, weighing 55 tons.

The success invariably experienced by clayworkers with Thew Shovels proved their design and operating features to be ideal and emphasized the need of a somewhat smaller shovel for the plant with more limited capacity.

The Type A0 Thew Steam Shovel was designed to meet this demand and it affords the owners of these plants an economical advantage, equal to that enjoyed by their larger competitors.

The Type A0 Steam Shovel is small, light, simple in operation, readily portable, and ample in every way for the requirements of the modern clayworking industry.

Weight, 15 tons; dipper, 5/8 cu. yds. capacity; hoisting engines, 5x6 inches; swinging and crowding engines, 4x5 inches; boiler built to Massachusetts specifications for pressure up to 150 pounds.

Owners of clay plants who heretofore considered their plants not large enough to justify a steam shovel will be interested by obtaining additional information about this Type A0 Thew

Sign and Mail or Use for Memorandum

**The Thew Automatic Shovel Co.**
**Lorain, Ohio**

Send us at once literature and complete information about your Type A0 shovel advertised in The Clay-Worker.

Name ..............................

Address ..............................

**THE THEW AUTOMATIC SHOVEL CO.** LORAIN OHIO

Trautwein
DRYERS

# INSURE YOUR CAPACITY

To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

## ASSURANCE

Of Increased Capacity
Greatest Economy
And Largest Profits

OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

**Trautwein Dryer & Engineering Co.**
**Manufacturers-Engineers**
**417 South Dearborn Street Chicago**

# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP-TO-DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

**Claude Smith Company**
**KILN BUILDERS**
**Plymouth Building Chicago, Illinois**

# JOIN THE

**BOOST** **BOOST**

# BUILD WITH BRICK

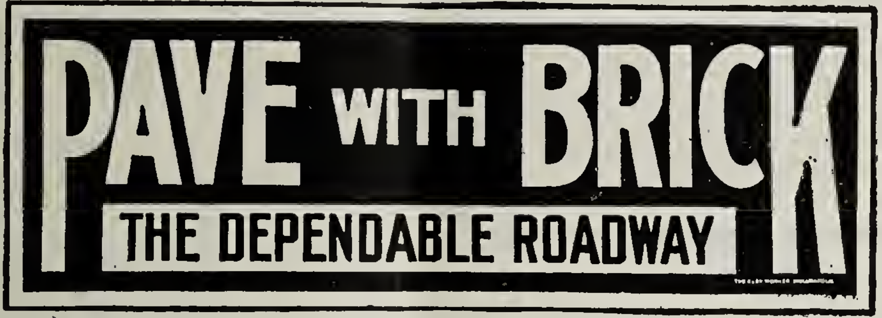
# CAMPAIGN

A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

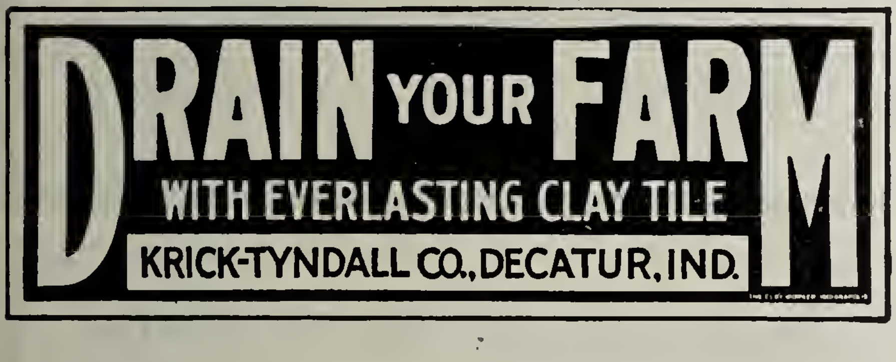
## THE BUILD WITH BRICK MOVEMENT.

IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.

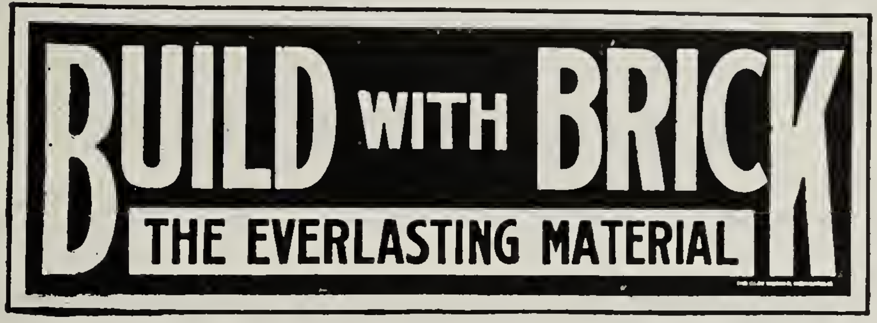


It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.



Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background. These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.

Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.



T. A. Randall & Co., Publishers The Clay-Worker.

Gentlemen:

You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ..............................................

..............................................

(Cross out the items not wanted, fill in and mail us the coupon.)

**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country,"
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

**SHAWMUT VITRIFIED PAVING BRICK WORKS**
Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

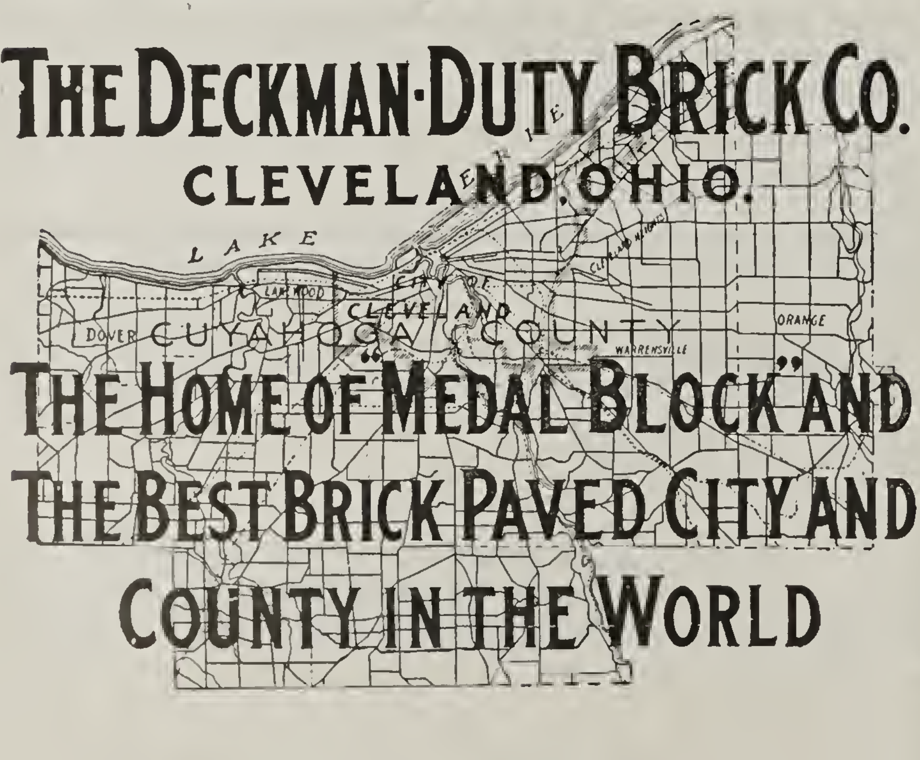
PAVING BUILDING · BRICK AND BLOCK · SIDEWALK FOUNDATION
**The Barr Clay Co.**
C. C. BARR, Pres., Streator, Ill.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED
**KUSHEQUA**
Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

**PROMENADE TILE**
Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

**Tile Underdrainage.**
By J. J. W. Billingsley. Price 25 Cents.
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

**THE DECKMAN-DUTY BRICK CO.**
CLEVELAND, OHIO.



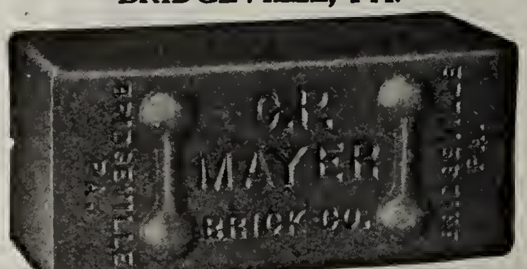
THE HOME OF "MEDAL BLOCK" AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

**ALTON BRICK COMPANY**
Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

**The Danville Brick Company**
Manufacturers of the Unsurpassed
**Danville Paving Block**
Danville, Ill.
LET US QUOTE YOU PRICES.

**McAVOY VITRIFIED BRICK COMPANY**
PHILADELPHIA, PA.
*"McAVOY BLOCK"*

**C. P. MAYER BRICK CO.**
BRIDGEVILLE, PA.



The MAYER BLOCK is Unequaled in Abrasion Test.

**"Best Paving Block Made"**

Daily Capacity
500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

**IRONSTONE BLOCK**

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

**Terre Haute Vitrified Brick Co.**
TERRE HAUTE, IND.

**Murphysboro Paving Brick Company**

Manufacturers of

The Celebrated

**EGYPTIAN PAVING BLOCK**

The Block That Stands the Test.

Prices and samples furnished upon application.

MURPHYSBORO, ILL.

**VITRIFIED PAVING BRICK**

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second edition.

Mailed to any address on receipt of $2.00.

**T. A. Randall & Co. (Inc.) Publishers**
Indianapolis

**CLINTON PAVING BRICK CO.**

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

**Clinton Paving Brick Company**
Clinton, Indiana

**PAVE WITH BRICK**

THE DEPENDABLE ROADWAY

THE CLAY WORKER, INDIANAPOLIS

**Bessemer Limestone Company**

Youngstown, Ohio.

Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

**PURINGTON PAVERS**

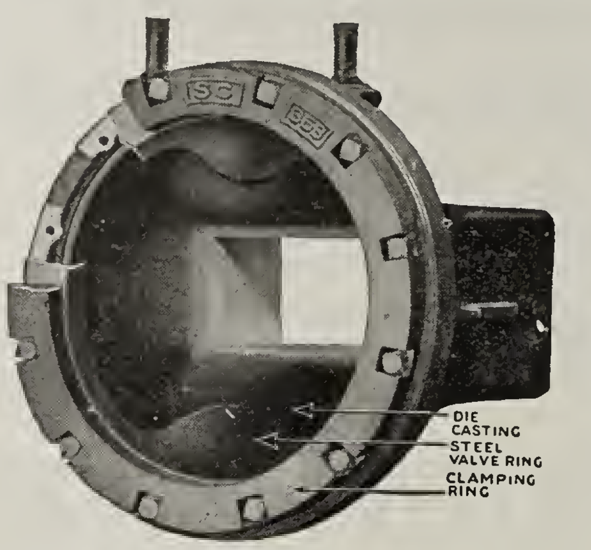
ARE MADE OF

**GALESBURG SHALE**

**PURINGTON PAVING BRICK CO.**
GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

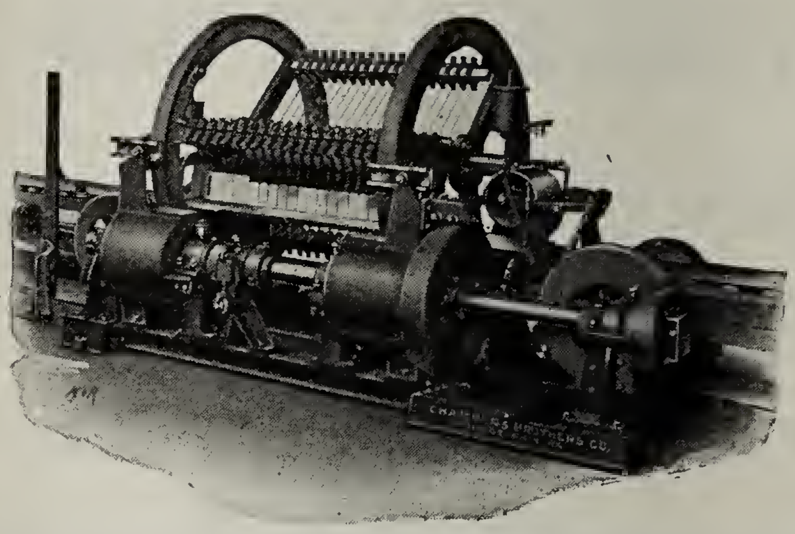
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

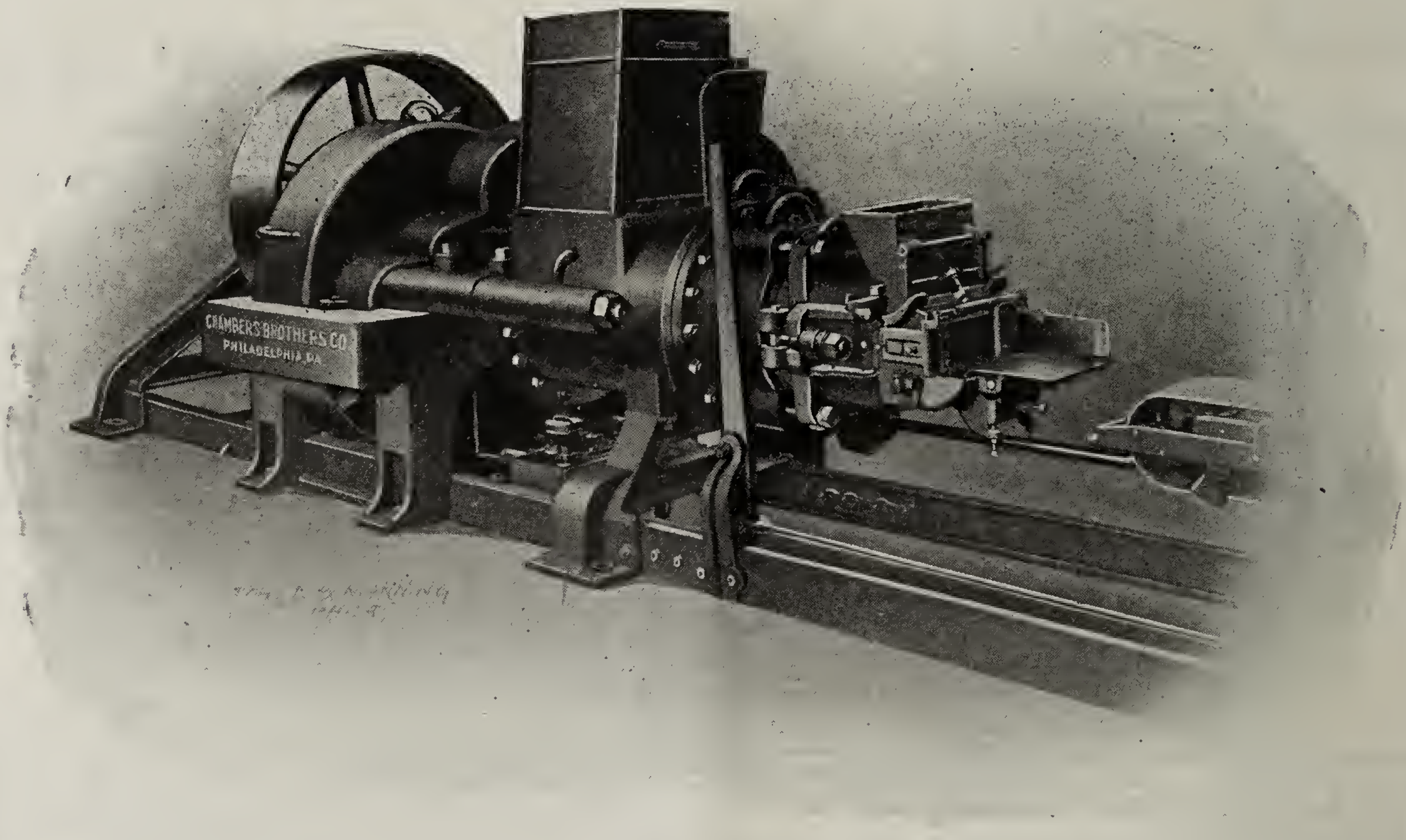
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

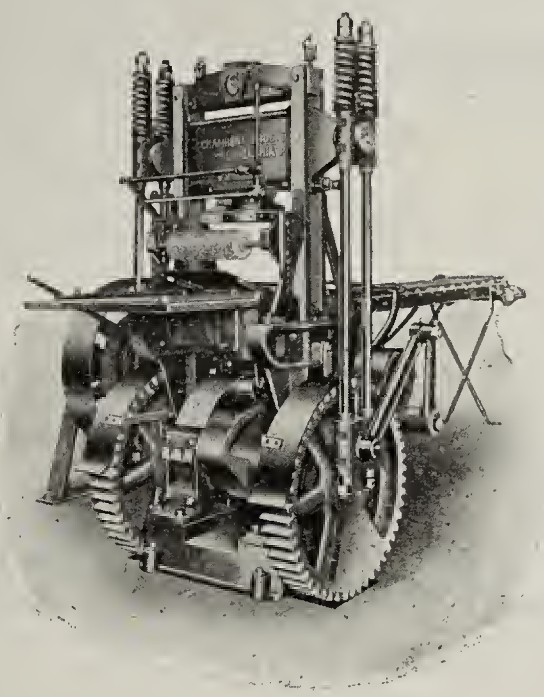
# Chambers Brothers Co., Philadelphia, Pa.

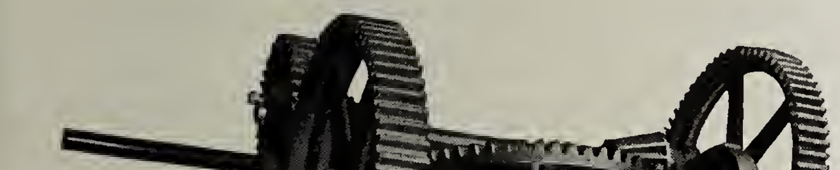
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

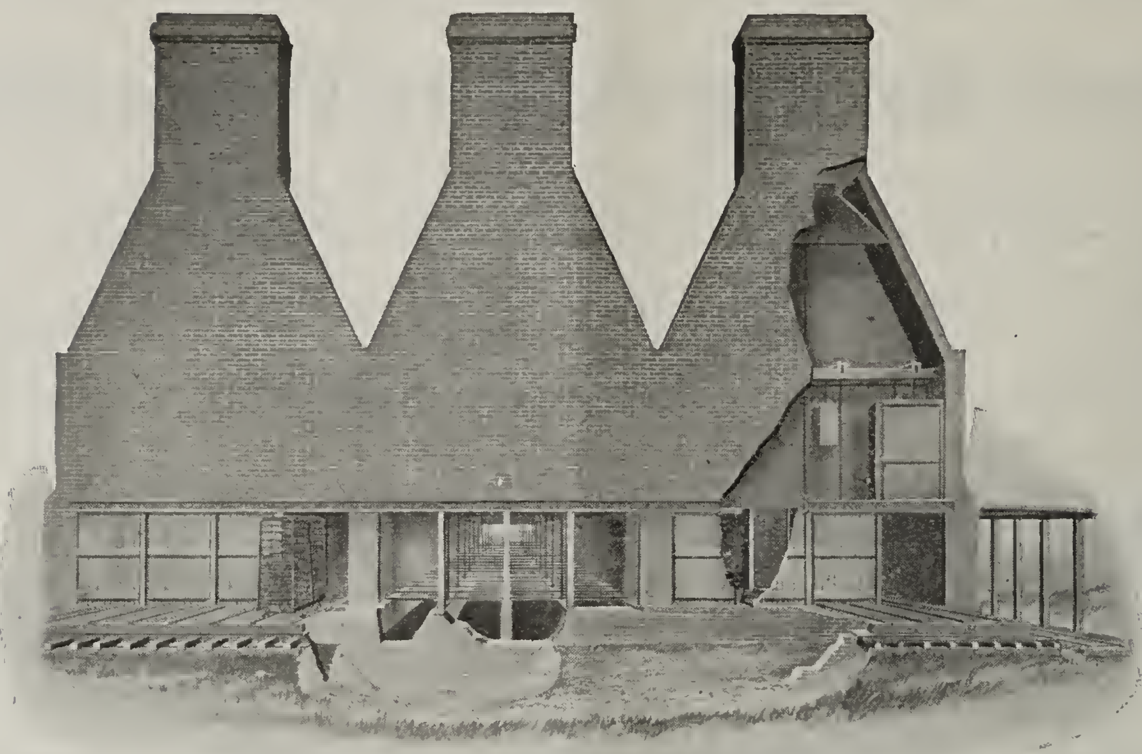
Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

THE BELMONT
SOFT MUD BRICK MACHINE

Molds sharp clean edge brick as stiff as can be dumped from the molds.



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WILL you let freezing temperature catch you again with the same troublesome old heating system in your drier? Remember what a time you had *last* winter---and winters before? Even if you're not ready for a complete new drying plant, let us figure with you *now* on installing

## The Standard Heating Apparatus

in your present drier. This heating system is *self-draining.* It doesn't need special attention, no matter how cold the weather gets. All expansion pipes are *horizontal.* There is no drop at either end of the system to pocket the condensation and stir up trouble.

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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXIV. INDIANAPOLIS, IND., OCTOBER, 1915. No. 4

# CERAMICS IN ILLINOIS.

### The Laying of the Cornerstone of the Ceramic Engineering Building at the University of Illinois a Most Momentous and Interesting Event in the Clayworking World.

ILLINOIS is rich in clays, but poor in the knowledge of using them. For this reason, the laying of a cornerstone of a building devoted to the study of ceramics and to investigations in the field of clay manufactures at the University of Illinois is a significant fact.

At 4 p. m. on Monday, September 27, the cornerstone of a building, that is to be three stories high with a ground area of 67x189 feet, was laid. Prominent citizens of the state were present. Addresses were given by Professor Edward Orton, Jr., dean of the College of Engineering, Ohio State University; Hon. Richard J. Barr, Illinois state senator, representing the Forty-first district; Mr. William D. Gates, representing the advisory board of the Department of Ceramic Engineering, and by Dr. Edmund J. James, president of the University of Illinois.

To many citizens of the country, it will certainly be a surprise to learn that the University of Illinois possesses the largest and best equipped school of ceramics in the world.

> *THE SCIENCE OF CLAYWORKING.*
>
> *"This Department of Ceramics has made valuable contributions to our stock of scientific knowledge in regard to clayworking; and through the teaching which it is doing it is training a considerable number of competent men to undertake the management of great clayworking enterprises, to head the scientific department of great clayworking undertakings, and themselves in course of time to add to our knowledge of the sciences, of the art, of this great department of human activity by their own original contributions."*
>
> *—President Edmund J. James.*

Commercial interests have been quick to seek out this school when in need of help. Brick and tile plants have been located upon the recommendation of the school, and not one is throwing its bricks at the university yet.

The citizens of Illinois and surrounding states who are choosing an occupation should turn a thoughtful eye upon this field of study and investigation. It does not invite the idler; but, for the man willing to work, there is wide opportunity in the ceramics field. For instance, consider the possibility in a single line. Undoubtedly, millions of dollars are spent every year in Chicago for chinaware dinner sets. Practically none are made in Illinois; yet in southern Illinois, white clay or kaolin is mined. Illinois produces the kaolin, the ball-clay, the potter's clay, every material except one—feldspar—used in the manufacture of white chinaware. Pennsylvania produces feldspar, and for cash would gladly sell it to Illinois. Other states, noted for clay products, do not produce all of their materials. Ohio assembles its feldspar from Pennsylvania, its white clay from Illinois, and, as a result, every year exceeds the pottery output of Illinois by $19,000,000.

From these facts it is easy to understand that there is great need of a school of ceramics, that will train men to develop this important industry in the state.

Every year, a two weeks' short course is offered to manufacturers and practical clayworkers. The attendance is increasing year by year, and is always enthusiastic.

If you are young and seeking a profession, with plenty of vitality and not born tired, you will do well to consider the ceramic school.

### Address Delivered by Prof. Edward Orton, Jr., Dean College of Engineering, Ohio State University.

A new expenditure of unprecedented magnitude is being inaugurated here today to provide opportunities for the study of the problems of the clay and allied industries, and for the training of young men to enter these industries on a professional or engineering basis. Twenty-five years ago, such an idea had not found an expression in any university in the world. True, there existed in one or two European countries a very few small institutions of about the grade represented by the trade schools or possibly technical high schools in America today, in which the practical and manual arts of one or another branch of the clay industry were taught, together with a little work in the fundamental sciences. These schools were in every case independently organized institutions, not attached to the general schools of the country, and each one devoted itself to training its pupils for one industry only—

pottery making in one, brick in another, etc. The ceramic school of university grade is a distinctly American institution.

The change in the educational ideas disclosed between ceramic training of twenty-five years ago, and that being given here and elsewhere in America today, is a startling one. And now, at the beginning of still greater and more ambitious preparations, it seems wise and appropriate to cross-examine ourselves, and make sure that we are on the right track and that we can give a reason for the faith that is in us.

I shall waste no time in defending the merits of technical education in general. Its beginning some seventy-five years ago has been traced by many broader scholars than I, and the beneficent results of such education have been increasingly felt in this country in every department of our national organization—in every fiber of our social fabric—as the great and steadily increasing stream of trained men is absorbed and utilized. I think that every one here admits that technical education in the large sense is a good thing—a social need, a national necessity.

But, among the friends of technical education there are some, perhaps many, possibly even a majority, who think they perceive in the present increasing subdivision of technical education, in the growing number of courses, with the implied narrowing of the field occupied by any one course, a real and serious danger. This view has been voiced in no uncertain terms by many eminent engineers, manufacturers and industrial leaders during the last ten or fifteen years, and it seems as if this chorus is rising in volume rather than falling.

The Ceramic Engineering Building, University of Illinois, as It Will Appear When Finished.

The complaint of the users of engineering graduates is most commonly directed to their lack of grasp and power to use their fundamentals—their mechanics, their physics, their mathematics, their English. They say that the young engineer has been over so many subjects, that he hasn't had time to go through any; that engineering teachers take such pride in being themselves up to date and acquainted with the latest kink in their respective fields, that they try to impart their newer views, and their opinions on the very frontiers of knowledge, to their classes. They are accused of forgetting that the capacity of any group of healthy, vigorous young men to absorb knowledge and to acquire power to use knowledge in novel fields is about the same from year to year. Of course, individuals vary, but large averages do not vary much. And, if the young engineer of 1860 was given enough to do in his course in civil engineering, what shall we say of the young engineer of 1880, and 1900, and 1915, when we perceive that each double decade has brought more and more matter into the curriculum? To borrow a homely illustration from the kitchen, the housewife can't get any more preserves into a quart jar now than she could ten years ago, notwithstanding she has in the meantime greatly extended her variety of recipes, and the fruit available has perhaps become a choicer quality. Our technical professors are accused of trying to can more fruit than their cans will hold.

Not a few eminent engineers and large employers of engineering labor have urged the technical schools to give over trying to do the impossible, and to return to the simpler, less differentiated courses, with more time on each subject and more practice in the application of each subject taught. They take the ground that engineering and science are constantly progressing and will continue to progress; that the task of making a four-year graduate fully acquainted with even the outlines of his field becomes less and less possible; that, in the nature of the case, the industries themselves must act as the final schools for the young engineers who are being brought in for the maintenance and extension of these industries, and that they actually prefer to take a young engineer who has had the fundamentals of his course only, on the ground that he learns what they desire him to know of their special business better and faster than one who has spent his time in studying the refinements and subdivisions of the field as a whole.

These appeals from the industry have, if anything, grown in volume and insistence in the last decade. But, the technical schools have, so far as I can discern, not yielded much, if anything, to them. Engineering courses continue complex, subdivided and packed with little job lots of knowledge about this or that special topic, and the fundamentals cannot be increased in time or thoroughness, except at the expense of elimination of some of the upper story.

In my judgment, the discussion of this educational policy must continue and increase until it brings action. I think the discussion which is now going on so vigorously in engineering school circles must have a beneficial result, and that we shall shortly see technical schools settling down to a much better defined and less pretentious schedule. The four-year technical course of the future will, in my opinion, prepare young men to enter their profession as beginners, with the very clear understanding that expert knowledge of any field must come through the specialized schools maintained in and by the various industries themselves, or the graduate research and experiment stations at the universities, or both. In fact, noteworthy examples of just such industrial schools and apprentice courses are now to be found in many large industries, though their significance and eminently rational place in an adequate system of technical education is not always recognized by either engineering professors or engineering graduates.

The bearing of this discussion of engineering or technical education on the case in hand here today may not at first be clear. We are gathered together to lay the cornerstone of a new structure—the greatest of its kind in the world—whose purpose is to teach one of these very subdivisions of knowledge, which has been described and in a way frowned upon in the precedng discussion. Is it justifiable, educationally and industrially, to make such splendid provision to carry out a plan, whose foundation principles are still under debate?

In answer to this question, which we must in all fairness meet, I may say that we must distinguish sharply between subdividing a field of knowledge and cramming a course of instruction. That which American technical schools have been doing in the past is dangerously like both subdivision and cramming. I have shown that our ambitious professors are under constant temptation to tell a little of everything in their effort to keep their work up to date, and that subdivision of courses of instruction has seemed to intensify this evil rather than to minimize it.

Subdivision of the field of knowledge in technical schools is not, per se, a danger or a weakness. Rather, it is a frank recognition of the logic of modern life. It becomes a weakness whenever the training becomes superficial—whenever the mass of detail is allowed to obscure or replace the foundation. In fact, subdivision of our courses of study is not only not inconsistent with sound educational processes, but may be regarded as a step towards strengthening them. The subdivision of civil engineering, for instance, into railroad engineering, sanitary engineering, municipal engineering, structural engineering, hydraulic or irrigation engineering, etc., to a large extent relieves the tendency to try to crowd a little of each of these subjects into one undivided or unspecialized civil engineering course—in short, it removes the strongest inducement to cram a course with more than it ought to contain.

On the other hand, subdivision in itself is no safeguard against cramming; the temptation to cram is still there and must be resisted by both the school authorities and the students and the industries who are the ultimate consumers. For instance, if a student, whose taste is for chemistry, takes a course in ceramic engineering, instead of a course in general chemistry or chemical engineering, he naturally feels that, with his time concentrated upon this one small subdivision of the enormous chemical field, he should become relatively much more expert, and that his knowledge on graduation should be more complete in the field of ceramics than it could have become in the undifferentiated field of chemistry as a whole. He will naturally tend to exert pressure upon his professor to give this additional specialization. The views of undergraduates are almost always crude and materialistic in such matters, and they nearly always tend to overestimate the importance of special knowledge over general principles. Consequently, it will require undoubted moral courage on the part of the professor to resist this call for details and insist on the thoroughness of the foundation.

The thing which made the old course of two generations ago strong—which enabled it to train the men who have made American engineering famous, and that without laboratories or equipment to compare with what our technical high schools now possess—was the thoroughness of the drill in the foundation subjects. With a curriculum meagerly representing engineering, these early schools produced engineers who became famous. Why? Because they hammered their physics and mathematics and English in, until the student could use them.

It is no longer possible or desirable for our schools to try to obtain the results of two or three generations ago by return to the methods of that time. Such an effort would be everywhere resisted. The old-fashioned, all-round scholar, who was a cultured gentleman first and always, and who knew something in every field, was the product of a social system which has gone. It is not feasible to recreate him, if we would. But, the principles which made the education of that day sound and productive and fertile are still the same! It is just as possible to build sound scholarship and useful citizenship now as then. All that is necessary is to preserve the principle of thoroughness in all that is done; to direct the educational process towards producing power to think; to insist that time for independent thought shall be found, and that the test of the success of the student shall be his ability not only to remember principles and laws, but to use them as the tools of his profession.

Any good engineering course must, in the nature of the case, contain the same foundation. The foundation subjects, developed as far as is needed for securing the working power above described, will require from 50 to 60 per cent. of the time of the engineering student in his four years. In the first year, they take practically all of his time. As he goes further, descriptive and specialized courses, founded upon or utilizing the foundation courses, come in, together with some few, a more general cultural value. Towards the last, these specialized courses may comprise a large part of the work.

The acquirement of the power of constructive thought, which is the object of all technical education, can be had through one set of descriptive subjects as well as through another. I hold that it is immaterial whether the illustrative matter in a course of education is chosen from civil engineering or mechanical engineering or chemical engineering. I hold, equally, that it matters not one jot whether it be ceramic engineering or electro-chemistry or aeronautics. Any subject will answer, if it involves the use of fundamental engineering concepts. The fundamental sciences are the teeth—the technical arts or industries are the bones to try these teeth upon. And it is the same teeth in any case! Further, the bones in the ceramic course are just as hard and just as worthy of cracking as those of any other applied science.

Prof. Edward Orton, Columbus, Ohio.

It is perfectly true, therefore, that, in our modern specialized and subdivided technical education, we may be weakening our product and discrediting the engineering profession, or we may be creating strong, virile thinkers and apt workers who will be the leaders in their field, according as we disobey old and tried principles or obey them. A specialized education is not, per se, either a good one or a bad one; it is not necessarily either strong or weak. It is as easy to train the human mind, using illustrations and problems from one industrial field or scientific field as from another. The whole value of the process, and the strength of the character produced, will depend not upon the technical content of a course of instruction, but upon the thoroughness with which the foundation is laid, and the persistence with which the principles are applied as the work progresses.

I have said nothing upon the other phases of this great undertaking; of its immense value to the industry to which it serves, as a research station for the settling of technical troubles; as a source of trained men, fitted for the management and expansion of the industries; as a place for the establishment of standards for commercial transactions. To discuss these phases of the subject alone would occupy more time than the total at my disposal. I hope they may be touched upon by the other speakers.

Suffice it to say that these material advantages are so great, and have by now become so patent to the industries themselves, that no mere academic disapproval on the part of the university authorities of the theoretical or educational policy involved would suffice to quiet the storm if such courses were not supported and extended. If my reasoning had shown that the technical courses had become, as some people think, a menace to real education and high-grade citizenship, and that they should be given up in a return to a simpler type of training, there would be a strong desire to go on with them, in spite of such arguments, on account of their practical value.

Wm. D. Gates, Chicago, Ill.

Happily, this contest between schools and factories has no reason to arise. The needs of the public, and the needs of the school, and the needs of the factories are identical and are all met by one and the same plan.

The establishment of this great equipment at the University of Illinois for the teaching of a science or art, but newly recognized as a fit subject for university attention, is therefore a cause for congratulation and rejoicing, not only among the clay industries, which are the chief and most direct beneficiaries, but in the university as a whole, and the people of the state and the people of the land. In it, I see not only a great engine for research, by which the problems and troubles of the most ancient of industries will be increasingly simplified, and by which the industrial achievements of the state and the nation will be increasingly assisted and directed, but also another avenue for the building of high-grade scholarship and useful, honorable citizenship.

Under the management of this great institution, guided by the farsighted educational leaders who here preside, and the technical experts who are so enthusiastically driving forward in their field, I predict for this department of ceramic engineering a career which will add laurels to the university, and bring rich return to the people of Illinois, whose wisdom and generosity have made it possible. (Applause.)

### Address Delivered by Mr. William D. Gates, President of the American Terra Cotta and Ceramic Company, Chicago, Representing the Advisory Board for the Department of Ceramic Engineering.

Following immemorial custom, it has been here arranged that the member of the board who has done the least in the past shall now do the talking for the board. The men who had worked and toiled and accomplished stood abashed when asked to talk. For the first time they hesitated, and said: "Here, Gates, you haven't done anything; do your part; go in and tell them about it. We did all the rest, now you take the credit."

Really, the idea of appointing this advisory board was, in a measure, an inspiration. The only thing a clayworker has a surplus of is advice. He has all he can use and then a large surplus to give away, and of it he is absolutely prodigal in the giving. So that being appointed on a board for the express purpose of giving this advice was a direct means of disposal of the large quantities of accumulated stock of advice, and to get this disposed of was our first glad effort, so the board went to it.

They found at the very beginning that the first active recipients of their advice should be the legislature and the committees on appropriation. Right here was where the quiet, modest, silent members of the board got in very effective work. While they shrank from talking to a crowd, they simply reveled in talking, effectively, to one man at a time, and they fought for and they got their appropriations, modestly small at first, but ambitiously growing year after year.

Clayworkers are enthusiastic. They believe in their work. They know not what defeat is. They may be whipped, but they never acknowledge it, and fight on so persistently that no one finds it out and so they win. These working members of this board were this kind of men, resourceful, diligent, persistent. They went after victory and brooked nothing else.

Untold centuries ago, the Omnipotent, in His wondrous wisdom, began and kept up through the countless ages His preparation of the material we use. For the future structural use of mankind he prepared the marbles of Vermont and the granite of Maine. These he made as finished material so that all man had to do was to quarry them and shape them to his use. For the best use and for the real material, though, he set at work his most powerful agents, heat and cold, ice and snow, the glacier with its massive grinding, the wash of the wave on the shore, and the slight but never ceasing grind of the pebble on the beach. Through ages of grinding he prepared the material and washed it and sifted it, laying it away in great beds and covering it and hiding it under the great prairies of Illinois. This carefully prepared material lacked only one ingredient to make it perfect and effective. It must have brains mixed with it. This he left for mankind to do. The material was prepared, hidden and waiting for the men.

This building, of which you are to lay the corner-stone, will make the men. The hidden material for their use is abundant now and the surface has been only scratched. The state has the youth, eager, active, full of the required enthusiasm, and within this building they will develop and grow and build that missing ingredient for the material the Almighty has prepared, which will make the reputation of Illinois world-wide for her clays and for her clayworkers. It was not the clay of Florence, but the mixing into that clay the brain of Della Robbia that has put that ware in the museums of the world as priceless treasure.

So this is no ordinary occasion. It marks the making of men as well as ware. This corner-stone is a mile post that points to great future accomplishment, the realization of which shall be for future generations, and in which we are but pioneers and prophets. On a ledge of rock, on a beetling cliff, in a prehistoric home of the cliff dwellers, on a wall plastered with clay, there remains today the clear-cut impress of a childish hand, playfully, thoughtlessly, impulsively, but permanently impressed. Untold ages have passed, but the impress remains, though for ages that child has been dust.

We are today putting the impress of our hand in this building, not heedlessly, not childishly, not thoughtlessly, but manfully, wisely, thoughtfully and purposely to stand for future generations, looking confidently not only to the making of clay wares, but to the making of men as well.

## Abstract of Remarks at the Laying of the Corner-Stone of the New Ceramics Building at the University of Illinois, September 27, 1915, by Edmund J. James, President of the University.

The erection of this building typifies, in a remarkable way, the manner in which the University of Illinois has grown from a small institution to be a large one, from a simple institution to be a very complex one.

Someone, of course, must have had the original idea, the dream, the conception, of such a department and such a building.

I do not know who first conceived this great undertaking. It may have been a brick manufacturer or a manufacturer of sewer pipe or roofing tile, or possibly some geologist or minerologist.

I do happen to know, however, that Professor Charles W. Rolfe, head of the department of geology in the University of Illinois, deserves the chief credit for presenting and pushing the idea here in the university which has resulted in the great creation which you see at present.

It is true that when he presented the idea first to me, in order that I might lay it before the board of trustees, he urged that the establishment of the department of ceramics was desired—nay, demanded—by the brickmakers and sewer pipe manufacturers of the commonwealth.

But I have had much experience in these things and I feel quite sure that Professor Rolfe himself had much to do with creating and cultivating this demand. He suggested the project, undoubtedly, to them and begged them to use their influence with the trustees and the legislators to secure the requisite action. The group of courses offered in this department is entitled "The Courses in Ceramics and Ceramic Engineering."

Someone asked me not long ago what ceramics is. I replied: "It is both an art and a science. As a science it is the sum total of what we know about the principles underlying the art of clayworking, especially as applied to paving brick and sewer pipe." "What, then, is keramics?" my friend inquired. "The same thing," I said, "except that it is the art of clayworking as applied to making porcelain, faience and fine terra cotta." There is the same difference between ceramics and keramics as between a vase and a väze, the former being a ten-cent väze and the latter a thousand-dollar vase.

We have thus far simply a department of ceramics. We are looking forward to the time when we shall become a department of keramics.

Pleasantry aside, we have in this department of the university one of the most important and significant n the whole range of our scientific and practical instruction.

The clayworking industries of the state are already numerous and important and destined to become more so. At present, they are engaged primarily with the ruder sort of clay products, though, as you will see when this building whose corner-stone we lay today is finished, we have already reached a point where the artistic element is becoming of fundamental importance.

The clayworking industries belong to the very oldest industries of the human race and their products outlasted the products of any other form of human industry, except possibly the jewelers.

The making of pots to hold water, to serve as cooking dishes, to decorate the hut, antedates in time all records of human history. The making of clay tablets to write on antedates all paper, leather or papyri, and has outlasted them all. The oldest earthenware dishes, ornamental tablets, drain pipes, antedate all stone or granite monuments erected by men.

With the textiles, the clay products seem to have called forth the first attempts of human beings to develop the decorative arts and the products of the keramics art represent the very highest point reached by human effort in certain lines of grace and beauty.

Prof. A. V. Bleininger, Urbana, Ill.

When our department of ceramics has grown into one of keramics, we shall be concerned not only about the scientific principles underlying the successful art of clayworking in all its ramifications, but we shall be quite as much concerned about the cultivation of the art side, with all which that means for the advance of human culture and welfare. We shall produce not only paving brick and sewer pipe, but the very highest forms of the keramics art in all its different manifestations—for the purposes of constructive or decorative architecture, the statuary, the decoration of the walls and leashes and the highest product of porcelain for articles of use and beauty.

The museum of our keramics department will be one of the most important branches of our university museum.

The forty-fourth general assembly of the state of Illinois passed an act approved May 12, 1905, establishing the geological survey of the state. In one of the sections of that act it provided: "It shall be the duty of the University of Illinois to give thorough and reliable instruction in the geology of claywording materials and origin, classificaton, physical and chemical properties and their behavior under such influences as are met with during the processes of manufacture, and to provide for this purpose such instructors, laboratories, apparatus and all illustrative material as may be necessary to make this instruction practical." The same law provides the sum of five thousand dollars per annum for the support of such instruction.

At its meetng on June 2, 1905, the board of trustees of the University of Illinois provided that a course in ceramics should be constituted in the university at a cost not to exceed five thousand dollars per year. It took some time to organize the course and to secure the location and equipment of the laboratory and the selection of instructors.

The first announcement of these courses, therefore, was for the year 1906-07. In the register of the university for the year 1905-06 it was announced that "a fully-equipped laboratory of ceramics has been recently established for the study of clay and clay products with reference to their properties and the methods of treatment which will produce the best wares."

This laboratory was, of course, modest in dimensions. It was supplemented first by the erection of a small kiln house (1907), immediately back of the physics laboratory, at a cost of one thousand dollars; later, by the erection of the ceramics building (1908), immediately south of and adjoning the mechanical engineering laboratory, at a cost of fifteen thousand dollars; supplemented in 1910 by the construction of further laboratories on the east side of Mathews avenue, immediately adjoining the mining laboratory, at a cost of twenty-five thousand dollars; and now we are laying the corner-stone today of one of the major buildings on the campus, a building which will cost, when finally finished and fully equipped, probably in the neighborhood of one hundred and fifty thousand dollars. Portions of this building are assigned to other departments for the time being, but as the work in ceramics increases in importance and extent it will doubtless occupy the entire building.

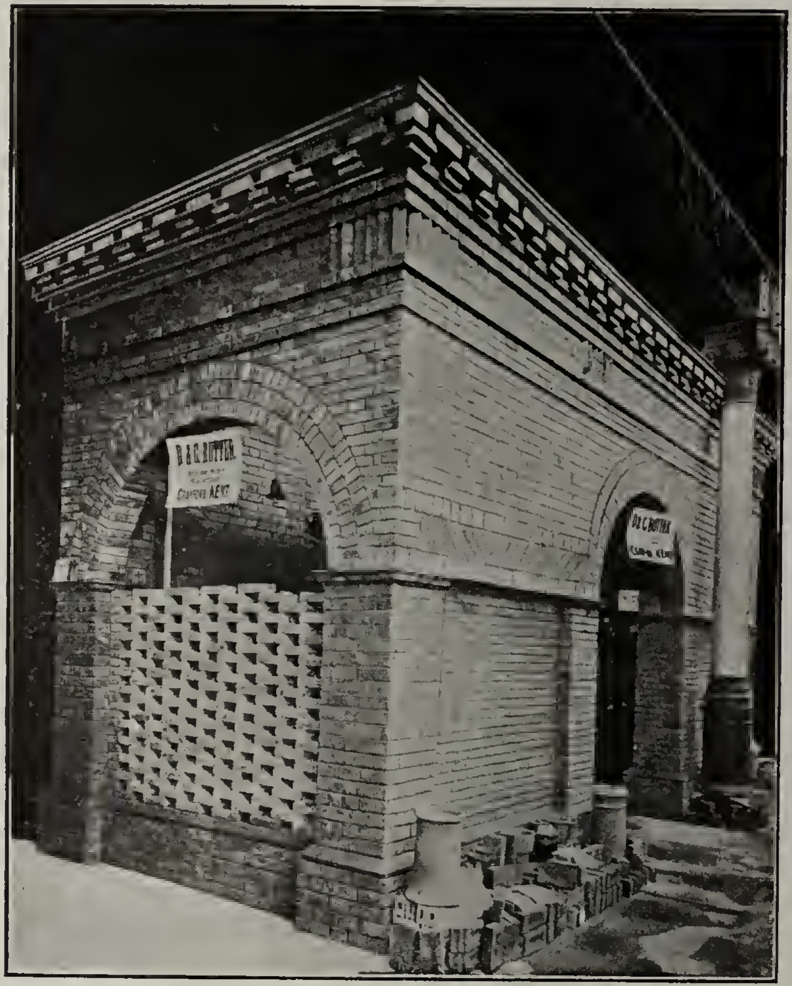
An Attractive Exhibit of Garden Walls at London's Building Materials Show.

When this bulding is done, we shall have at the University of Illinois one of the finest plants for the work in ceramics to be found in any institution in the world, and when we are ready to go forward to the work in keramics, as we shall hope to be able to do at no distant date, the state will undoubtedly make similar adequate provision for that equally important department of this great field of research and instruction.

I said a moment ago that we owed the initiation of this enterprise more to Professor Rolfe than to any other one man. We also owe to him the persistent and devoted attention to the welfare of this new department whch resulted in placing it upon a firm foundation. He was the first director of these courses and gradually found the men who were able to develop them along sound and fruitful lines. Among these men, three are deserving of special notice—Mr. Purdy, Mr. Stull and Mr. Bleininger. It is worthy of note that they all received their training to a large extent in the department of ceramics of the University of Ohio, which owes its importance to the work of the man whom we delight to honor here today—Professor Orton.

I am sure that no one will take me ill when, next to Professor Rolfe, I assign the chief importance in the development of this work to Dr. Bleininger, the man who, taken all in all, is just the man for the headship of this department.

After an all too brief stay with us, he allowed hmself to be cajoled by Uncle Sam, and was taken away to work in the ceramics laboratory of the Federal government. He has come back to us for a few months, but I am surely not giving away any secret when I say that it will not be our fault if he doesn't choose this work as a permanent career.



Effective Manner of Showing Adaptability of Brick.

It would not be fair in assigning the credit to various men for the results which we see achieved in this department of our university work, if I did not call especial attention to the active, persistent support which the practical men of the state have given to this enterprise. If it had not been for the Illinois Clay Manufacturers' Association, we should certainly not have received the appropriations from the legislature which were necessary in order to put this department upon a firm foundation; and if it had not been for the work of a few men in this association like Mr. Gates and Mr. Butterworth and Mr. Purington and Mr. Stipes and more like them and their colleagues, active in the support of the clayworkers' association, we should certainly never have reached the point which we have attained today.

My own participation in all this work has been a very modest one, but I take great pleasure in the fact that I perceived at the very beginning, when the project was first mooted, the importance of the undertaking for the Unversity of Illinois, for the state of Illinois, for the clayworking industries of this commonwealth and of the nation.

It is an interesting fact that the legislature, in its original formulation of the law creating the department, made scientific research, scientific investigation, the fundamental purpose of the department. Some short-sighted people have discussed the question whether state universities were entitled to engage in scientific investigation. Why, friends, that is one of the two fundamental purposes of any university, teaching being the other. And no teaching institution can claim to be a university which is not engaged in scientific investigation, and no research institution can claim to be a university which is not engaged in teaching, and no institution can properly claim the title of university, in the highest sense of the term, which is not doing thoroughly effective teaching, in the first place, and thoroughly valuable and fruitful scientific investigation, in the second.

This department of ceramics has made valuable contributions to our stock of scientific knowledge in regard to clayworking; and through the teaching which it is doing, it is training a considerable number of competent men to undertake the management of great clayworking enterprises, to head the scientific department of great clayworking undertakings, and themselves, in course of time, to add to our knowledge of the sciences, of the art, of this great department of human activity by their own original contributions.

THE COUNTY INDUSTRY,
FOR DORSET & HANTS.
FOUNDER "LADY BAKER"
FOREST GARDEN, BURLEY, HANTS.
WORKS, KEYWORTH, WAREHAM, DORSET

A Pottery and Terra Cotta Display at the London Exhibit.

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We all know that there are a good many commercial organizations of one kind or another in this country, and that the list has been added to rapidly the past few years. We are not going to undertake telling you how many there are all told, but the Department of Commerce at Washington has gathered up a list of them which is now printed in pamphlet form. So those who want to know about it and get in touch with them can do so by sending fifteen cents to the Superintendent of Documents at Washington and requesting a copy of "Commercial Organizations of the United States."

# THE COMPLETE BUILDING SHOW.

## Some of the Many Attractive Displays That Will Be Seen at Cleveland, February 16-20, 1916.

A STREET OF several houses, complete in every respect, will first greet the eye of the visitor at the Complete Building Show in the Cleveland Coliseum during next February.

Scenically, there will be nothing lacking in these houses or their surroundings to complete their artistic appearance. They will be surrounded by lawns and gardens, in which trees and shrubbery will be grown. Sidewalks, curbs and possibly a model pavement will be added to heighten the effect.

These houses will illustrate the various uses of materials in home building. The common brick makers have engaged one of the largest spaces and on it will erect a brick house. This, with wall and garden trimmings, will demonstrate practically every use to which common brick may be put in building.

The face brick makers and dealers, likewise, are working on arrangements for a community exhibit. This may take the form of a model building of some kind, to show the effects obtainable by the use of various face brick.

A Terra Cotta Exhibit of Merit.

The various makes of hollow tile represented in the Cleveland district will be represented by a tile building. The many types of common and interlocking tile will be shown, as well as the various facings of brick and stucco. One section will be laid to show the use of rough finish or "texture" tile, laid up without any other facing.

A house of lumber and possibly ones of concrete and expanded metal also go into the make-up of this model street.

One of the interesting community exhibits, which will be a feature of the clay products section, will be that of the paving brick makers. Space has been reserved by Secretary Will P. Blair, of the N. P. B. M. A., for a display of "pavers." This will be one of the most comprehensive exhibits in the entire show and will demonstrate all uses to which this clay product can be put—and they are many.

Roofing and quarry tiles will be well represented in combination with the "clay product" houses.

These community exhibits, in conjunction with the many individual displays of clay products of all kinds, will make this form of the building material probably the best represented in the entire show.

# ENTHUSIASTIC BOOSTERS OF BRICK PAVEMENTS MEET AT GALESBURG.

THE INSTITUTE of Paving Brick Manufacturers, being the latest association in the ceramic field, met at Galesburg, Ill., as guests of the Purington Paving Brick Company, September 22, for a one-day session. The enthusiasm of those who constitute the working membership of this new organization of clayworkers is so intense that a number of them reached Galesburg a day in advance, and found Spencer Duty there ahead of them, laboring diligently with the three heads of the P. P. B. Company—Matteson, Terwilliger and Orr—urging them to be modest in their entertainment, so that the real business of the institute might not be interfered with. Spencer is noted for his persuasiveness; but, in some way, his arguments did not seem to avail much in this instance, for there were two big dinners served on the meeting day, one at the Country Club and the other at the Elks' Club. These, together with the auto trip and visit to the immense plants of the P. P. B. Company, with several various and divers less entertainments of a more or less personal character, for which all three of the worthies named are noted, left no time for formal discussions until after dinner Wednesday evening.

Then the members got down to business, and from eight until eleven the technical side of the paving brick business was discussed in straightforward, unhesitating terms, much to the satisfaction of those present.

The speaker of the evening was Professor Parr, of the Illinois State University, an authority on fuel values who gave a very instructive, though formal, address on, "The Use and Value of Coal". The subject proved so interesting and so many questions were asked Professor Parr that there was little time left for the consideration of other subjects. "The Use of Electricity" was considered informally, and it was decided to dscuss the subject further at the next meeting, when Eben Rodgers, of Alton, Ill., will give the members the benefits of his experiences with electricity.

Every phase of the business of making paving brick is to be considered at the meetings of the institute, which are to occur quarterly.

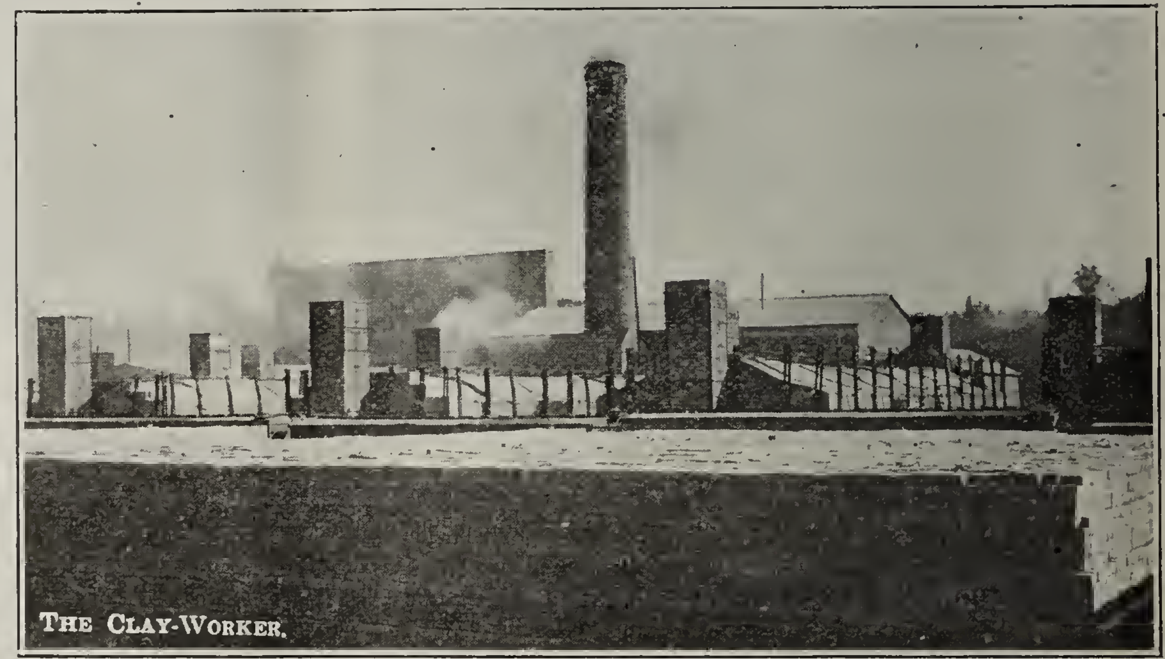
The grand patriarch, Spencer Duty, who conceived and gave life to the institute idea in this field, is a stickler for factory efficiency, and, as a means to a desired end, has planned for a series of conferences of those who are directing the successful paving brick plants of America—the heads of departments and managers who, he figures, can, by mutual confidences and interchange of experiences and ideas, quicken the dawn of a better day for better pavers at lower cost of production.

It's a fine idea, well nigh identical in spirit and motive with that which characterized the origin of the N. B. M. A. in 1886. Since then, the doctrine of specialization has been adopted quite generally, and so we see the ceramists, the paving brick manufacturers, the face brick manufacturers, the fire brick manufacturers, the hollow brick manufacturers, each organizing to promote their several interests, each having things to do in some particular line of work, that requires attention and specific information pertaining to it alone, and yet each and all still interested in the general work of the parent body. It is a sign of healthy progress, this tendency to closer and more effective co-operative effort in every branch of claywork, and we congratulate the instigators and officers of the institute on the spirit and enthusiasm manifested for the good of the paving brick industry.

### The Purington Paving Brick Plants.

THE CLAY-WORKER.

Galesburg Country Club, Where the Guests Were Entertained at Noon Time.



Sky Line of the Purington Plant No. 1. One of the Stock Piles in Foreground.

The visit to the plants of the Purington Paving Brick Company, Wednesday morning, was a great treat and afforded an endless theme of discussion; for, be it remembered, this is the pioneer paving brick plant and is still the largest of its kind, having a total annual capacity of 100,000,000 pavers. It is an all-the-year-round plant; that is, it generally runs right through the winter, without even hesitating. To make that quantity of paving brick, requires an average daily consumption of 600 tons of coal—some coal bill—and they have every modern convenience for the economical use of fuel, both in burning and drying, using the waste heat from the kilns for the latter process.

The gathering of the shale for such an immense output is of itself a big business, requiring two immense steam shovels, two industrial locomotives, and an innumerable number of clay cars of extra large capacity. The clay is ground in Frost dry pans and then conveyed, automatically, to Chambers machinery. The bricks are taken on cars from machine to dryers by hand power, but from dryers to kilns, they are hauled by electric locomotive and transfer. There are fifty-seven square, down-draft kilns. The burning process, all told, requires ten days, three of which are consumed in water-smokng.

They make two sizes of pavers, one 2½x4x8½, the other 3½x4x8½. The plant superintendent, E. L. Swett, was complimented by the visitors for the general excellence of the work and the efficiency of the plant in all its departments. The demand for pavers the past summer has not been quite up to that of former seasons, and as a result they have an immense stock on hand, totalling something over 30,000,000 pavers; but these will fade away in a very short time, when they begin shipping in earnest to meet the fall contracts.

The Discharge End of Dryer, with Electric Transfer Car to the Right.

Glimpse of a Portion of the Kilns at Purington Paving Brick Co.'s Plant No. 1.

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The idea of using what is termed carbide slime for making building mortar is receiving some attention now. The so-called slime is the residue from the manufacture of acetylene gas (from calcium carbide and water). It is said that when this residue is mixed with 40 per cent. of building sand the carbide forms a usable mortar which will set well and holds brick firmly. The idea is new and so far has only reached the experimental stage.

## BRICK ROADS THE THING.

THE EXPERIENCE of the last few years, in which the character of traffic on the public highways has changed so remarkably and so rapidly, proves that brick is the best paving material now known for country roads. Brick roads cost more to build than macadam or concrete, but they last so much longer that they must be cheaper in a term of years. A brick road surface, properly laid at the right season of the year, requires almost no attention and is practically indestructible.

Macadam, on the other hand, has proved its unsuitability for present day traffic. Some of the fine macadam roads in this county, built only two or three years ago, are worn out already. They must be worked on almost all the time to keep them free from holes and ruts. They simply cannot stand up under the strain put upon them by automobiles. Concrete as a country road pavement is still more or less in the experimental stage. It is cheaper than brick, but it does not seem able to withstand the freezing and thawing of spring and fall; and a cracked and seamed concrete road is a miserable thing and dangerous. In the light of present knowledge, brick is by all odds the most satisfactory paving material for country roads.

Our county commissioners have done nobly in their work of road improvement. Franklin county's roads now are nothing to be ashamed of; they are almost uniformly good, in fact, but the only way they are kept so is by almost constant repairs. If they had been surfaced with brick instead of macadam, they would give much better service, last much longer and probably cost much less in the end. The commissioners will do well now to give up macadam and go over to brick, as new road construction becomes necessary. We hope, within a few years, to see every main Franklin county road paved with brick to the county line.—Ohio State Journal.

Just now we have the demonstration in the Ohio coal situation, of how a great state can arbitrarily discriminate against itself to the point of financial disaster, and the above editorial taken from the Ohio State Journal calls to mind the fact that there have been many indications within the past year or two that in the matter of road making Ohio has been drifting into like discrimination against itself regarding another important industry.

Last week were published in this paper United States government figures showing the clay products output of the whole country as a whole, and of the several states where the clay industry is of large importance, and Ohio headed the list. In the matter of vitrified brick, whose principal use is in paving, the lead was very pronounced, and again was publicly emphasized what has been officially placed before the people of the United States many times in past years, that the paving brick industry is a very important economic factor in many parts of Ohio.

Naturally, when the Good Roads movement began, Ohio people, having had convincing proof by long experience of the superiority of vitrified brick to any other material in the making of streets or roads for ordinary traffic, naturally looked for a concentration upon brick as the material for good roads everywhere, and so far as this state is concerned, nobody doubted that all the principal roads in the elaborate national, state and inter-county system, would be built of vitrified brick, "the best paving material now known for country roads," as expressed by the State Journal. It was subsequently a great surprise when the "improvement" of the National Road was made through Muskingum county, that concrete was the material selected, though, when protest was made it was explained by the Ohio authorities that the choice of concrete was the arbitrary act of the United States government. It was certainly an act inconsistent with economic usage, for Muskingum is one of the heavy brick producing counties, and the additional cost of brick paving there as compared with concrete would be relatively very small, as the item of freight would be inconsiderable, just as it is in Jefferson county.

There was such great dissatisfaction with what was done in Muskingum that when the time came to pave the National Road in Belmont and Guernsey counties, vitrified brick was chosen as the material, and so that part of the road, about sixty miles will be of the kind that the Journal says "requires almost no attention, and is practically indestructible." This concession having been made in Belmont and Guernsey to the demand of the people for a road they knew was lasting, it is certainly remarkable that when a section of the Market road was determined to be built at the Rush Run Narrows, the powers that be decided upon concrete, a material that not only has not demonstrated its fitness for a sustaining road, but in many places has already proved a failure, instead of the familiar brick with which many miles of this same thoroughfare is already paved, and has for years been used to entire satisfaction along the river in Jefferson county, and which likewise extends from Martins Ferry to the county line of Belmont on this Market Road. That there is already a protest lodged against the concrete by people living in the neighborhood of its location is not at all surprising, but Jefferson county people ought to join in solid mass in protest. * * *

No more vital question bearing upon the interests of this county as a whole is now before our people than this one of road construction, and the material to be used. Every taxpayer has an economic interest in it, and every person who uses a public road and has regard for personal safety and comfort, must necessarily be so interested that he cannot get away from its consideration.—Exchange.

## EXPLOITATION THE KEYNOTE.

Exploitation is the keynote to the whole situation in the building brick world, as it is to industrial activity in practically all lines. Indeed, while it has not yet been officially adopted, the slogan of the Building Brick Bureau is contained in the idea that "Exploitation is the Life of Trade." It is not through competition or through co-operation that we add zest and life to trade, but through exploitation. In the old saying, that competition is the life of trade, there was evidently lack of analysis and understanding, for competition does not beget more trade. It leads to extra efforts at times in the way of exploitation and it is the exploitation that makes the trade.

Exploitation properly conceived is a pretty large proposition and involves many fields of endeavor, and also feeding of new ideas to keep it alive and interesting. When we come to the final analysis, however, it is easy enough to understand that it is exploitation which furnishes the tonic that gives more health and volume to trade. Therefore, if we can but keep the spirit of exploitation alive and working as it should, the trade will prosper and grow. It is the keynote to the whole situation and at the present time it chimes in so well with the needs of the brick industry that it furnishes a promise of great results, greater perhaps than any in the trade have anticipated heretofore from this line of endeavor.

# DRYING OF CLAY WARES.

By Ellis Lovejoy.

### Part XIX.

### Air Volume and Heat Requirement for Waste Heat Dryers.

Assume for 1,000 bricks the following:

1,000 pounds metal in cars.
6,000 pounds clay in bricks.
1,000 pounds water in bricks.

The conditions of the problem are:

Outside air 80° F., 90% saturated.
Exhaust from dryer 100° F., 100% saturated.

The temperature assumed represents average maximum summer conditions, which will require the greatest quantity of air. A dryer equipped and adapted for these conditions will have excess capacity at lower temperatures or less degree of saturation.

Data used—specific heat:
Air—.234+.000012 (t-32).
Vapor—.42+.0001 (t-32).
Clay—.2.
Iron—.12.
Water—1.00.

The problem is first to find the volume of air required, and, second, the temperature to which it must be heated to do the work.

From the "Vapor Capacity of Air" table we find that air at 80° F. and 90% saturation carries .145 pound of moisture per 100 cubic feet, while at 100° F. and 100% saturation the burden will be .291 pound of moisture. One hundred cubic feet of air, when raised from 80° to 100° expands to 103.7 cubic feet, from the law that the volume of a gas is directly proportional to its absolute temperature

$$\left(\frac{100}{491+80-32}=\frac{X}{491+100-32},\ X=1.037\right).$$

After raising the temperature of the original air to 100°, a volume of 100 cubic feet at this temperature will contain $\frac{.145}{1.037}=.140$ pound of moisture, provided no additional moisture is taken up, and the elastic force will be $\frac{.140}{.291}=48\%$ of 1.918=920. As moisture is taken up, the volume increases directly as the pressure. The pressure increases 1.918—.920=.998, and each unit volume at 100° becomes $\frac{29}{29-.998}=1.036$.

The volume increases to 1.037 because of advance in temperature, and each unit volume of this increases to 1.036 in consequence of increased pressure, due to additional moisture taken up; therefore, the total volume of each unit of original air is 1.037×1.036=1.074. Since each unit volume at 100° and complete saturation contains .291 pound of water vapor, each unit volume at 80° and 90% saturation when saturated at 100° will contain 1.074×.291=.3125 pound.

Each 100 cubic feet of incoming air under the changed conditions has capacity for .3125—.145=.1675 pound of moisture.

We have 1,000 pounds of moisture to be removed, and therefore will require $\frac{1{,}000}{.1675}\times100=597{,}014$ cubic feet of air.

A common drying period is twenty-four hours, which determines an air volume of 411 cubic feet per minute per thousand bricks.

The weight of a cubic foot of dry air at 80° F. is determined from the formula: $\frac{1.325271\times M}{459.2+t}$ (page 584, Kent), in which M equals barometric pressure and t equals temperature. From this, we find the weight of a cubic foot of dry air at 80° F. and 29″ barometric pressure to be .071 pounds.

Air expands as moisture is taken up, and in one cubic foot of the 90% saturated air at 80° there will be less than .071 pounds, since the vapor is lighter than air and displaces it.

From the formula: $\frac{29}{29-(1.025\times.90)}$ we get a value of 1.0328 cubic feet. This formula is based on Boyles law, that the volume is inversely proportional to the pressure. In the formula, 29 equals barometric pressure, 1.024 equals elastic force of vapor at 80° F. (From Vapor Capacity table.)

The actual weight of air in one cubic foot will be $\frac{.071}{1.0328}=$ .06876 pound. To this must be added the weight of vapor from the vapor capacity table, .00145, giving a total of .07021, which is the weight of one cubic foot of 90% saturated air at 80° F.

We required 597,014 cubic feet, which is 41,916 pounds (597,014×.07021) of air, including the moisture naturally contained in it.

The problem now before us is to determine the temperature of the air which will be necessary in order to bring sufficient heat into the dryer to do the work.

This problem can only be solved by a series of approximations.

The heat units required are as follows:

1. 1,000×.12×temperature is the heat taken out by cars.
2. 6,000×.2×temperature is the heat taken out by the bricks.
3. 1,000×20 is the heat absorbed by the water in the bricks.
4. 1,000×1,035.6 is the latent heat of vapor at 100° F.
5. 41,051 (100—80) [.234+.000012 (100—32+80—32)] is heat taken out by dry air.
6. 865 (100—80) [.42+.0001 (100—32+80—32)] is heat taken out by vapor originally in the air.
7. Dryer radiation loss estimated at 10%.

Under items 1 and 2, the temperature is indeterminate. In items 3 and 4, we assume that all the evaporation takes place at the exit at a temperature of 100° F., but in reality it is occurring at all temperatures between the maximum and 100° F. However, saturation is not complete until the end is reached. If the evaporation took place at 150°, the latent heat would be less and the sensible heat required for the water would be greater. The resulting vapor would have a temperature of 150°, but as it approached the exit it would cool down and give back to the dryer requirement its excess temperature. The heat taken from the dryer, therefore, will only be that required to heat the water to the exit temperature and to evaporate it at that temperature. This also explains why item 4 is not made a part of item 6, the latter item being only the moisture originally in the air, which leaves the dryer at a temperature 20° F. higher than its initial temperature.

In order to solve the problem, we must assume a temperature to which the air must be heated, in order to get values for the heat taken out by the cars and bricks.

Let us assume a temperature of 300°, an advance of 220° F. We have then the several items:

1..................... 26,400 heat units
2..................... 264,000 heat units
3..................... 20,000 heat units
4.....................1,035,600 heat units
5..................... 193,260 heat units
6..................... 7,460 heat units

1,546,720 heat units
7. Radiation loss, 10% 171,858 heat units

Tot. heat requirement, 1,718,578 heat units

The entering air per degree advance in temperature requires:

41,050 [.234+.000012 (300+80—64)]=9,761
866 [ .42+ .0001 (300+80—64)]= 391

10,152

$\frac{1,718,578}{10,152}=$169° advance in temperature, or a thermometer temperature of 169+80=249° F.

Evidently our assumption of 300° F. was too high. Had we assumed 240°, the resultant determination would have been 241°, and a third assumption of 241° gives 241°, fractional degrees not considered.

Suppose we have the inlet and exit temperatures, which can easily be determined in any dryer, and wish to determine the volume in order to adjust the fan to economic condition.

We will take the temperatures in the previous problem in order to check results.

A cubic foot of the initial air contains .00145 pound of moisture, and, as previously determined, weighs .07021 pound. A pound of the mixture will contain $\frac{.00145}{.07021}=$.02065 pound of moisture and .97935 pound of dry air.

The heat, in excess of the initial heat, brought into the dryer per pound of initial air is as follows:

Air (241—80) [.234+.000012 (241—32+80—32)]
..........................................97935=37.3823
Moisture (241—80) [.42+.0001 (241—32+80—32)]
..........................................02065= 1.4818

38.8641
Radiation loss, 10%=...................... 3.8864

Available heat per pound of air=........... 34.9777

Each pound of air, including the initial moisture, removes from the dryer:

Air (100—80) [.234+.000012 (68+48)] .97935=.........4.6106
Moisture (100—80) [.42+.0001 (68+48)] .02065=....... .1783

Total loss per pound of air=.......................4.7889

Available heat for the dryer:
34.9777—4.7889=30.1889 heat units.

The fixed heat requirement is:

1. 1,000×.12×161= ......... 19,320
2. 6,000×.2×161= .......... 193,200
3. 1,000×20= ............... 20,000
4. 1,000×1,035.6= ..........1,035,600

1,268,120 heat units

The number of pounds of air required will be: $\frac{1,268,120}{30.1889}=$ 42.006 pounds of air.

In our original calculation we found 41,916 pounds required, a discrepancy of 90 pounds, due to the use of whole numbers in temperatures. The difference is about one-half of one per cent. and is negligible.

(Continued on page 448.)

**Amount of Coal Used in Pottery Kilns**—In figuring the amount of coal necessary to burn down-draft pottery kilns, it has been found that for every ten square feet of grate surface 260 pounds of coal will be used. In figuring the actual space occupied in burning, the ratio between the grate surface and the cubic contents is as follows: For every four square feet of grate surface the cubic contents should be 280 cubic feet. The amount of coal used with that same ratio is about 100 pounds. In burning a biscuit kiln at cone 2, which has a cubic contents of 1,520 cubic feet, from 4½ to 5 tons of coal should be used, and in burning that same kiln to a glaze heat of cone 05, from 3½ to 4 tons of coal are necessary to burn the kiln.—Sprechsaal No. 16, 1915.

Written for The Clay-Worker.

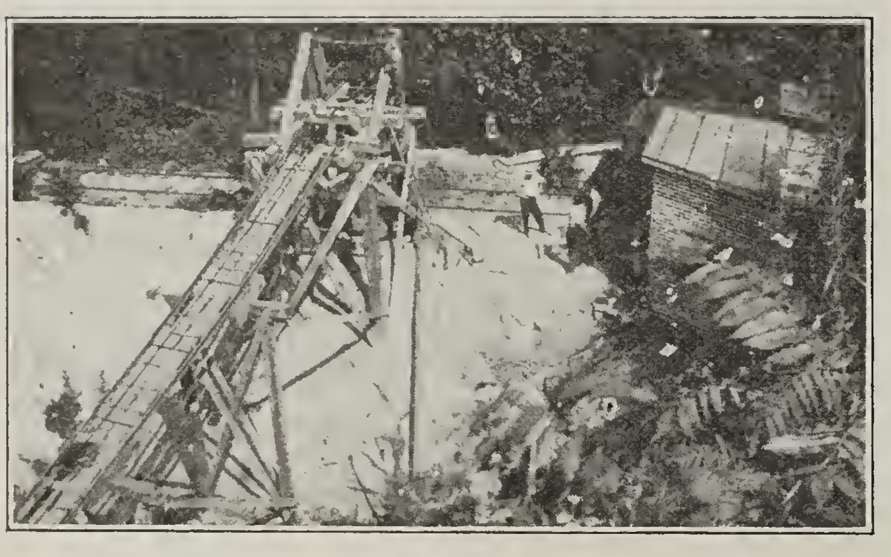
# BRAZIL, THE CLAY CENTER OF INDIANA.

THIS is the third and last article on the clay product manufactories of Brazil, Ind. In the two preceding issues of The Clay-Worker we described the plants manufacturing clay conduits, silo block, face brick, fireproofing and one factory making sewer pipe. In this article we lead our readers through the plants of the Indiana Paving Brick Company and the Chicago Sewer Pipe Company. Both are decidedly interesting plants, manufacturing high-grade ware, with some unique features in the equipment.

### The Plant of the Indiana Paving Brick Company.

This excellently located plant is within a stone's throw of both the C. & E. I. and the Vandalia depots, with the best of transportation facilities. Brick have been manufactured on the site of this plant for the past quarter of a century.

Mr. W. W. Winslow, the former owner of the plant, died in June, 1914. Through his efforts the company experienced a most gratifying financial success and the fame of the Indiana paver was known throughout the state and adjacent territory. The present owners and officers are: W. W. Winslow, president and treasurer; James C. Campbell, secretary and sales manager, and H. E. Thompson, superintendent and factory manager.



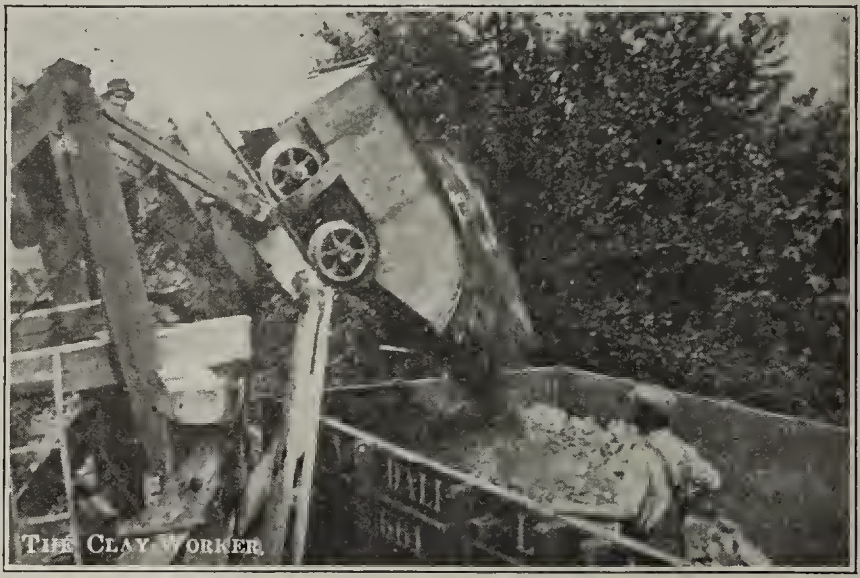
Incline in Shale Pit of Indiana Paving Brick Co.'s Plant.

At the present time they are manufacturing paving brick for the most part, although some building brick and fire brick are produced. The raw material is secured from their two pits, one at the plant proper and the other five miles distant. These two pits do not furnish all of the raw material, however. The company purchases 160 tons daily from a local concern. Four cars or 160 tons of raw material are shipped in daily over the Vandalia from their own pit, located near the Brazil Face Brick Company and the Hydraulic Pressed Brick Company's plants. Over 320 tons of material are used each day.

A most unique arrangement for dumping the raw material into the gondola cars at the company's north pit deserves special mention. This was conceived by the superintendent, Mr. H. E. Thompson, who has had much experience in engineering work. The incline from the shale pit runs directly to a point perhaps 15 feet above and several feet away from the Vandalia tracks. In solving the problem of loading the gondola cars without risk of suit from the railroad company for any accidents caused from protruding chutes or overhead bins, Mr. Thompson invented an automatic dump which empties the car and sends it back to the pit simply on the theory of change in the location of the base of gravity.

One of the illustrations shows the car dumping the raw material into the gondola. It will be seen that the car is directly over the other and that the raw material is dropping into the center of the car below. The car is pulled up the incline and runs on to a platform on which are two heavy metal loops on either side of the track to catch the wheels and hold them while the force of the car pushes the platform out to the position it is in in the illustration. The platform and car are held at this point by heavy beams, one loose bolted to the bottom of the trestle work, while the other is loose bolted to the top of the braces (see illustration). As the raw material drops from the car the base of gravity switches to a higher point, thus bearing the platform back into place and giving the car impetus necessary to run it off the platform and down the incline, drawing its cable with it firmly fastened to the bottom of the car.

The cars are unloaded at the plant by means of a Browning Company crane, which drops the raw material into an overhead storage bin of 600 tons capacity. Under the bottom of this bin are mechanical feeders that feed the shale from the bottom directly into the three pans. These feeders are connected to a long shaft with three eccentrics, one for each feeder. The eccentric is loose on the shaft and is operated, when desired, by throwing in the jaw clutches. The weight of the working end of the feeder with its burden of shale is carried on a rocker, which allows the feeder to oscillate and push the shale out of an adjustable opening at the bottom of the bin. The material is elevated from the three C. W. Raymond Company dry pans by cup elevators to inclined perforated metal screens, furnished by the Harrington & King Company, Chicago. The tailings are reground.



Device for Dumping Clay Cars Automatically.

Grinding Bats for County Road Improvements.

The machinery consists of a Raymond pug mill, a Bonnot brick machine and cutting table, and three American Clay Machinery Company represses. The ware is dried in an 18-track, 9-tunnel, waste-heat dryer of the Standard Dry Kiln Company make, which has proven entirely satisfactory. Twenty-four hours are required in the drying.

The ware is burned in twenty-six round down-draft 30-foot kilns, holding 40,000 paving block each. A kiln is filled each day; coal is used as the fuel. The power is furnished by means of a Corliss engine and four 5x16-foot Atlas boilers. The water supply is obtained from a 650-foot well.

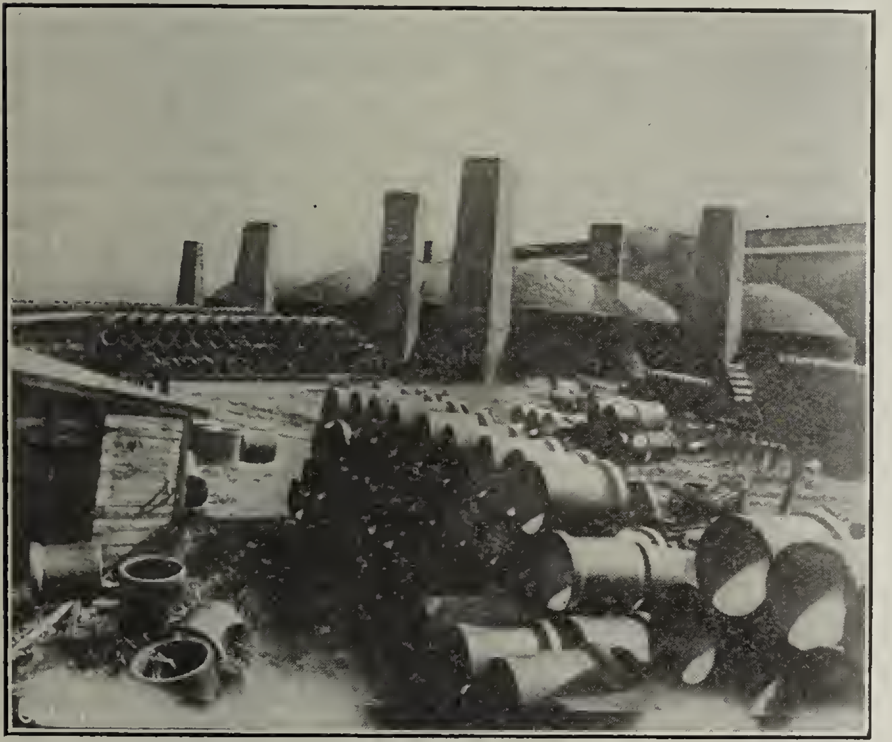
Depressed tracks run through the kiln yard, affording excellent loading facilities. The ware is shipped throughout the central states.

An unusual feature of this plant is their method of disposal of spoiled or broken brick. The brick and bats are ground fine and elevated to a storage bin. This ground material is sold for county road improvement.

A short walk from this plant is located that of the

### The Chicago Sewer Pipe Company.

This plant is located about three-quarters of a mile south of the center of Brazil on branches of the Vandalia E. & I. and the C. & E. I. railroads. This factory had been in operation since 1892 and is splendidly equipped turning out an excellent product. A complete line of piping from 3 to 24 inches in size is manufactured, about 12,000 cars being shipped annually. The company owns an immense acreage of clay lands. The raw material is obtained from two pits, one in the rear of the plant, consisting of a fine face of clay and shale about 70 feet in depth. There are 8 to 10 feet of very plastic surface clay overlying a 55-foot vein of blue shale resting on a vein of coal 2 to 4 feet in depth which is used as part of the fuel of the plant. Underlying this coal is an 8-foot strata of fire clay. The second pit is located about 1,500 feet north of the plant and consists of 26 feet of soft shale underlying about 12 feet of surface clay, all of which they use to the grass roots. The bank is blasted and the raw materials are loaded into dump cars by hand. The cars are pulled up a steep incline by cable and winding drum and dumped above the storage bins, which have a capacity for two days run. The clays are not aged and hence are used as soon as needed. The raw materials are mixed in definite proportions and ground in a Taplin, Rice, Clerkin Co.'s 9-foot dry pan. The ground material is then elevated to a gravity screen and from thence drops to storage bins from which it is taken as needed and sent through Taplin, Rice, Clerkin Co.'s 7-foot wet pans. The prepared material is then taken to the top of the building, which is three stories high, by means of cup elevators. The pans are all located on the first floor, the screens on the third, where is operated a small Taplin, Rice, Clerkin Co.'s press. On the second and first floors large presses of this company's make are lo-



A Glimpse of the Chicago Sewer Pipe Co.'s Plant.

A Kiln of Large Sewer Pipe.

Dried Ware Ready for the Kiln.

Carload of Sewer Pipe Ready for Shipment.

cated. The material is delivered to each of these three presses by means of chutes and belt conveyors. Only the small size pipe are made on the third floor, for the very reason that these are easier to handle and can be taken down to the kilns more handily. Medium size pipe are made on the second floor, while the largest size are made on the first. Each floor has its drying floors all heated with steam.

On the third floor we see how the clay is fed from a chute into the press operating on the second floor. A certain amount of clay is permitted to pass from the chute at a time, dropping on a conveying belt which carries it on to a flying feed belt. This throws the clay directly into the press, which consists of a large steam cylinder with a piston operating in a smaller cylinder known as the round drum into which the clay is introduced and forced through the die at the lower end, a well shaped pipe.

The large size pipe require extra care in handling in the green state, as their size and weight makes them more easy to warp or be damaged than the small pipe. Therefore care must be exercised. A lever man sits at one side of the press, his sole duty is to pull the lever which sets the machinery in operation, that lifts the stool below the press, raises it to its correct position where the hydraulic press keeps it fast until the socket of the pipe is formed after which the stool slowly lowers with the pipe resting upon it. The top of the tube of clay is cut by hand with a wire after which the pipe is removed from the stool by two men. A wooden drum is slipped inside at the same time, a twin cage with a board is placed over the upper edge, is swung over and fitted close to the pipe. The pipe is then lifted and quickly inverted on the cage and placed on the opposite side where a two-pronged truck is pushed under the board, on which the pipe is resting and both board and pipe are thus picked up and wheeled to the drying floor.

The three drying floors cover all told about 90,000 feet of space requiring 15,000 feet of steam pipe. Five elevators are employed in transporting the dried pipe from the upper floors to the ground level from which they are wheeled to the kilns. Round down draft kilns, five 32-foot, ten 30-foot, fired with coal. Great care is exercised in setting the ware, for it is necessary that the pipe are set level and a correct distance apart. The large pipe are set on clay rings, piece of pipe the same width but only 3 inches high. This prevents the pipe from warping during shrinkage taking the weight off the bottom of the pipe. The pipe standing on the bottom of the kiln having considerable weight on it from those above, are liable to crack in the process of burning, hence the ring is placed between the bottom pipe and the floor of the kiln. The ring generally cracks but this is the extent of the damage done. The rings are used later in a ground condition as grog.

The pipe are set socket upwards, a little silica sand as nearly pure as possible being sprinkled inside of each socket to prevent the pipe sticking together. Two foot lengths are set four high or a total of 8 feet. Lengths of 2 feet 6 inches and 3 feet are set three high. Small pipe are nested inside the larger one. In the setting care is taken to have the pipe stand perfectly plumb and set as tightly together as possible, so as to have no slack spaces in the kiln. In addition to this the setter uses a small amount of soft clay on the top courses of the pipe, binding the socket of each to its immediate neighbor. The pieces of clay, of course, burn hard and thus lock the whole contents together. As they do not unite firmly with the pipe, they are easily broken off after the kiln is opened. In addition to this small traps and odd shapes are placed on the top course which will help bind the whole together. Ninety hours is the required time for the burning. The salt glazing is done at the finish, the salt being thrown into the fire boxes. Pyrometric cones are used.

The burned ware is stocked in the large yard ready for shipment. This yard has a capacity for ware sufficient to load 300 cars of pipe. The power of the plant is furnished by a 250 h. p. Reynolds Corliss engine. The plant is lighted by means of electricity generated in the plant.

The water supply is secured from two large ponds.

Most of the repairs are made at the plant. The main office of the company is Chicago, Ill.,while a small office is used at the plant. The officers of the plant are Messrs. W. J. Gilbert, president; T. H. McFerren, vice president and superintendent; L. H. Krieter, secy.-treas.

## THE TRADE PAPER AND THE ADVERTISER.

ONE OF THE fallacies for which there is little excuse is that the trade paper is unduly influenced in its editorial policy and reading columns by the advertisers who carry large space in the advertising sections That the trade paper editor has respect for his advertisers there is no question. As a rule the advertisers in trade papers are people entitled to respect and to be heard upon occasions and listened to earnestly. Moreover it is through liberal patronage of advertisers that the great American trade paper has been made possible in such a wide variety and has been supplied to the readers at a nominal sum for subscription. One of the most striking features of the industrial world in the United States is the greatness both in variety and in magnitude of the trade papers. There is no doubt either but what these have contributed materially to the rapid industrial progress of the country and have done as much if not more than any other one agency to propagate new ideas and stimulate the progress which has made this country famous the world over.

The charge that the trade paper editorially or in its reading columns is the mouthpiece of the advertisers becomes true only when those things which the advertisers have to sell are things which when weighed in the balance are found good and calculated to make for the material progress of the industry.

This brings out a phase of the matter that is too often overlooked, and that is the great majority of advertisers in the best of trade papers in the country are men who stand for that purity in advertising which the advertisers clubs of the country have been ostensibly striving for for some time. While meantime many of the members of these clubs have been foisting upon the public through some of the daily and other publications advertising statements that are open to criticism.

The trade paper reader is a critical reader, which naturally makes the trade paper editor both an observant and critical man, quick to notice and to object to statements in advertising or elsewhere that will not hold water. An advertisement containing questionable exploitation is to the true trade paper editor's eye like unto the red rag in front of an angry bull, and makes him more inclined to say ugly things about the advertiser than to act as his mouthpiece in furthering any proposition not calculated to give good returns to any one but the advertiser.

The true trade paper ideal is to portray editorially and in the reading columns that which is of interest to the readers, and to advocate such things as are calculated to benefit the readers and to build up the industry represented. The theory which has been fairly well proven time and again is that when the readers learn to respect and to rely upon the reading matter found in the trade paper they also turn with respect to statements made in the advertising pages. Thus the trade paper becomes a dependable vehicle for carrying information that is worth while to its readers throughout the land. At the same time it serves its advertisers in the best possible manner, respects them and get many new ideas from them which it is glad to exploit, but neither the right thinking advertiser nor the right kind of an editor ever contemplates seriously the idea of the trade paper becoming simply the mouthpiece of the advertiser.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

SEPTEMBER PROVED to be the banner month of the year, thus far, in the Milwaukee building field, the total building investment showing a gain of $1,754,851. There were 332 permits issued for structures to cost $2,961,938, as compared with 379 permits and an investment of $1,207,087 during the corresponding period in 1914. New building to cost more than $1,000,000 was launched in one week alone. The total figures for the first nine months of the present year show a gain of about $500,000 over the same period a year ago, and it begins to look as though the predictions made some time ago by Building Inspector W. D. Harper, that the total building record for the year would establish a new high record, will be borne out to the letter. The slight falling off sustained earlier in the year because of the general financial depression now seems to have been entirely overcome. The largest permit issued during the past month was for the erection of the new concrete grain elevator which is being erected here by the Chicago & Northwestern railroad at a cost of $750,000. The balance of the permits were issued for residences, business buildings and apartment houses, and, as usual, brick were used in the majority of these structures.

Milwaukee brick and general building material men are skeptical of the suggestion made in some quarters that the cost of building materials be reduced during the winter months for the purpose of stimulating building operations during that season of the year and thus afford employment to many who would otherwise be out of work.

"Building material at the present time is sold at such a close margin that it would be impossible to reduce the price," said A. F. John, of the Milwaukee Building Material Exchange. "I do not believe that the price of building material is an important factor in keeping down building operations, but that this is usually brought about by a general depressed condition in business."

Fred J. Schroeder, secretary of the John Schroeder Lumber Company, of Milwaukee, believes that the price of building materials is a factor to be considered and he is confident that Milwaukee will experience the greatest building boom in its history this fall, largely because of the low price of lumber.

"Lumber will never again be as cheap as it is today," said Mr. Schroeder. "Anyone who is anticipating building any structures where wood plays an important part in its construction, will find lumber as low as it ever will be. The inability to export to Europe has caused an unusual supply in the United States."

One of the largest apartment houses in Milwaukee will be erected at Juneau avenue and Van Buren street by the Blackstone Apartment Company. Brick will be used, of course. The structure will be five stories high, 110x117 feet in dimensions, and will be one of the most modern buildings of its kind in Milwaukee. A permit has been granted and work will start soon.

The Marshfield Brick and Tile Company, of Marshfield, Wis., has been incorporated with a capital stock of $25,000, by Louis Hartl, G. A. Keasin and August F. Backus. The company is in possession of a valuable tract of clay, said to be highly suited to brick manufacture, and it is understood that steps have been taken toward erecting a modern plant.

It is reported from Appleton, Wis., that the United States Court has turned over to Green & Sons Company, of that city, the Monmouth Mining and Manufacturing Company's plant at Monmouth, Ill. The plant has an annual capacity of 18,000 cars of vitrified sewer pipe. It is reported that last December the company went into bankruptcy, with liabilities of $110,000. Captain C. A. Green will manage the plant, it is said.

Considerable paving with brick is still going on in many of the smaller cities about the state. The city of Grand Rapids recently awarded to the George Keachle Company, of Madison, Wis., the contract for paving Grand avenue with vitrified brick at the contract price of $1.98 per square yard. The Merrill Iron Works, of Merrill, Wis., was awarded the contract for furnishing 500,000 brick for paving portions of East and West Main streets in Merrill. The city of Racine is now laying considerable vitrified brick pavement. Most of the brick for the work in Racine was furnished by Ricketson & Schwarz, 111 Mason street, Milwaukee, well-known jobbers of brick and general building material, handling the Purington, Barr and Metropolitan lines of paving brick.

D. F. Zuill was re-elected president of the new Whitewater Brick and Tile Company, of Whitewater, Wis., at the recent annual meeting of the stockholders of the concern. Other officers were chosen as follows: W. D. McFarlane, vice-president; Charles Walton, secretary; John Steir, treasurer; George Crumb, Warren Thorne and C. E. Heath, directors. The twenty-five stockholders present at the meeting were well pleased with the progress that the new concern has made. Thus far, the company has erected two handsome buildings, reached by new sidetracks of the Chicago, Milwaukee & St. Paul railroad. It is said that the clay beds owned by the new Whitewater concern are among the best in the state and especially adapted to the manufacture of drainage tile and fireproofing brick, two lines in which the new company will specialize. M. J. Sullivan, of Milwaukee, is handling the stock sale for the company.

A. BADGER.

## A TWENTY-FIVE CENT SPECULATION.

The fact that the southern pine people are spending 25 cents per thousand feet to exploit lumber through their association, leads to some speculative thought as to what it would mean if the brick manufacturers should spend 25 cents per thousand brick in the same way.

The total production of common brick in 1913 was 8,088,790, valued at $50,134,757. To appropriate 25 cents per thousand brick on this basis would mean a total sum for exploitation of $2,022,179.50.

This looks like a big sum of money to draw out of the brick business for exploitation purposes. The right conception of the matter, however, is not that it will be drawn out, but that this sum will be invested to the end that we may get more returns from the sale of brick.

Taking the same date of statistics, we find that the average price for common brick was $6.20. It should be easily practical by the expenditure of 25 cents per thousand, to so increase the volume of demand for brick that it would be practical to increase the price anywhere from 50 cents to $1.00 and more per thousand. Let us say, by way of speculation, that this expenditure for exploitation will result in increasing the price 80 cents, bringing it up to an even $7.00 average. This would mean adding to the returns of the common brick manufacturers of the country practically $6,500,000.

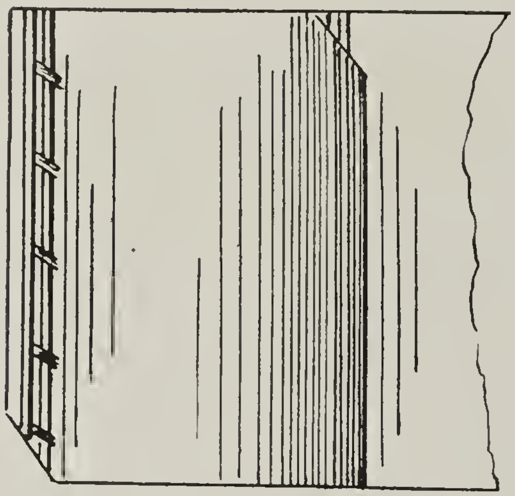
In addition to common brick, there was produced during the same period $9,614,138 worth of front brick, at an average price of $11.62 per thousand. In other words, there was a production of front brick totalling a little under a billion. The price of this front brick was lower than ten years ago, so it ought to be easily practical, by spending from 25 to 50 cents per thousand for front brick, to bring the average price of it up again from $1.00 to $2.00 and make the front brick yield bigger returns, as well as add thereby to the exploitation fund.

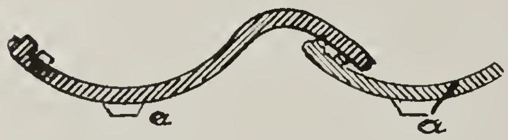
There is not much question but that a million dollars spent in exploiting brick would create such an era of prosperity in the brick business as never was known before and result in increasing the price from 50 cents to $2.00 per thousand. It would only take half of 25 cents per thousand to raise a million-dollar fund, and really the trade could well afford to spend the full 25 cents or upward of $2,000,000 on the speculative chance that it would yield in returns anywhere from $6,000,000 to $10,000,000 for the clayworking industry.

**A Large Fire Clay Slab.** The greatest fire clay slab ever manufactured was made by the Combined Fire Clay Companies, formerly C. Kulmiz in Marktredwitz, Germany. This slab measured, after being burned, 13½ feet long, 5 feet high and 7⅞ inches thick. The company had no trouble in making this slab, and same came in good shape from the kiln.—Tonind. Z. No. 70, 1915.

**The Action of Grog on Clay Bodies.** Grog is used for shortening plastic clay bodies. It should always be used in screened state, and the fine grog is less good to use than the coarser grog. From 5 to 15 per cent. of grog can be used in bodies, and will greatly help in keeping the bodies from cracking, and assist in the drying.—Keramische Rundschau No. 23, 1915.

**New Roofing Tile System.** In the making of roofing tile, it has always been a hard propostion to make such tile watertight when laid on the roof. In making Spanish tile, the overlapping is made now in such a way that the rain cannot beat under the tile, and in that way the roof will not leak. Another feature, also, is that the tile can be hung with the knob (a) and need to be nailed to the roof slats.—Tonind. Z. No. 72, 1915.



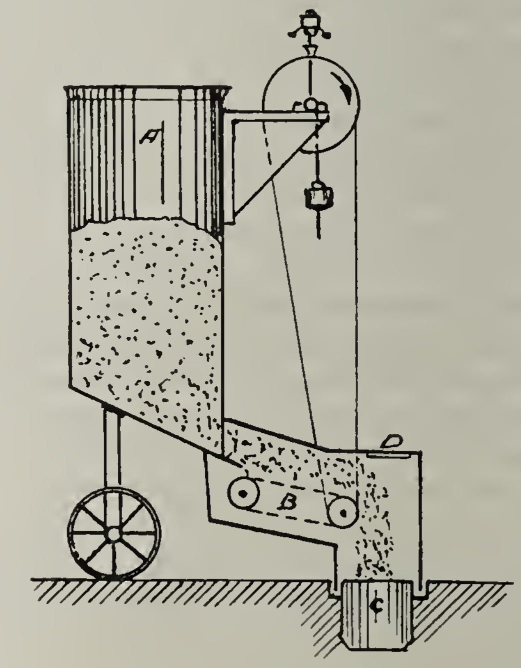


**Loss of English China Clay.** That the German submarine would also play a part in the china clay imports is not well known, but the fact has been established that through the sinking by a submarine of the English steamer South Point, 5,000 tons of china clay and kaolin were sent to the bottom of the ocean. The steamer was bound for New York.—Keramische Rundschau No. 26, 1915.

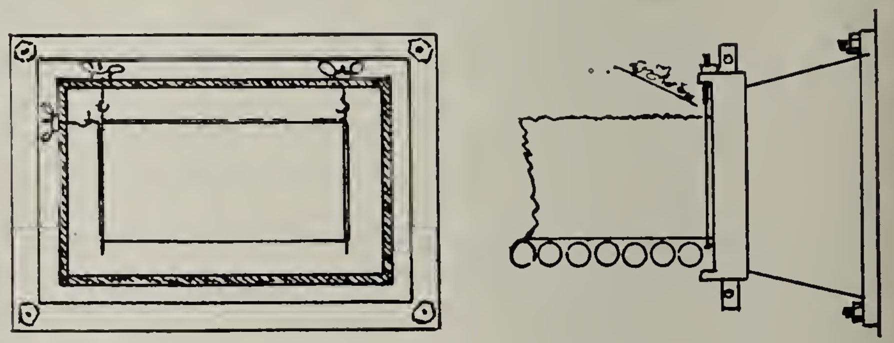
**Brickyard Dryers Put to Public Usefulness.** In order to save all food supplies in Germany, and especially the potato crop, the same has been dried in order to prevent waste in rotten and spoiled potatoes. As it cost too much to install dryers for this purpose, brickyard dryers, with their car systems, have been employed in the drying of potatoes, especially in the outlying districts, and it has been demonstrated that they will dry such foodstuff properly and in good shape.—Deut. Topf & Z. Z. No. 87, 1915.

**Vitrifying Brick with Feldspar.** In some places in Germany, where they have clays which do not vitrify at low temperature, they use feldspar in order to help the clay to make vitrified brick at low temperature. The feldspar need not be very clean and finely ground, and the results obtained have more than justified its use.—Sprechsaal No. 22, 1915.

**Automatic Firing of Continuous Kilns.** In firing continuous kilns, there is always some trouble in getting the proper amount of coal into the firing holes. The following automatic arrangement has been designed by M. Lipinski, of Posen: "A" is the container, which holds the coal and which moves on wheels and track. Inside the lower part of the container there is a conveyor "B," which conveys the right amount of coal into the fire hole "C" whenever the conveyor is put in operation. "D" is an opening covered with mica, by which the fire can be observed in the kiln. The whole arrangement can easily be moved, and the small counter shaft shown on top is used for driving the conveyor.—Tonind. Z. No. 75, 1915.



**Method for Making Tapestry Brick.** There are different ways of making rough faced brick, but the best way is to cut a small part of the clay column when it comes from the die. The cut shown herewith will give a good idea of how the wires are attached to the die in order to make such rough faced brick.—Tonind. Z. No. 81, 1915.



**Large Demand for Brick.** According to statistics gathered regarding the destruction of buildings in East Prussia when the Russian army was there, it will need a large quantity of brick to rebuild most of the villages and buildings. In Allenstein district there have been destroyed 12,768 buildings; in Gumbinnen district, 18,378, and in all these districts there were destroyed 35,000 buildings. It is estimated that it will take 1,777,000,000 brick to rebuild these buildings, so it will mean good times for the local brickmakers. If it takes three years to rebuild, the demand will be about 600,000,000 per year, and this is more than the capacity of the local yards can produce. It does not include the demand for roofing tile and other building materials.—Deut. Topf & Z. Z. No. 48-49, 1915.

## OBITUARY.

### One of New York's Pioneer Brick Manufacturers Called Home.

Charles H. Merrick, a prominent brick manufacturer of central New York, died at his home in Syracuse, N. Y., September 20, just after celebrating his seventy-third birthday. Mr. Merrick was stricken with pneumonia about a week before his death, but had rallied and hopes had been entertained for his recovery, when the end came suddenly.

Mr. Merrick was born in Syracuse in 1842 and had lived there all his life. When a boy he learned the brickmason trade and since then had been a leading factor in the building industry. He was first associated with his cousin, Luther S. Merrick, the firm having been known as the C. & L. Merrick Company, manufacturers of brick and building contractors. This firm continued in business at DeWitt on the Midler ave. road, the site of the present factory, for forty years. The cousin died and Charles Merrick continued the business of manufacturing brick. The firm was known as C. H. Merrick, brick manufacturer, successor to C. & L. Merrick. Mr. Merrick was a member of the Grand Army of the Republic, Sons of American Revolution, Building Trades and Labor Association, the Rotary Club and an old-time member and supporter of the N. B. M. A. The funeral was held from the Wesleyan Methodist church, of which he was a life-long member. A wife and one son, Charles Van Merrick, of Albany, N. Y., who writes us that the business will be continued under the same firm name and management of Floyd Van Eseltine, who has had charge of the business for Mr. Merrick for a number of years.

Charles H. Merrick, Syracuse, N. Y.

### W. H. HAWKINS SUCCUMBS.

W. H. Hawkins, secretary of the Dover Fire Brick Co., Cleveland, Ohio, died at his home in that city, September 22. He is survived by his widow and one son.

### A PROMINENT ILLINOIS BRICKMAKER CROSSES THE BAR.

Ernest Abend, a well-known brick manufacturer of Belleville, Ill., died at his home in that city recently. Mr. Abend had been actively engaged in the manufacture of brick for a number of years, until the recent organization of the Belleville Brick and Tile Company, of that city, which took over a number of the large plants in that vicinity, including Mr. Abend's. While he had given up active work in the brick field, he was one of the large stockholders of the newly organized company.

### IRA LEWIS CONKLING, WELL KNOWN CERAMIST, PASSES AWAY.

Ira Lewis Conkling, president of the Conkling-Armstrong Terra Cotta Company, and known throughout the United States as an expert in everything pertaining to the manufacture and use of terra cotta, died at the Germantown Hospital, Germantown, Pa., September 20. He became interested in the manufacture of terra cotta and while a young man he organized a company in Philadelphia, twenty-nine years ago, for the manufacture of that product. Nine years later the firm was reorganized and the name Conkling-Armstrong Terra Cotta Company given to it. The firm moved to the site of the present plant and has been in active operation ever since. Mr. Conkling had written a number of treatises on the manufacture and use of terra cotta. He was fifty-five years old and is survived by a widow. Mr. Conkling was of a genial, lovable disposition and counted many friends among his business associates. In his death the entire clayworking industry has suffered a distinct loss.

Ira L. Conkling, Philadelphia, Pa.

### NEW JERSEY'S CLAY PRODUCT.

Poor business caused reductions in the value of the clay product in New Jersey during the past year. The decreases included every variety of clay product, and the total was $2,513,537. The total product last year was valued at $8,353,296, while in 1913 it was $10,866,833. Brick fell off heavily, running up to nearly a million and a half dollars.

The value of the pottery output in 1914 was $8,131,356, compared with $8,838,545 the previous year, a decrease of $707,189.

Much high-grade clay is dug in the State. In 1914 there were forty-three producers, who mined 373,703 tons, valued at $648,584, a decrease of 74,432 tons in quantity and $121,105 in value. Of the clay dug and sold, over 75 per cent. was fire clay, a considerable part of which was shipped to other States.

Many plants, it is said, did not operate at all in 1914. This year has been better, but the output has probably not been up to normal. Some plants have not been opened at all this year. Not until toward the end of the season did building revive sufficiently to create anything like a normal demand for brick. Makers are looking for improvement the coming year and will be extremely pleased to see it.

# THE N. P. B. M. A. CONVENTION AT DAYTON, OHIO.

AN ARMY of paving brick boosters took Dayton by storm Monday, October 11, when the members of the National Paving Brick Manufacturers' Association gathered there for their twelfth annual convention in conjunction with the twenty-second yearly meeting of the American Society of Municipal Improvements. For several years past, the two associations have met at the same time and place and have profited materially by joint conferences and debates.

The Paving Brick Boosters quickly entrenched themselves in the new Miami Hotel, and though the latter had only opened the previous Saturday, the management by strenuous effort afforded such excellent service that the little troubles due to newness were good-naturedly overlooked. After being bebadged, the delegates much resembled the famous General Joffre, as he is pictured on dress parade in current photographs. Thus decorated they laid siege to the entertainment committees of both organizations. While the latter were greatly outnumbered, they refused to capitulate and took every visitor into camp. While the big guns boomed in the convention halls, the little ones rattled about the lobbies and cafes, but no fatalities were reported, though the hospital corps was called on on a few occasions to care for those who fell while on the firing line. The reception accorded the visitors was exceedingly cordial and is expressed, in a way, in the following editorial from ex-Governor Cox's Daily News:

### The Paving Brick Men.

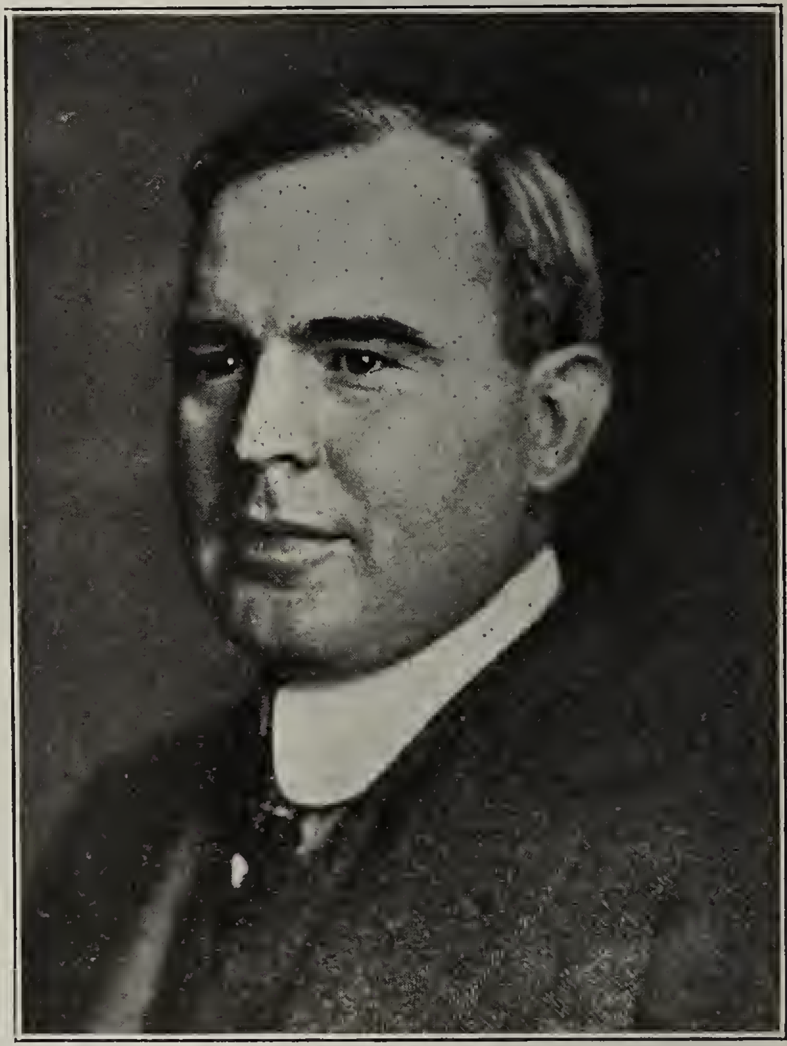
"The paving brick men are with us—husky fellows who are engaged in making the material that is lifting us out of the mud. They are here from all sections of the country—men who preside over big plants and little ones—and they are attending to business while having a good time.

It has been a struggle, and there are still many contests on, but this is to be a brick-paved nation. It is being demonstrated every day that other paving is a makeshift, or that it at least answers only a temporary purpose. Brick is the road; and the sooner every community recognizes it, and makes arrangements to vitrify its roads, the better it will be —and the cheaper.

Nature has nothing in her storehouses that is superior to a properly made brick. In her furnaces she has produced nothing that so well serves the purposes of man. In the deposits she has left for us to grovel in, she has placed no greater value than in the clays. She has wrought many wonders, but nothing so wonderful as her natural product which we call silica, and out of which we have fashioned so many articles of use and comfort.

These paving brick men are assuming, however, a tremendous responsibility. The prosperity of the community, in fact, is in their hands. They can help us to secure the proper roads, or they can retard us in the game. For they are to have much to do with helping us to secure the best roads at the most economical of prices. It is unfortunately true that every time a manufacturer sends out a poor grade of goods it retards the adoption of such goods to a certain extent.

That is one of the advantages of such conventions as this of the paving brick men. It enables them to get closer together, to co-operate more fully with the legitimate and to help weed out the illegitimate manufacturer. So we are all interested in the meeting being held here at this time. It brings us a little nearer to the era when one can travel on a brick road from one section of the nation to every other section."



C. C. Blair, Youngstown, Ohio, President-Elect.

Every firm on the membership list of the N. P. B. M. A.

was represented by one or more delegates and the business sessions of that organization were well attended. The reports of officers proved unusually interesting, and told of a very successful year's work, with prospects for even greater accomplishments.

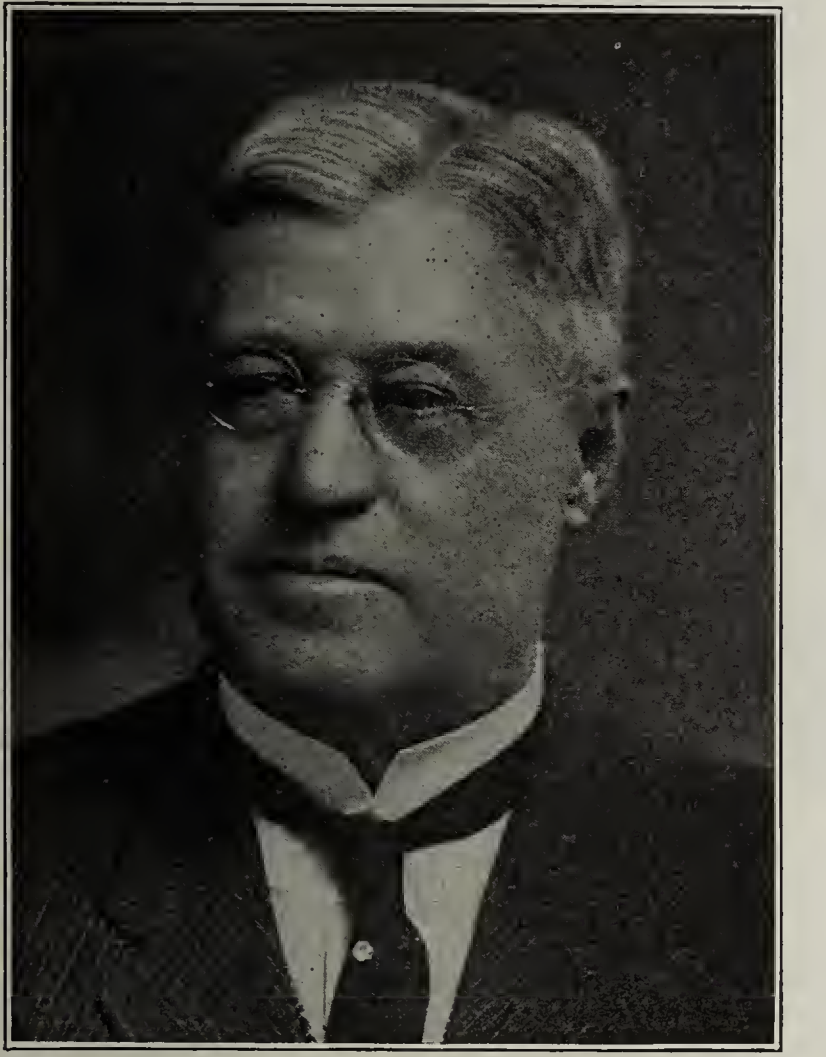
### Address of President Charles J. Deckman.

*Gentlemen of the Convention:*

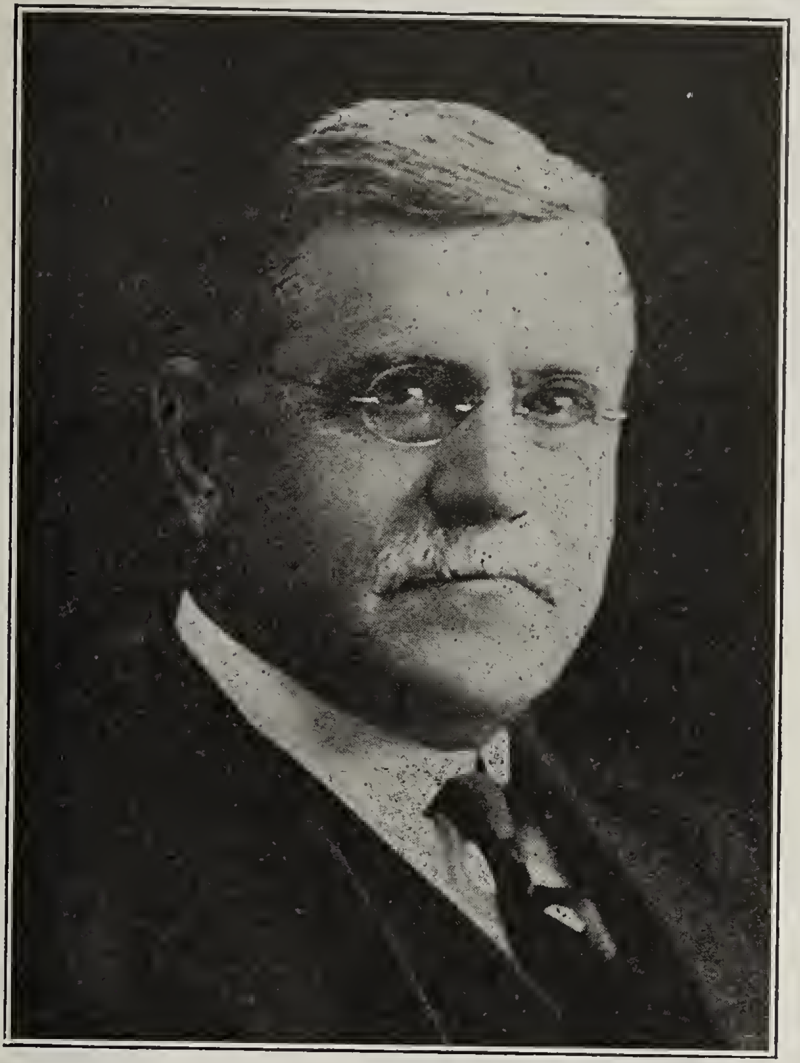
The past year has been an unusual one in many respects so far as it relates to the paving brick industry. It has been uneventful so far as any special accomplishments of the Association are concerned—so far as events have come to my knowledge. The usual routine work of the Association, through its officers and the efficient office force, has been far above the high standard of former years, but the industry, as a whole, does not seem to me to have had that prosperity that has been our privilege to enjoy for the past several years.

Whether the European war has either directly or indirectly had anything to do with the trade conditions, as they have existed during the greater part of the year, may be a debatable question. Suffice to say, however, our own internal war, not alone among our own membership but with many of those manufacturers outside our membership—and there are many such—has been exceedingly destructive of financial benefits. It is to be regretted that so large a number of our manufacturers of paving brick will remain outside of our Association—sapping out life-blood and energy that has been waged for the betterment of the industry—without so much as contributing a "thank you," let alone any revenue for the general benefit of the industry as a whole. This Association is spending its money, its energy, its education for better construction and the development of business for the industry, of which these manufacturers receive a large part. Were I to express myself in language fitted to my thoughts on this subject, this report could not pass through the mails. The smallest of these fellows, an Ohio river manufacturer, says: "Why should I join the Association and pay into its treasury for its support? I would be a fool to do so. They spend their money, develop the increased business, and I take the orders without any cost to me." I do not know that the statutes would define such acts as larceny, but some remedy, at law, should be provided to punish persons who possess all the qualifications of the common thief.

Under these trying conditions, it should become our sacred duty to redouble our efforts and declare our loyalty to the Association and its membership, and band ourselves closer together for the success of each and the Association. In our relation with these outside manufacturers in their endeavors to obtain business being developed by our Association, if a little concerted as well as individual effort be taken it will develop men, if manhood yet remains, or it will have a crushing effect such as manufacturers of their type deserve. I am one of those ready to apply severe, drastic methods, where sound business ideas and judgment, through persuasion, cannot prevail, but whatever may be your judgment of this subject, do not permit your loyalty and zeal for our Association to decrease, but declare yourselves men of intelligence, men of integrity, men of loyalty, and men of honor. Such men are fit companions to be associated with, and you honor yourselves and the industry in such business relations. May I ask—Do each of you want to measure up to such a standard? If you do, follow the command.



President Charles J. Deckman, Cleveland, Ohio.



Secretary Will P. Blair, Cleveland, Ohio.

The most important accomplishment of the Association during the past year has been the successful publication of "Dependable Highways." Too much praise cannot be given to Mr. H. H. Macdonald in his efforts and labors in making this publication the pronounced success it has attained, and I shall refrain from any further reference to it, leaving to him the honor of a report on this most interesting accomplishment.

And now, brethren, we come to the close of another official year in the Association's history. I have repeatedly requested permission to retire from the presidency of the Association, and I sincerely hope you may comply with my wish at this meeting. If, for any reason, you cannot grant my wish, I will serve you another year, but with the most sacred understanding that I shall retire at the close of the year. I have been honored more than I deserve. I have been unselfishly faithful to my trust as I have seen it. I have endeavored to be honest and fair with every member and every interest. I have done the best I could. If mistakes were made, they were of the head and not of the heart, and I appeal to you, in justice to my wishes, to accept this my last and final request for my official release. (Applause.)

### Secretary Will P. Blair's Annual Report.

*Gentlemen of the Convention:*

A very wise statesman has said that you must educate the world in sense before you can appeal to reason. Wherever the National Association has found existing sense to which to make appeal, we have endeavored to show that the merit of paving brick is sustained by the strongest of reasons. Another philosopher says that a good kick sometimes starts a stone rolling down a mountain side that otherwise might remain embedded there for generations.

We, therefore, have endeavored to arouse the public interest in every way possible. The Association has recognized that the educated and thinking people of the country exercise a vast influence over others. We have sought to interest this class of people in the merit of paving brick, knowing that their influence extends downward in the scale through the masses of the entire population.

This influence is found in the colleges of the country; it is found among the leading engineers of the country; it is found among the leading writers upon questions of domestic economy; it is centered in the engineering organizations; in the civic bodies; chambers of commerce; business organizations; among those promoting public, social, business and personal welfare, and all of these influences we have tried industriously to cultivate. Such influences we have regarded as exercising a great weight when activity is exercised toward actually choosing a form of pavement.

This Association has been instrumental in establishing highway courses in a number of states and has exercised a more direct influence in persuading all the leading institutions of the country carrying civil engineering departments to give special lessons upon brick street pavements. We have endeavored to be alert in the discussion of questions of construction arising from time to time by furnishing the technical and trade magazines with all the information at our command. Equal attention has been given to the writers of books by aiding them and assisting in every way possible toward accuracy of facts concerning the manufacture and use of paving brick. We have tried to halt campaigns purposely instituted to prejudice against brick as well as to inspire in every direction possible correct and favorable information. The monthly, daily and weekly press has been used upon every available occasion. The business man who is looking to make a sale tomorrow morning does not then see that such a sale would be possible, if the perspective of public favor had not been well arranged, many days or weeks or even months ahead. Nevertheless, we readily realize that but for such preparation in the public mind, a sale never would be made at all. Therefore, these avenues toward molding public opinion must be traversed again and again.

J. W. Robb, Vice-Pres., Clinton, Ind.

F. B. Dunn, Conneaut, Ohio.

John W. Sibley, Birmingham, Ala.

An entirely different effort to influence the use of paving brick has been a direct and personal one. The work itself is not so invisible. It is more clearly seen, and yet I doubt if it is so valuable, but it is conducted by individual correspondence, distribution of literature mailed and delivered to the individual, and by personal solicitation. Such work by correspondence reaches a wide area of personality. It covers all phases of the question from why a brick should be used, to how it should be used for paving purposes. It extends to the mayor, to the board of public improvements, to the engineer and to the humble taxpayer who sometimes exercises but a single voice in the choice of pavements. It involves a variety of letters calling for the full measure of diplomacy to the shortest answer of yes or no. It is sometimes extended to every property owner on a street, and again to the single powerful man of influence. Sometimes a campaign results in a steadfast adherence to brick. Sometimes the battle is lost. Sometimes it is a draw. Sometimes there is opened up to you a condition of public depravity that influences you to turn away in disgust, but sometimes again, the virility of the high standard of those with whom you are dealing makes your work a pleasure.

It is a strange thing to say, but it can be truthfully said that where honesty and integrity and a high moral standard obtains in a community, paving brick is almost certain to be found. We cannot say that all communities favoring other material are bad and dishonest, but we can say, with a large measure of truth, that the communities favoring paving brick are not only honest but they are unquestionably intelligent.

We cannot include in this report the details of all of this work. If we did, it would be but to do the work over again in your presence, which would be impossible.

Nor can we report to you in detail the work that the Association performs through the invisible but powerful sources of influence, the "higher-ups" of which we have spoken.

It is, however, most gratifying to acknowledge the co-operation that is extended to us in our work in various ways. May I indicate specifically: We have several sets of lantern slides that are loaned out to persons who take upon themselves the task of educating their neighbors and their communities in the use of paving brick. Requests of this sort come from public-spirited taxpayers of communities, secretaries of business organizations, from college professors, reaching from Maine to California.

Requests come from officials of organizations charged with publicity work to use our plates, our data and material which we have in hand. A request of this sort came to us, ending with the words, "Help us and incidentally help yourselves." In all our work we are compelled to recognize the power and resourcefulness of our competitors. They out-number us numerically and in financial strength, but in spite of many hotly contested fields we lay reasonable claim to better work, our numbers and financial size considered.

We might discuss in this report, many phases of the work of the National Paving Brick Manufacturers' Association. Rather, as a substitute for this and by way of recommendation, we earnestly solicit a visit by each member respectively of one entire day to the headquarters of the National Paving Brick Manufacturers' Association. The very suggestion seems to me to carry with it its importance. It enables you to become familiar with the work that is being done in your interest. It would enable us to gather from you ideas that will make for efficiency in your behalf.

Our only other recommendation at this time is in behalf of an increased value, worth and assistance of our national publication, "The Dependable Highways." It is the belief of the office board that in some way its expense should be lessened by its acceptance by the Government as second-class mail matter. We believe that this could be secured by a resolution of this Association to the effect that one twentieth of the yardage levy for 1916 be applied to the subscription of such list of persons to be named by the members to whom the "Dependable" shall be sent during the year. This would not entail any additional burden upon our membership. It would be equivalent to setting aside a certain sum for that purpose and would enable us to perfect the "Dependable" mailing list to such an extent that we believe but few if any manufacturers of paving brick would longer remain out of the Association.

In any event, it will enable us to place it in the hands of certain persons who should receive the "Dependable" every month in the year.

This would enable us to mail each month, "Dependable Highways" addressed personally to such number of persons in several states respectively, which would result in a powerful influence much beyond the expense incurred.

Let me illustrate by taking, for instance, what would be possible for the state of Indiana:

| | |
|---|---|
| County Commissioners | 276 |
| County Surveyors | 92 |
| County Attorneys | 92 |
| Township Trustees | 920 |
| Mayors | 100 |
| City Engineers | 100 |
| Miscellaneous List | 100 |
| Total | 1,680 |

The carrying out of this resolution could not be made to apply, of course, until after the expiration of the calendar year, but it could be made to apply in 1916.

In every detail of the work, varied and insistent as it has been, we have had the most unselfish support of the office board, namely: Messrs. C. J. Deckman, C. C. Blair and J. G. Barbour, by their advice, counsel and direction.

We have tried to keep in view the interests of the industry that are common and vital to all, allowing no diverse or selfish interest to distract, thus giving to individual interest the largest value after all, for no greater truth was ever uttered than that quoted on our program, that "Money spent competitively is spent largely in a fight for existing business, but money spent co-operatively will develop new and additional business."

### Report of Assistant Secretary H. H. Macdonald.

*Gentlemen of the Convention:*

We meet with perhaps more distinct cause for congratulation than at any time in the last eighteen months. The long-heralded return of prosperity is now so far advanced as to be unmistakable, with many indications that America is due for one of those periodical booms which means so much to constructive enterprise.

While we have been hampered by business depression, we have by no means been losing time. The repute of paving brick is better and wider spread today than ever before and it would seem that in 1916 the demand for good streets and roads will be more imperative than in any previous period. As evidence of this, we may cite the fact that the industry least affected by depression has been that of manufacturing automobiles and trucks. Disregarding that portion of this product that has been shipped abroad, there is still ample assurance that Americans are relying more and more upon power vehicles and that they will demand the kind of highways which permit power vehicles to utilize their full efficiency in tonnage and speed. The bad road and the bad street will have to go. We find counties resorting to wholesale improvement programs. We find cities abandoning piece-meal methods of road improvement and securing comprehensive reports of what is needed to make every square foot of highway surface available for traffic.

The Association has not been idle, as you know. Our work is not restricted to tomorrow's harvest or next week's. We follow the theory that good impressions of our product, gained through consistent advertising, may bear fruit at any time. Consequently, the effect of our publicity, even in a season of comparative depression, is cumulative. It is entered to our credit in the bank of public opinion and we can draw on it when conditions are right.

We have always felt that the average member of the Association would be stirred to even greater enthusiasm if he could come into daily contact with the things which the Association office is doing. My task, therefore, in the time allotted to me is to give you a few snapshots of the working of our organization and to show how a greater measure of co-operation will bring about proportionately greater results.

Even our simplest routine is worthy of a word of reference. Routine methods of promotion through form letters, etc., are productive of results on the law of average. We cannot foretell in what particular instance sales of brick will ensue, but we are justified in assuming that a certain proportion of letters, backed up by literature will bring results, dependent upon our skill in preparing this matter. For example, every construction report that reaches us through any channel, and these embrace lists of property holders from salesmen on the road, newspaper clippings and daily sheets from engineering journals, is immediately followed up with letters and literature. In going over results, we have been struck with the fact that brick is making the most headway in localities where the circularization has been most persistent.

The mailing of printed matter to inquirers is a matter of daily work. It is not unusual to send out two or three hundred letters and packages of literature on a single day.

The need of entertaining visiting engineers and officials is so nearly a matter of routine as to occupy a considerable portion of the time of the office force. Here is the ideal opportunity to impress visitors with the merit of our product and to iron out the apparent difficulties which confront them. The increasing mileage of brick pavement in and around Cleveland make it a good place for this kind of promotional work. The home atmosphere of Cleveland can be enhanced, however, from a brick standpoint, by the erection of a fitting Association building of brick on some appropriate site in which to accommodate our Association activities.

Nothing impresses like the atmosphere of success and permanence. Our visitors go from Cleveland full of the fact that Cuyahoga county contains something like 1,500 miles of urban and suburban brick pavement. They feel that there can be nothing experimental about a proposition so thoroughly entrenched in public esteem. The Association can enhance its own air of stability and responsibility by a building which shall, in itself, advertise the versatile qualities of vitrified brick. We have urged this proposition before. Reflection makes us more and more enthusiastic in its behalf. This building would, of course, most likely have to be constructed through endowments.

If there is anything to regret in the result of our activity it is the fact that our benefits have been so evenly distributed over the paving industry. Like rain, it falls upon the just and the unjust, the member and the non-member. We do not wish the non-member any hard luck, but God bless him, he ought to join. Sometimes he boasts that he gets all the good Association membership and pays out nothing. Men who support their wives without quibbling and who would scorn to play lame-duck when the treats are being passed, nevertheless take pride, apparently, in the good they can sponge from the National Paving Brick Manufacturers' Association.

We recommend that we cease coddling this type of manufacturer and draw the line more sharply between those who stand behind our highway propaganda as an organized force and those who do not. We cannot blacklist the latter, but we can whitelist the former.

Individual mention of members in connection with Association advertising is the first practical distinction in this step. We believe the repute of the Association to be such that a brickmaker whose name does not occur in our published list will have some explaining to do to engineers and officials, either in regard to his personal responsibility or his product.

As to "Dependable Highways," it has proved a continual avenue to inquiries from prospective users of brick. It comes regularly, month after month, to the desk of the man who is interested, carrying a variety of popular information upon road questions and quietly directing his attention toward progress of the brick idea in the highway world. It gives the Association a chance to speak when it wishes to make its views authentically known. It gives opportunity to gather the thought of a variety of minds on debatable questions. It aims to be interesting and through the interest aroused to work up a gradual receptive attitude toward our product.

Our office discussions of policy have pretty well settled the question that "Dependable Highways" ought to refrain from sharp criticisms and controversies. There are two ways of pointing out the same truth, as exemplified by the two wise men who were working for the same king, back in Babylon or some other place.

The monarch had a dream and he called on Wise Man No. 1 to interpret it. The latter let out a line of lamentation: "Oh, your Nibs! This is one fierce dream. It means that all your relatives and friends are going to die before you and you will be left alone with bitter memories of a transitory past and sad forebodings of dreary future."

"To Trinidad with such a prophesier," yelled the king, "and me paying you good money. Here, Captain of the Guard, cut off this guy's head. It's of no particular use to him."

But Wise Man No. 2 declared: "Imperial One, this is surely a swell dream you have had. It means that you are going to live longer than all those about you. Heaven beholds your transcendent beneficence and has chosen to reward the world by lengthening your years far beyond the ordinary span."

"Wise counsellor," quoth the king, "your pay is raised $2.00 a week and, by the way, take a little run down to Cairo at the expense of the firm when you feel like it. The trip is coming to you."

Both of these wise men said essentially the same thing, but with a difference. "Dependable Highways" aims to interpret the highway aspirations of its constituency with accent on the good side and a soft pedal on the bad. What it might say in criticism of our rivals, no matter how sincerely, would be discounted on the grounds of bias. On the other hand, a broad policy on the general subject of highway propaganda gains us a hearing for our special pleas on the subject of material.

Recently a subscription rate of fifty cents a year was fixed for "Dependable Highways" in the expectation that many members would become responsible for a certain number of subscriptions in their territory. Increasing circulation under this arrangement is not a liability, as it might become under other conditions. We urge your co-operation in this plan and we also are convinced that a little active solicitation by members from those to whom they pay their supply bills would produce a much more liberal advertising patronage. Do not look on "Dependable Highways" as a mere office bulletin, but as your publication, eager to reach and influence your field of patronage, solicitous to obtain your ideas and expecting your co-operation and support.

Having finished a successful year, won the good words of scores of diverse critics and having financed itself almost entirely out of its advertising receipts, we have no hesitation in appealing rather insistently for more liberal support of this little publication.

We have other publicity plans, of course. For city streets, circularization of property holders is the best method we have discovered. For rural localities, where a percentage of the roads are already improved, we believe that farm journal advertising will be productive of satisfactory results. Beyond this, for the effect upon the average man, the creation of the intangible thing called public sentiment, we believe our popular brick articles, sent to newspapers throughout the country and published by scores of them, pays more largely in the end than any other single measure.

We must influence the road building official and the road building public by all means. Incidentally, we must influence the non-member to join with us. Enthusiasm and co-operation are the indispensable agencies of lifting brick to the prestige it deserves. Our effort should be a united effort and we cannot help thinking that the spontaneous enthusiasm of every member is the best magnet to attract increased membership.

This is only a brief sketch of our activities and aims. The field is unlimited. Our friends, the enemy—the concrete men—have seen fit to keep scores of men in the field. Four of the leading cement firms of the country met at Atlantic City the other day and voted themselves to give a total of $240,000 for the work of their association during the coming year. We mention this with no aim to discourage you, but to emphasize the bigness of the task with which we are confronted and the boundless possibilities of growth which the future holds. (Applause.)

### Election of Directors.

The final session was devoted almost entirely to the election of directors, twenty-five in number being chosen out of a list of thirty-six submitted by the nominating committee. The following are the ones chosen for the ensuing year:

J. W. Robb, Clinton, Ind.; Eb. Rodgers, Alton, Ill.; R. A. Doan, Nelsonville, Ohio; W. N. Alderman, Athens, Ohio; C. C. Barr, Streator, Ill.; C. C. Blair, Youngstown, Ohio; C. J. Deckman, Cleveland, Ohio; C. P. Mayer, Bridgeville, Pa.; J. G. Barbour, Canton, Ohio; F. L. Manning, Portsmouth, Ohio; R. C. Burton, Zanesville, Ohio; W. P. Blair, Cleveland, Ohio; G. O. French, Canton, Ohio; J. L. Murphy, Nelsonville, Ohio; F. W. Lucke, Chicago, Ill.; G. H. Francis, Greensburg, Pa.; T. J. Armstrong, Springfield, Ill.; J. B. Wilcox, Alliance, Ohio; D. R. Potter, Clarksburg, W. Va.; John H. Simpson, Dayton, Ohio; W. R. Barnhart, Jr., Wooster, Ohio; J. R. Zmunt, Cleveland, Ohio; C. W. Turner, Sciotoville, Ohio; G. E. Carlyle, Portsmouth, Ohio; F. L. Moores, Cincinnati, Ohio.

### Secretary Randall Speaks for the N. B. M. A. and the Home Show.

The election is by ballot and while the tellers were busy with the work assigned them, President Deckman introduced Theodore A. Randall, secretary of the National Brick Manufacturers' Association, who spoke briefly of the coming national convention at Cleveland and the Complete Building Show, which occurs in that city, February 16 to 26. He predicted the largest attendance in the history of the national association, basing his judgment on the fact that every brickmaker in the land would want to see the splendid displays of brick, tile and other structural materials, which, he predicted, will rival in extent and character of displays the best of the world's building shows.

President Deckman next called on John W. Sibley, Birmingham, Ala., treasurer of the N. B. M. A., and secretary-treasurer of the Southern Paving Brick Manufacturers' Association, for a statement as to the southern situation. Mr. Sibley Replied as follows:

### Brick Pavements Growing in Popularity Throughout the South.

"Gentlemen: It is always a matter of great pleasure to meet with you. I bring you words of good cheer from the South. All the paving brick factories are as busy as can be. I want to say that since the organization of the Southern Paving Brick Manufacturers' Association, of which I am secretary, the attention of the South has been drawn to the matter of building pavement highways more than ever before.

Representatives of all the dope pavements have been working to gain favor for their materials, but that has given us an opportunity to come back with some of the valuable literature gotten out by your Association.

The splendid brick streets in the South have been good examples of dependable and satisfactory pavements for inspection. We are building many brick highways throughout the South. In Florida, there have been $6,300,000 worth of bonds voted for permanent highways, 90 per cent. of which is for vitrified brick. After next April, it will be possible to ride from Jacksonville to Tampa, a distance of about three hundred miles, on a continuous road of vitrified brick. That means not only fine things for the state of Florida, but an unanswerable argument for the use of brick in other states. The city of Atlanta has built a brick highway, and is expecting to build another brick highway in the spring. We also have under survey a road from Birmingham to the head of navigation on the Warrior river, recently opened by the Federal Government at an expense of $15,000,000, during the past twenty years.

So I can give you a word of encouragement in your efforts, and assure you that the South will continue to build brick streets and highways."

President Deckman said he was sure those present would be glad to hear something as to the financial or commercial side of the business and introduced Mr. R. L. Dollings, president of the R. L. Dollings Company, of Hamilton, Ohio, which has important financial interests in the brick industry in several states.

### This Country Should Buy Brick, Not Bullets.

"The permanent fixed dollar in the brick business is just as important as modern machinery. You are facing a situation with tremendous possibilities that cannot be met by haphazard methods. This country is going to buy brick instead of bullets; and, to meet this situation, the investor has become an important factor.

"I think I have a slight knowledge of the investor and his requirements. He recognizes the opportunity before you, and there is no industry today looked upon with greater favor by the solid investor than brick; but, to retain this favor, which you must do to meet the demands for growth, certain requirements must be met.

R. L. Dollings, Hamilton, Ohio.

"Basically, these requirements are not only the turning out of an honest product—the best brick that can be made—but the following of this honest brick into an honest job. You manufacturers have done more to hurt the brick industry than anyone else. If anybody has thrown a brick into this industry, it has been the manufacturer. In a city not fifty miles from Dayton, there are some mighty good roads and good city pavements, but at the end of one fine stretch of road is a square which takes all of the pleasure of the six miles away. It is so bad that it will give you heart failure to ride over it. Don't you see that the contractor who did this bad piece of work, who spoiled six miles of pleasure with one square of rottenness, cast a reflection upon the man who made the brick?

"It would not be too much for this Association to declare that it would not sell brick to a contractor who would not build roads and pavement that would stand up for the agreed time and give satisfaction. The manufacturer who sells to the contractor who is not honest, who does not build up to the specifications, is injuring the entire industry.

"The brick business is in its infancy, and this country will spend millions of dollars for brick with which to make good roads. This will require permanent financing. Some of you may say that the banks will take care of you, but this is placing a burden upon the banks which they cannot properly carry. A bank was never intended to furnish permanent capital for any industry. The permanent capital must come from the solid investor; and to have his good will and support, which is absolutely essential to the proper growth and development of the industry, he must know that the manufacturer is turning out an honest product, sold honestly, and that the industry is built upon a solid foundation.

"I would rather be in the brick business today than in the steel business. The brick manufacturer is contributing to the progress of the world. No development in this country in the next fifty years will do more for the general welfare and happiness of the people than that of good roads. Good roads and the automobile will revolutionize the ways of living—educational and industrial development.

"Let us put into the brick business efficient manufacturing. Let us make the best brick that can be made for the least money; and, through efficient selling, with a consideration always for the permanency of the industry, there will be big profits, and there will be forthcoming on the capital all that is needed to finance the business of today and of the future."

### The Election of Officers.

Following the election of directors, the convention adjourned. President Deckman then called the directors to order and they proceeded to elect officers. President Deckman's wish to be relieved from the presidency, a position which he has filled with great credit, personally, and with decided advantage to the Association, for the past five years, was acquiesced in and Mr. C. C. Blair, of Youngstown, Ohio, was chosen to fill that high office for the ensuing year. Mr. Blair accepted the gavel, stating that he did so with the express understanding that he was not to be called on for any oratorical effort. Consequently, the installation was a speechless procedure. The other officers: Vice President, J. W. Robb; secretary, Will P. Blair; treasurer, C. C. Barr, and assistant secretary, H. H. Macdonald being re-elected. Treasurer Barr had previously submitted his financial statement, which showed that the Association is in a very healthy condition, having a substantial balance in bank. Mr. Barr is a very popular treasurer.

### Entertainment Features.

The local committee on entertainment is to be congratulated on the success which attended their efforts. The visiting ladies were given special attention and were entertained by a series of automobile rides, luncheons and theater parties. The chief social function of the week was the annual dinner tendered the American Society for Municipal Improvements by the N. P. B. M. A. A fine menu was served in excellent style, during which a string orchestra discoursed popular airs. A local celebrity, Attorney R. R. Nevin, served as toastmaster, introducing the speakers of the evening in a happy manner.

The first to be introduced was W. O. Thompson, president of the Ohio State University, who spoke impressively on "The Efficiency and Economy of Public Expenditure." As an introductory, he remarked that as a rule men are money makers, and that the state and municipal organizations are money spenders, and as a natural outgrowth of increased population and better conditions of life more revenue is required for public institutions from year to year. This is to be expected. One of the chief essentials is for those in authority to see to it that the money is properly expended. An honest stewardship should be required from every public official. He paid a high compliment to the engineering profession, stating that in many years of intimate association with them he had almost invariably found them to be of high integrity and ability, honestly and industriously striving for the good of the community.

### Governor Cox Advocates Brick Roadways.

Ex-Governor Cox was introduced by the toastmaster in a felicitous manner, and responded in a like vein, and then for more than a half hour spoke with great earnestness on the need of permanent county, inter-county, state-wide and interstate main highways. He has evidently been a student of the good roads proposition and he expressed the opinion that brick paved roadways were the most durable and economical, hence, he declared that the main market roads and the principal highways of the state should be paved with brick.

### A Pretty Souvenir.

Each guest was presented with an attractive souvenir of the occasion, a pretty china plate, gold rimmed and bearing in gold the initials of the N. P. B. M. A. With each plate was a little folder reading on the first page: "Take the plate home with you—" and then followed, on another page, "Along with it our good wishes." This souvenir plate proved a great hit, as Secretary Blair well knows, for there was an infinite demand for extras.

There were other souvenirs; for instance, the Dunn Wire-Cut-Lub Brick Company, as is their wont, distributed their literature and presented each visitor with a carnation, a fresh supply appearing each morning. The mezzanine floor of the Miami Hotel was crowded with displays of all manner of paving materials and other supplies and appliances used in municipal work, and there were a few tables devoted exclusively to paving brick. Among the latter was something new in the way of literature, a booklet illustrating a recent invention of the irrepressible Dan Reagan, of Columbus, Ohio, "The Reagan Roller Die, patented, by which is made the ideal American end-cut paver." Many advantages are claimed for this device which will be fully illustrated in a subsequent issue of The Clay-Worker.

The Manufacturers' Equipment Company, of Dayton, kept open house during the week in a room up-stairs, in which they showed drawings of their famous Underwood producer gas burning system for periodic kilns, and distributed their literature on the Justice radiated heat dryer, their Meco single roll rock and shale crusher and other clayworking appliances.

The C. W. Raymond Company, Dayton, was represented by J. C. Brannock and Charles and George Raymond, who confined their efforts to the "glad hand" work. Those interested were taken to the company's immense plant, in the suburbs of the city.

The J. D. Fate Company, Plymouth, Ohio, was represented by G. A. Anderson. Chambers Bros., Philadelphia, Pa., was represented by A. R. Root; E. M. Freese & Company, Galion, Ohio, was represented by E. L. Hess, and the American Clay Machinery Company, Bucyrus, Ohio, was represented by Frank L. Hopley and Lambert Haigh.

All in all, the convention was pronounced a gratifying success. "Dayton is a fine convention city" and "Isn't this a dandy, fine hotel?" was heard on every hand. All present expressed the hope that they might be in attendance at the next convention, which is to be held at Newark, N. J., in the fall of 1916.

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Be a credit to your business if you would have your business be an honor to you.

# CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

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### A Kind of Boosting That Counts.

Editor The Clay-Worker:

I am mailing you a photograph taken of our exhibit at the Hunting County Fair, Huntington, Ind. You can plainly see how the display was made. We were showing our clay products of drain tile, hollow blocks and hollow brick. We also showed, as you will see, a small 2-inch tile made in 1881 and put in the ground the same year and did duty the entire time of thirty-four years. It is as sound today as when it was made.

We were certainly surprised at the number of farmers, as well as the city folks, who came and took a look at the exhibit. They asked many questions about a clay tile holding so much weight. I think we could have put on 3,000 pounds as well as what we did put on, but for fear of some enemy to clay products throwing a stone or in some way doing something to injure our exhibit, we stayed on the safe side, and if you will notice we had eighty-four building blocks, 5x8x12, and about one hundred hollow brick, besides the drain tile, on top.

STRENGTH and DURABILITY USE CLAY PRODUCTS
BIPPUS TILE CO. Bippus Ind.
MR FARMER DRAIN YOUR FARM

BIPPUS TILE CO. Bippus Ind.
THE CLAY-WORKER.

Splendid Displays Showing Strength of Clay Tile Made by Bippus Tile Co., Bippus, Ind.

You will notice the sign painting is not the best, but considering who did it, it is O. K. I did the whole thing myself with only a few pennies expense, excepting for the tickets to the fair.

Hoping this will be of some benefit to your readers,

Sincerely, M. N. KNIGHT,
Bippus Tile Co., Bippus, Ind.

P. S. I am sending you also a photograph taken at the plant, which perhaps will be of interest to you. As you can see, there are fifteen men on the 22-inch tile; their combined weight is 2260 pounds. With the saddle and extra board for the men to stand on there was over 2,400 pounds on the tile.

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### Opening for a Good Clayworking Engineer.

Editor The Clay-Worker:

Could you refer us to a first-class consulting engineer for clay industries? We find we are getting too much waste in process of manufacturing our terra cotta, and would, of course, like to eliminate same. If we could make satisfactory arrangements to have a ceramic and clay engineer look over our plant, we believe it would be advantageous.

I. M. P.

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### Helping Along the "Build with Brick" Campaign.

Editor The Clay-Worker:

Please find inclosed check covering another year's subscription to The Clay-Worker. We think the "Build with Brick" campaign is being very vigorously pushed. We are using the metal signs to good advantage, and also have a standing ad in our local papers. Business is not as good as it was last year and prospects are not very flattering. In fact, we doubt if business will be much better until after the European war is over. We are on friendly terms with our competitors, who are located at Jackson, Cape Girardeau, Illsmo and St. Louis.

Hoping for better times, we are,

Yours truly,
FESTUS PRESSED BRICK CO.
Festus, Mo.

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### Well-Known Brickmaker Retires.

Dear Mr. Randall:

Your letter received. The report that I am out of the brick business is true. I have sold my common stock in the Boone Brick, Tile and Paving Company and have retired from active participation in its affairs. I am interested in its business as a holder of its preferred stock only.

The fact that I organized the company and was its president and largest stockholder from that time until this year naturally makes me interested, also, in its success.

The clay business, like the law, is a "jealous mistress"; but I have no intention of serving her in the future and shall, at least for a time, devote myself to my individual affairs.

You say your readers would be glad to hear from me. I do not think I can interest them, but I wish to say that the manufacture of clay products has been to me an intensely interesting business, and there is no more limit to its possibilities than there is to scientific argiculture or any other business pursued on scientific principles. The near future of the business looks bright to me.

Yours truly,
Boone, Iowa. J. L. STEVENS.

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### An Optimistic Iowa Clayworker.

Dear Mr. Randall:

Every line of the clay business is prospering in Iowa. The tile business, owing to the wet season, is unusually active and the outlook exceptionally rosy. Paving brick plants are behind in their orders. The hollow building tile business is brisk and there is no end of a good outlook in that line. Common brick business is not particularly active. Face brick demand is strong and there appear to be indications of an increase in the demand. Roofing tile business is reported as very good and a growing tendency toward their use in local State residence construction. Large tile demand is perhaps a little below normal, the past few years' demand being taken as a basis. Some drainage districts still use cement tile, and in some districts farm drainage systems are being installed with cement tile, but to no great extent.

The corn crop seems likely to fall short of a 50 per cent. crop, which, if it proves a reasonable hazard, is likely to affect building operations materially next year. On the whole, the general view is optimistic with the clay people. There is a marked improvement in capacities, and it is likely that there will be no famine in the clay market, though deliveries may be a trifle slow.

Yours truly,
C. B. PLATT.
Van Meter, Iowa.

### Canadian Clayworkers' Convention Announcement.

Dear Mr. Randall:

At a meeting of the executive committee of the Canadian National Clay Products Association, held on September 16, it was decided to hold the next convention in the King Edward Hotel, Toronto, on January 18, 19 and 20, 1916.

While the clay products business is slack at present, the executive committee realizes that this is a good time to get together and discuss ways and means of handling the business when building again begins.

On account of the large number of plants running on part time it was thought that the managers would be able to get away much more easily than in the past and that a bumper convention would be the result.

We are looking for a very large representation for the clayworkers of the United States. In past years there has been a large delegation from this side of the line attending the N. B. M. A. convention, and we are in hopes that next January the clayworkers of the United States will reciprocate and come in a large body. There will be absolutely no trouble crossing the border. No passports will be necessary, and if the clayworkers state that they are on the way to attend a convention in Toronto, and state who they are, they will not be troubled in any way.

We trust you will give our convention wide publicity through the columns of The Clay-Worker.

Two years ago we had the pleasure of your attendance at the convention. We trust you will be here this year, and extend a personal invitation to our members to visit Cleveland in February at the time of your convention over there.

A dinner was given by the clayworkers in Toronto and vicinity to Mr. Jos. Keele, on his leaving Toronto to continue his testing work on clays and shales in the new Government Testing Laboratory at Ottawa. This is one of the most complete laboratories of its kind in America, and includes all the necessary equipment for carrying on experimental and research work in regard to clays and shales.

Mr. Joseph Keele was presented with an umbrella, suitably initialed. Mr. A. F. Greaves-Walker, first vice president of the C. N. C. P. A., was at the head of the table and made a very interesting address in regard to the work of Mr. Keele. The presentation was made by Mr. Jno. S. McCannell.

At a meeting of the Clayworkers' Safety Association on September 16 Mr. Chas. A. Millar was appointed inspector of clay plants in connection with the carrying on of the Workmen's Compensation Act for the Province of Ontario. Mr. Millar has accepted the appointment, and is an ideal man for this position. He made a great many friends as president of the C. N. C. P. A. for two years. He is president of Price's, Limited, and vice president of Price-Cummings, Limited, two large and well-known brick manufacturing concerns. Previous to his connection with Price's, Limited, he owned and operated the Standard Brick Company. The appointment meets with general approval.

Yours truly,
G. C. KEITH,
Secretary-Treasurer The Canadian National Clay Products Association.
Toronto, Ont., Canada.

### Big Texas Storm Plays Havoc with Elgin-Butler Brick Plants.

Friend Randall:

Your letter of recent date just received, and will say in reply that you are the only outside person that has taken interest enough in us to make inquiries as to how we weathered the terrible storm we had here in Texas the 17th of August.

The Butler Brick Works of Houston, the Butler Brick Works at Austin, and the Elgin-Butler Brick and Tile Works at Elgin, or Butler Spur, all belong to the same company. Our yard at Houston was damaged about $40,000 worth, our Austin yard had a big loss, while the loss at this, our Elgin, yard is great. The wind and rain were about as severe as anything I, personally, have ever passed through. All of our kilns were unroofed and the 2x12-inch rafters were twisted and torn, very few being left half length. The brick kilns that were empty, with good, substantial walls, 68 feet long and 13 feet high, laid in good cement, 60 inches thick at the bottom and 54 inches thick at the top, were crushed down. Planks 2x12 inches by 18 feet were carried as much as half a mile from the plant, and corrugated iron roofing was carried about by the wind in such a manner that it was not safe to be out of doors. Some of the iron work was blown against frame buildings with such force as to cut right through. Of course, the kilns that were being burned, as well as those that were watersmoking and those being filled with green brick, were badly damaged. Several of the houses of the company were unroofed and blown away. I myself was picked up by the wind bodily and carried some distance. Trees were uprooted by the hundreds and carried in all directions. One of our associates, Mr. P. W. Leming, was caught under a falling tree and part of his scalp torn off. A part of my residence was unroofed and considerable damage resulted to the interior.

In fact, the half will never be told. It was a very serious proposition while it lasted, but fortunately no lives were lost. Many people prayed during that storm that never prayed before. However, as soon as the storm was over, all hands were put to work getting the plant in working order again, and we were so busy we did not take time to have any pictures made of the wreckage. Everything is fixed up now good as new except one kiln, which must be completely rebuilt, and the plant is now running the same as ever, turning out our celebrated Elgin-Butler face brick.

With kindest personal regards, I am,

Yours truly,
A. J. KAUTZ,
General Manager Elgin-Butler Brick & Tile Co.
Elgin, Texas.

### A Plea for the Jackson Highway.

Editor The Clay-Worker:

I am writing you for the purpose of enlisting your assistance and for your recommendation of the Jackson Highway through Alabama and Selma, and we will appreciate any effort you may extend in this cause.

The Jackson Highway Association was formally organized at Nashville last week, and has projected a highway from the lakes to the gulf, one branch starting at Chicago and another at Buffalo, the two joining at Louisville and terminating at New Orleans.

The route has been selected from Chicago and Buffalo to Nashville; but south of that point there is a spirited contest, and the final decision is in the hands of the executive committee, which consists of a vice-president and three committeemen from each of the states to be traversed.

Peter Lee Atherton, of Louisville, is president; J. P. Creveling, Nashville, vice-president; and the committeemen from Indiana are Messrs. W. H. Lincoln, of Columbus, and W. L. Brown, of Frankfort.

Now, the route we are anxious to have adopted goes from Nashville to Birmingham, thence to Montgomery, to Selma, to Mobile and on to New Orleans. This route was travelled by a delegation to the Nashville meeting, and between this city and Nashville, fully 80 per cent. of the highway is completed and the balance is under construction, and will be completed within the next few months. South of Selma, most of the road is either complete or under construction, and plans are now under way, which will insure the completion of the gaps during the coming year. Arrangements have been about completed to bridge the Tennessee river, and some arrangement will be made for similar action for the Tombigbee, thereby assuring a highway all the way from Chicago to New Orleans, without ferries.

From a scenic standpoint, our route is far ahead of the other, the road from Nashville to Birmingham passing through a mountainous section, where great engineering difficulties have been overcome and a low-grade highway constructed through a picturesque country. Leaving Birmingham, the road ascends Red Mountain, where a magnificent view of the Birmingham district is to be had. From there to the gulf, the road traverses a rich agricultural country, which is not lacking in beauty, and then skirts the gulf coast with its famous resorts, on to New Orleans.

Now, the highway is to be named in honor of President Andrew Jackson, therefore the historical feature will have some bearing on the selection of the route. Although Mississippi makes the claim that General Jackson made his famous march from New Orleans on up through Mississippi, it is a fact that General Jackson also marched through Alabama on his famous campaign in his fight against the Creek Indians; and at Horseshoe Bend, just east of our road, he fought the greatest battle of his life. In fact, the entire route south of Nashville through Alabama is so much associated with history that it would be impossible to do this feature justice in a letter of this character.

Another argument in favor of our route through Alabama is the fact that there is a chain of hotels along the way, capable of caring for the largest parties in the most satisfactory manner.

Summed up, our argument is good roads, splendid scenery, inspiring history, excellent accommodations and a hearty welcome for tourists.

Yours truly,
A. G. KAHN,
Selma, Ala., Oct. 8, 1915. President Kahn Brick Co.

### Backing Up Faith with Works.

T. A. Randall & Co.:

Gentlemen—We have yours of August 30, inclosing Business Chart prepared by Mr. D. R. Hatton, of the Laclede-Christy Clay Products Company, and are much interested in this and his letter to you.

We are heartily in accord with the optimistic view expressed and have been putting our house in order and preparing for it. During the past eighteen months we have spent large sums in remodeling our machines, devising improved appliances for the clayworking art, making and testing out the initial machines embodying these improvements, and perfecting our facilities for manufacture.

Our faith in the ultimate supremacy of burnt clay products has never wavered, and we have staked our time and capital on this faith.

We are better prepared today than ever before to serve the trade promptly and efficiently with clayworking machinery of the better kind.

We expect to continue using the columns of The Clay-Worker to set these facts before the trade.

With best wishes, yours very truly,
CHAMBERS BROTHERS COMPANY,
J. H. CHAMBERS, President.
Philadelphia, Pa.

### ANNOUNCEMENT OF CAROLINE EISENHART'S ENGAGEMENT.

Mr. and Mrs. R. G. Eisenhart, of Horseheads, N. Y., have announced the engagement of their daughter Caroline and Mr. William Edward Davis, Jr., of New Haven, Conn. The wedding will take place some time during the early winter.

### OREGON CLAYWORKERS' ASSOCIATION TO MEET IN NOVEMBER.

The board of directors of the Oregon Clayworkers' Association has decided to hold the fall meeting in Portland, and the dates of November 4 and 5 have been selected for that purpose. The committee in charge of the meeting, with Mr. Harold C. Smith, chairman, has decided on a splendid program, and it is proposed to show the Oregon clayworkers the various plants in and around Portland. A business meeting will be held in the morning of the second day, at which the reports of the various committees will be considered, and such other matter will be open for discussion as may be brought up at the meeting.

Headquarters will be established at the office of the Denny-Renton Clay and Coal Company, 179 Burnside street, at the entrance of the Burnside bridge. Detailed information about the meeting itself will be mailed later.

The time of the meeting was selected with a view that the members could also attend the Land Products and Manufacturers' Exposition, which will be held at that time; and it is quite probable that reduced rates can be secured on the railroads to Portland. All clayworkers of the state are especially urged to attend this meeting, so that they may get acquainted with fellow clayworkers and the principal clay plants around Portland. Kindly advise the secretary by postcard of your intentions, so that the committee can make its proper arrangements.

S. GEIJSBEEK, Secretary.

### COMING INTO ITS OWN.

"The Mantel, Tile and Grate Monthly," the official organ of the Interstate Mantel and Tile Dealers' Association of the United States and of the Wood Mantel Manufacturers' Credit Association of the United States, published at Utica, N. Y., has, within the last twelve months, taken on new life. They have opened a New York office at 30 Church street, in the Hudson Terminal Building, which is in charge of Allen E. Beals, a well-known trade paper man.

The "Monthly" has made many improvements in its make-up, and every month carries interesting articles and illustrations of new tile work.

Its subscription list has increased very materially during the past twelve months, and it now reaches practically every dealer in mantels, tiles, grates and kindred goods in the United States and Canada, as well as hundreds of architects, contractors and builders. Its advertising pages are filled with high-class advertisements of some of the best concerns manufacturing mantels, tiles and grates.

# OFFICIAL ANNOUNCEMENT.

### Thirtieth Annual Convention of the National Brick Manufacturers' Association and Allied Organizations, to Be Held at the Statler Hotel, Cleveland, Ohio, February 20 to 26, 1916.

### Reduced Railroad Rates Have Beeen Granted by the Central Passenger Association.

IT IS GENERALLY CONCEDED that the two most prosperous cities in America today are Detroit and Cleveland. Remembering the splendid convention in the former city last winter, the members of the N. B. M. A. and allied associations will be glad to learn that it has been decided to accept the urgent invitation of the Cleveland members to hold the next national convention in that city, February 20 to 26, 1916.

### The First Complete Building Show.

At that time, there will be a great exposition of brick and other building materials in that city, the first American **Complete Building Show.** The chief purpose of the Building Show is to demonstrate to the prospective builders of the nation the importance of building incombustible structures. The exhibits of materials entering into the construction of such buildings will afford an object lesson that can but impress the beholders with the advantages of building permanent, safe and unburnable homes and commercial structures. Hence, such displays must inevitably prove of great material value to the manufacturers of clay products for structural purposes, for brick, tile and terra cotta are unquestionably the best and safest building materials.

For years past American churches and school houses have, as a rule, been built of brick. When such buildings are contemplated, permanency and low cost of maintenance are always considered as elements of first importance. The same should be equally true of our homes and business buildings, for when built of incombustible materials, they afford protection against fire and loss of life, as well as against loss of property.

### Matters of Great Importance to Brickmakers.

These facts should be brought home to the masses, and the Building Show will be an effective means to that end. Clay products for structural purposes being the most durable and in the long run the most economical building materials, brick, tile and terra cotta will naturally play an important part in the Building Show.

No other building material has been improved in both form and color to the same degree of perfection as have brick and tile in the past decade. A building show which will demonstrate this fact will surely be of advantage to the clay craft in general and members of the N. B. M. A. in particular, as the latter have in the past pioneered the way in the march of progress, hence a meeting at Cleveland at this time is desirable.

### Cleveland a Popular Convention City—Hotel Statler Again Headquarters.

The Ohio metropolis is very near the center of the great clayworking industries, and so is conveniently get-at-able to a large majority of our members. It may properly be termed the home of the great paving brick industry, and its vast manufacturing and commercial interests make it a most attractive place of meeting for business men.

Last, but not least, one of the essentials of a great convention is ample hotel accommodations, and these will be afforded by Hotel Statler, which will be headquarters during the convention and will provide unsurpassed conveniences and comforts for the delegates and those who will accompany them. An addition to the hotel is now being erected, which will make the Statler one of the largest as well as one of the finest hotels in the land. As our members know from past experience, the same reasonable rates will prevail during the convention as at other periods, for the Statler hotels do not raise their rates during conventions.

### Reduced Railroad Rates Granted by the Central Passenger Association.

Delegates to the convention, and those accompanying them, can secure round trip tickets on a basis of two cents per mile, this concession having been granted by the Central Passenger Association, which includes the territory west of Pittsburgh and Buffalo, east of the Mississippi River, and north of the Ohio, extending to Chicago and Detroit. It is anticipated that other traffic associations will concur in this concession so that round trip tickets can be purchased from all points east, south and west. The tickets may be purchased February 18, 19 and 20, and will be good returning March 1, 1916.

Hotel Statler, Headquarters for the N. B. M. A. Convention.

An appropriate program will be arranged covering the various important phases of the industry, which may be considered with pleasure and profit by the members. Clayworkers desiring any particular feature of the business included on the program are invited to communicate with the secretary in regard to same. Those desiring information as to requisite of membership, etc., are requested to write to the secretary at Indianapolis, Ind.

THE EXECUTIVE COMMITTEE,  
C. P. Mayer, President.  
Theo. A. Randall, Secretary.

## DEMAND FOR AMERICAN MACHINERY ANTICIPATED.

Under date of June 24th, the letter having been delayed en transit probably by the censors, Messrs. G. Pellerin & Co., 82 Rue d'Hauteville, Paris, France, write that they anticipate a demand for American machinery for the manufacture of brick, tile and building block with the advent of peace. Accordingly, they will be pleased to receive catalogues of American machinery, and solicit correspondences with manufacturers who can furnish the desired equipment.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION.*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

| | |
|---|---|
| One copy, one year (in advance) | $ 2.00 |
| One copy, one year (if not paid in advance) | 2.50 |
| Six copies, " " | 10.00 |
| Ten copies, " " | 15.00 |

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXIV. OCTOBER, 1915. No. 4.

## CURRENT COMMENT.

Are you a "Brick Booster?"?

* * *

Have you joined the Building Brick Bureau?

* * *

It's time to talk brick for barn building, too.

* * *

How much local advertising have you been doing—and how are the results from it?

* * *

Reinforced concrete when used in fire-proof structures should be protected with burnt clay fireproofing.

* * *

Hollow tile building block has its uses, and the enterprising manufacturers of this product are finding them, too.

* * *

When the frost is in the air the warm glow of the kiln fire has a more welcome appeal than in the sizzling days of summer.

* * *

It is the man who takes the most pride in his product who generally has the fewest complaints and the most satisfied customers.

* * *

The winter season will not be a dull one unless you let it, for there is plenty to do to keep it lively and to get in good shape for next spring.

* * *

When you find some fellow who can turn out a better product than you, or the same product at less cost, that is the fellow you need to cultivate and learn from.

* * *

That "Build with Brick" slogan has gone home to the brick trade so thoroughly that no man ever puts up anything in the form of a brick display or feature advertising without using it. Let us keep up the good work until the idea is driven home to the general public in the same way, so that when they think of building they will be reminded to build with brick.

* * *

"So long as the farmer prospers the backbone of the nation is in good shape," say the wise ones. Well, this has been some season for rural affluence.

* * *

Home building was the best end of the building trade the past season. Let us keep the home building spirit alive, for it is good for the country as well as for the trade.

* * *

The paving brick folks have thoroughly demonstrated that research and exploitation pay good returns. Now let us turn to in the building brick end and see if we can go them one better.

* * *

Nearly everybody's doing it—boosting the game by using Build with Brick and Pave with Brick posters. If you are one of the few who are not, get busy—get into the game, for it's going fine. See page 375.

* * *

Labor saving equipment for handling both the raw material and the finished product in clayworking is just as essential to manufacturing success as good labor saving machinery with which to do the work.

* * *

It is to the interest of the business men in town as well as the farmers in the country to have good roads, and it should interest both to know that the very best road, like the best street, is the one that is paved with good, vitrified brick.

* * *

Illinois produced more common brick last year than any other state, the total being 942,219,000. That's a pretty big bunch of brick, but we ought to be able to boost it beyond the billion mark in another year by persistently pushing that Build with Brick idea.

* * *

Tile drainage has shown up to conspicuous advantage this season, and it is always worth while, so it is a very opportune time to push the drainage doctrine among farmers. They are able financially to do it as a rule, and that it will pay can easily be demonstrated.

## AUTUMN BUILDING ACTIVITIES.

One of the most pleasing signs of the times that has been in evidence for two months now is the healthy increase in building operations practically all over the country. Beginning with August, building operations have taken on new life and August and September have easily passed the record for last year and have just about added enough that the record for the entire year gives promise of being considerably ahead of the record for last year, even though for the first six months it fell considerably behind.

An authoritative report on building operations in 160 cities shows that during August there was seventy-one millions worth of building, as compared to sixty-five million dollars worth for the same month last year and from current reports it seems that the good work has kept on through September, and will continue until severe winter weather puts a check on the work in the northern half of the country. Some cities have continued to show losses, but in many there has been remarkable gain.

Dayton, Ohio, has shown the most remarkable gain, the permits there, as compared to August last year, showing a gain of 262 per cent. The only other city coming near this was Topeka, Kan., with a gain of 227 per cent. There were several cities showing 50 per cent. gains, and a few showing over 100. Chicago showed 65 per cent.; Detroit, 37 per cent.; Kansas City, 38 per cent.; Memphis, 55; New York City, 45 in Manhattan, 78 in The Bronx, and 44 in Queensboro. Philadelphia showed 51 per cent. gain; Portland, Ore., 78; St. Paul, 65, and so it goes all along the list and there are considerably more gains than losses, and building operations the country over have taken on considerable new life this fall.

And one of the pleasing things is found in the fact that in the autumn building activities brick is playing an important part. There are more brick houses, comparatively, being erected now than ever before. Part of this turning to brick is natural, but a large part of the present increase in the use of brick in home building is due directly to the "Build With Brick" propaganda, which is bearing fruit all over the country. It will likely be found, when the season ends, that this has been a good year in building brick, notwithstanding the slow movement of building operations during the first six months and, best of all, it seems to be just the beginning of a new and greater era. If the fall building operations may be taken as a criterion of what to expect next spring, the brick manufacturers, when they get through supplying the busy rush of fall trade, may well turn to and put their plants in shape to do the biggest business on record during the season of 1916.

## BRICK BOOSTING CALENDARS.

As the time of the year draws near for the annual distribution of calendars, The Clay-Worker feels almost moved to open up anew the campaign waged heretofore for the "Build With Brick" posters, with the difference that the fire would be concentrated upon the subject of calendars and literature.

The fact of the matter is, every calendar sent out by every clayworker should be made conspicuous with the "Build With Brick" slogan. Indeed, a splendid business-like calendar could be made by having nothing in the bland space for decoration but our regulation "Build With Brick" poster. Then, even where those selecting calendars have a leaning toward some special form of decoration or illustration, it should still be remembered that on the calendar is an excellent place to display that "Build With Brick" sign. It is presumably kept hanging up all the year and it is consulted frequently, so that, with calendars of this kind distributed all over the country, the effect should prove quite impressive.

We earnestly hope that every brick manufacturer who invests money in calendars during the mid-winter season will see to it that there is in conspicuous evidence somewhere on his calendar the "Build With Brick" slogan. If some good calendar manufacturer would take up the idea right, it should be practical to turn out a sort of uniform "Build With Brick" calendar, which in a way would serve in its general distribution much the same purpose that has been served by the posters and metal signs that have been so widely distributed the past year or more.

When placing an order for calendars, keep this fact in mind, talk it over with your calendar man and see what can be developed. The chances here to use effectively our "Build With Brick" slogan are too good to be overlooked and we hope the trade will make the most of the opportunities and the calendar of every brick manufacturer the next year will carry its message to the recipient.

## GOVERNMENT COMPLIMENTS "BUILD WITH BRICK."

There have been many pleasing incidents complimentary to the slogan, "Build With Brick," introduced by The Clay-Worker some time ago, followed with a campaign of boosting for the general use of this slogan as a sign of the times all along the way, and added to all the others there has lately come a sort of government indorsement that is pleasing in that it acknowledges, in a way, results that have been accomplished.

In reviewing the brick and tile industry for 1914, the U. S. Geological Survey says that while the production was somewhat below normal it was only a temporary set-back, because the great clayworking industries, with the inherent superiority of their products for many uses are about to come into their own. Also, it points out that the wide publicity given to the brick by the "Build With Brick" and the "Pave With Brick" movements, made strong features of in 1914, cannot but prove of inestimable benefit in the extension of the use of brick.

The Clay-Worker is very desirous that the readers get the full benefit of that phrase "inestimable benefit." This is exactly in keeping with arguments that have been put up right along. Moreover, it is already clear that the "Build With Brick" movement has actually done more in the way of real good for boosting brick than anything ever tried before. That is not all, either, it has accomplished this with less expense than would be possible with any other form of exploitation.

It is the actual good already accomplished and the easily evident prospect of much greater good along the same line that moved the enterprising spirits of the N. B. M. A. to set in motion the proposition for a central building brick bureau. This bureau is now getting itself established and before another year rolls around should make both the "Build With Brick" slogan and the brick industry more conspicuous all around than it has been heretofore. The Building Brick Bureau is a good thing that should be pushed along, and it is particular pleasing to have this compliment paid to it by that important government department, the U. S. Geological Survey. What we need now is for every individual brick manufacturer and every local organization of brick manufacturers to realize both the importance and the necessity for maintaining a practical organization to keep this "Build With Brick" movement going and to make up their minds that they are going to do their part in support of this organization.

## FIRE PREVENTION DAY WORK.

One of the features of the month of October has now come to be a pretty general observance throughout the country of a fire prevention day, a day set apart to study precautionary measures against fire, both inside and outside the home. This is both good and timely. It is good because fire loss is absolute loss and the conservation of property demands that we take all practical measures to prevent fires and to reduce this enormous annual loss of the United States. It is timely because in a large part of the United States we are entering into the season in which the cold weather calls for fires in the homes, and out of doors we have dead grass and leaves, making it a time for precaution against fires all around. The brick manufacturers and other clayworkers are particularly interested in this fire prevention day work because they have the one best fire-proofing product in the United States. It has been clearly demonstrated that not only big office buildings and business houses, but also homes, can be built of burned clay products and made absolutely fire-proof, so far as the building itself is concerned. Moreover, with a fire-proof building there is not much danger of enough combustible material accumulating in one room to cause any serious damage. One of the features of fire prevention day that every brick manufacturer should seek to have incorporated is some lessons in comparative cost of building with fire-proofing material and with combustible material. Once the public is thoroughly informed on the fact that brick houses can be built for just a small per cent. more than the flimsy houses, there will be a much greater turning to brick for home building, and in this a good work in the way of practical fire prevention will be carried out. Incidentally, it may be mentioned that fire prevention day is an auspicious occasion on which to feature that great slogan, "Build With Brick."

One of the signs of agricultural prosperity this year was in the large rural attendance at fairs. Let us hope a fair share of that prosperity will be devoted to farm improvement, with clay products.

### FINE CANADIAN BUILDING BRICK.

We are indebted to Mr. John S. Phalen, general manager of the St. Lawrence Brick Company, Limited, Montreal, Quebec, for samples of their latest design of buff texture brick, which are very fine and give ocular proof that Canadian face brick compare favorably with those made in the States. Mr. Phalen, who is a native of the United States, is particularly proud of them, for they are the product of their Raymond producer-gas-fired kiln, and demonstrate that with proper skill and care fine face brick can be burned in a continuous kiln. Indeed, Mr. Phalen thinks their gas-fired kiln turns out a better grade of face brick than can be burned in any other kiln.

We presume Mr. Phalen will have samples of this brick at the next national convention, so that members in attendance can see to what degree of perfection he has attained. Other Canadian manufacturers are invited to have their products on exhibition at Hotel Statler, convention week.

### GREENDALE RUG BRICK.

The above is the title of an interesting portfolio recently published by the Hocking Valley Products Company, setting forth, with colored illustrations, the beautiful effects that can be secured with the use of the Greendale rug brick. Views of the factory and buildings that have been erected with this excellent brick make the pamphlet replete with interest. When we look at the exquisite coloring in the panel illustrations, exactly duplicating the brickwork as it appears in the wall, we wonder why there is really any other building material. How could anyone wish for another type of building material, when brick, and especially the Greendale rug brick, are so artistic, beautiful and everlasting? We wish to compliment the Hocking Valley Products Company on this splendid portfolio.

### CHAMBERS BROS.' MULTIPLE BRICK CUTTER NO. 10.

An interesting leaflet is being mailed by Chambers Bros. Company, Philadelphia, Pa., illustrating and describing their new multiple cutter No. 10. They say there is no mystery about the mechanism of this cutter; that it is so constructed that it does not swell the clay bar. Writing of this cutter, Mr. A. C. Tevling, of the Mill Hall Brick Works, Lock Haven, Pa., refers to it as a perfectly working automatic cutting table, which cuts absolutely straight brick and does the work with a minimum cost for wires; they did not average more than one broken wire a day, running at a capacity of 30,000 brick.

For further particulars as to this cutter, or any other Chambers machinery, see their ad on pages 378 and 379, or write them for illustrated catalog and leaflets.

### A LEAFLET WORTH STUDYING.

One of the most appealing leaflets we have received in years—that is what we wish to say about the latest circular sent the trade by the Thew Automatic Shovel Company, of Lorain, Ohio. It consists of a sheet of enamel paper, about thirteen inches square, which folds up to pocket size. On one side are printed facts about Thew shovels and a descriptive article, the reading matter appearing in the center with a border of pictures of Thew shovels in operation. On the reverse side is a view of the Thew combination boom shovel and illustrations of several parts. All the noteworthy features are described in boxed paragraphs, with red arrows indicating the location. The eleven exclusive Thew features are indicated by means of stars. This leaflet will give you a splendid idea of the real working qualities of the Thew shovel. If you want to study this most important machine for gathering your raw material, write them for one of these leaflets. See their advertisement on page 373 of this issue.

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**"GETTING THE MOST FOR A DOLLAR,"** has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy Engineering Company.**

[See page 453.]

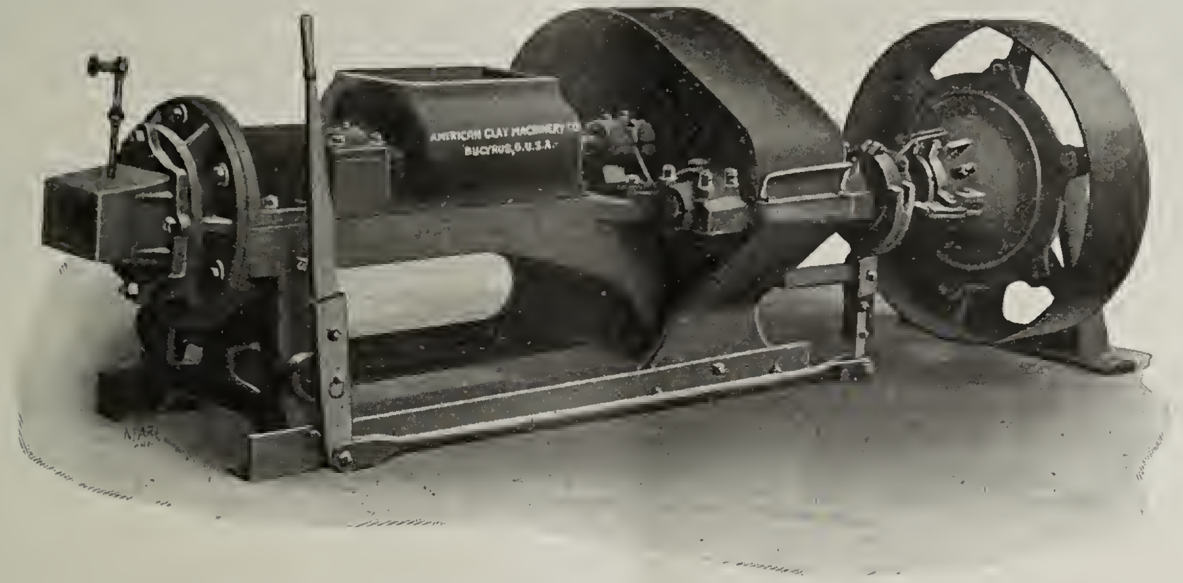
### THE LAKEWOOD LINE OF CONVEYING CARS.

The above is the subject of a very attractive leaflet sent out by the Lakewood Engineering Company, Cleveland, Ohio, which has some novel illustrations of their cars and other brickyard appliances, in addition to their single, double and triple-deck cars. They also illustrate their electric transfer car, which is proving very satisfactory.

The Lakewood Company will be glad to give full particulars in regard to any of their equipment, which includes the Richardson repress, which is especially designed to meet the various requirements of brickyard service and on which are made building brick, fire brick, face brick, paving brick or block, standard or Roman sizes, either by the stiff or soft-mud process. For further particulars write to the Lakewood Company for copy of the leaflet or their complete catalog.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

The AMERICAN CLAY MACHINERY COMPANY
BUCYRUS, OHIO
The Haigh Continuous Kiln
BUILT RIGHT RUN RIGHT



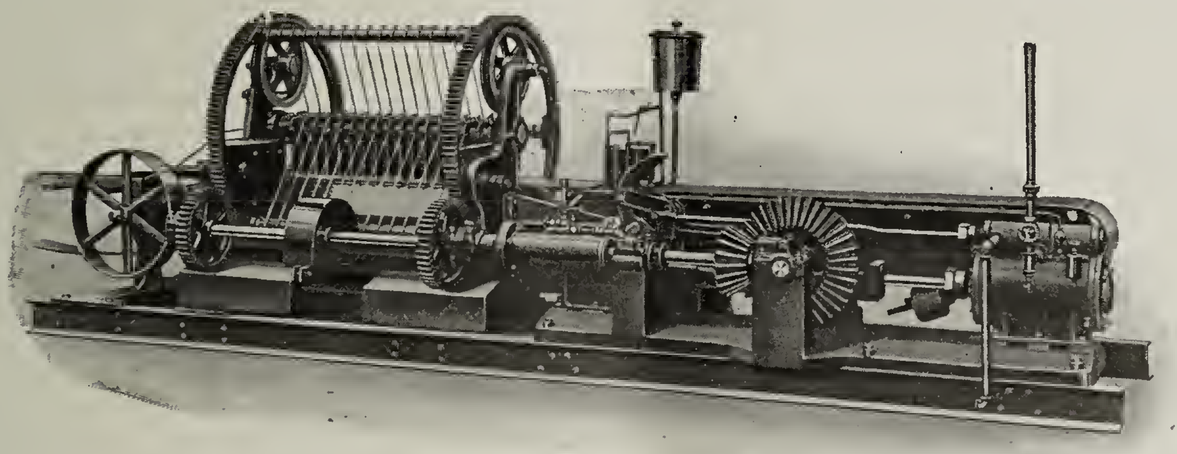
**American No. 328 Auger Machine**

This machine is designed for the manufacture of building brick and drain tile, also hollow building blocks, 4 inches by 5 inches and 5 inches by 8 inches. Not recommended for drain tile larger than 12 inches.

**Rated Capacity Per Hour**

| | |
|---|---|
| Building brick | 1,000 to 2,000 per hour |
| Drain tile, 4 in. diameter | 1,000 to 1,500 per hour |
| Drain tile, 6 in. diameter | 700 to 1,000 per hour |
| Drain tile, 8 in. diameter | 500 to 700 per hour |
| Hollow building blocks | 5 to 7 tons per hour |

The capacity is governed by speed at which the pulley is driven, nature and character of clay, size and kind of ware manufactured, and by management.



**American No. 300 Rotary Automatic Cutter**

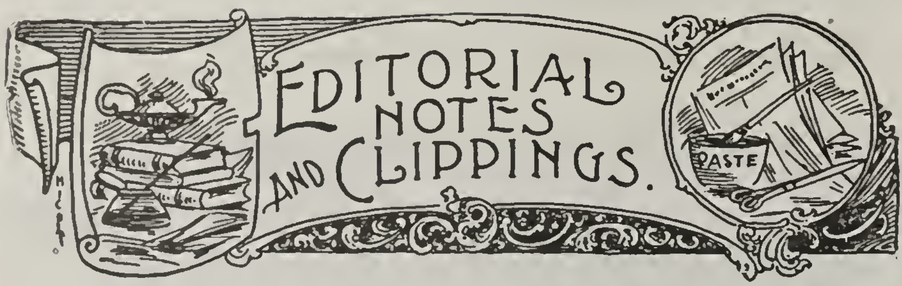
A cutter of quality, strongly built, accurate in operation. It is driven with an easy, steady, positive movement. Get complete description.

**The American Clay Machinery Co.**

**Bucyrus, Ohio, U. S. A.**

BUILT RIGHT RUN RIGHT

We Build Every Machine and Appliance Needed in the Clay Trade.



# EDITORIAL NOTES AND CLIPPINGS.

### Our Maid.

Our maid breaks so many dishes
That we'd be not surprised to learn
That she is secretly employed
By a chinaware concern.

The South River Brick Company, Atlanta, Ga., has filed a voluntary petition in bankruptcy.

The plant and real estate of the Mifflinville Brick Company, Mifflinville, Pa., was purchased at a receiver's sale recently by R. S. Hemingway.

The Cleveland Brick Company, of Cleveland, Okla., has been incorporated by G. W. Sutton, J. B. Myres, I. D. Gould, Howard Hannah and others. The capital stock is given as $75,000.

E. M. Hafer, of Bloomington, Ill., is making plans for the construction of a tile factory at Hafers, Ark., at an estimated cost of $100,000. The postoffice address of the factory will be Traskwood.

A voluntary petition in bankruptcy has been filed by the Foster Paving Block Company, Bradford, Pa. Lack of working capital is said to have caused the failure. The assets are given as $590,182.48 and the liabilities as $227,373.

The Mercer Clay Products Company has been incorporated at Trenton, N. J., by Charles H. Rue and Wm. D. Hamilton, of Trenton; P. C. Boving, of Philadelphia, Pa., and L. G. Bachert, of New London, Conn. The purpose of the company is to mine and prepare clay for market and manufacture clay products.

Gunther Weiske, Misson, Hidalgo county, Texas, advises us that while he is now making brick by hand at the rate of some ten to fifteen thousand a day, he has under consideration the installation of an equipment for making brick by machinery and will be glad to receive catalogs of machinery and other supplies necessary for a small plant.

The plant of the Maryland Terra Cotta Company, Baltimore, Md., was bought at an auction sale recently by Philip L. Poe and John Whitridge, representing the Ornamental Cast Stone Company, of that city. The two companies will be merged and run under the one management. John J. Kelly, former owner of the terra cotta concern, is interested in the new deal.

Mrs. Carrie Brand has brought suit against the Cliffwood (N. J.) Brick Company for compensation under the employers' liability law for the death of her husband, William Brand, who was killed June 22 by a twenty-five-foot fall from a brick kiln. Mr. Brand's weekly wages average $24.50, and under the liability law, his widow is entitled to 35 per cent. of that amount for 300 weeks. The plants is now in the hands of receivers and action in the case is being held up awaiting a decision as to the liability of receivers.

E. T. Lewis, Nashville, Tenn., writes that he has disposed of his interest in the E. T. Lewis Company and has organized the Lewis Brothers Company, of which he is now president and general manager. The new company will soon begin the erection of a brick and drain tile plant at Nashville, and will be in the market for machinery and equipment for same. The name of the old company (E. T. Lewis Company) has been changed to Nashville Brick and Tile Company. Mr. Lewis says that while he missed the convention at Detroit last winter, he expects to make amends by being on hand at Cleveland with a good delegation from Nashville.

J. L. Bowles, general secretary of the Knoxville Board of Commerce, Knoxville, Tenn., is very desirous of landing a good pottery plant in that town, and gives as some of the reasons for his belief that Knoxville would make a good point for a pottery plant, the fact that Knoxville is centrally located, with splendid shipping facilities, both by water and by rail; has an abundance of splendid clays; can guarantee reasonable freight rates on both raw materials and finished products; has abundant fuel. and, in addition to all of these, is favored with an open climate, cheap labor and a low-cost living expense. Interested parties will do well to get into communication direct with Mr. Bowles.

John Suelzer, Jr., receiver for the Maumee Brick and Tile Company, at Fort Wayne, Ind., has sold the plant to Edwin Junghaus.

The Colfax Drain Tile Company, of Lebanon, Ind., has filed articles of incorporation, with $10,000 capital stock. Those interested are Henry K. Lee, John M. Waugh and Jerry B. Casey.

C. C. Welderman, Pocatello, Idaho, who recently leased the Smedley brick plant in that city, announces that he will completely overhaul the plant in the spring and install new machinery.

The owners of the Fallston Fire Clay Company, Beaver Falls, Pa., have under consideration the improvement of the plant for the purpose of enlarging the capacity. Among other improvements will be the erection of thirteen additional kilns.

The W. E. Wright Company, Akron, Ohio, has taken over the No. 1 plant of the Buckeye Sewer Pipe Company, located in East Akron, Ohio. The purchase includes buildings and approximately eleven acres of land situated in the heart of the business district of East Akron.

The Duluth Clay Products Company has a crew of men at work on their new plant at Tower Junction, Minn., overhauling same and getting ready for business, after having it shut down for some time. The capacity of the plant has been doubled and the daily output will be 200,000 brick.

Ben F. Tramp, junior member of Tramp & Tramp, manufacturers of brick and tile at Audubon, Iowa, was killed October 2, when he was thrown beneath the wheels of a car which he was trying to block in the brick yard. Mr. Tramp was thirty-three years old and one of the leading young business men of that section.

Mr. W. E. Hardy, for the past eleven years connected with the Diamond Rubber Company and the B. F. Goodrich Company, and lately in charge of the sales of their mechanical rubber goods division, has lately been appointed sales manager of the Boston Belting Company, Boston, Mass., manufacturer of mechanical rubber goods.

The Dennison Clay Company is the name of a new $10,000 organization at New Philadelphia, Ohio, which has recently been incorporated by Remah K. O'Donnell, Emerson S. Abuhl, Thos. W. McCaw, Edgar E. Reid and Mary M. O'Donnell. The company will operate a plant in the vicinity of Dennison.

The Standard Brick Company has begun a series of extensive improvements at their plant at Crawfordsville, Ind., which will double the capacity of the factory. Two new round kilns have just been completed and contract has been let for five more. A shed will also be erected for the purpose of storing shale for winter use. and a new switch is being extended from the plant to the Monon railway, which will facilitate the shipping of coal and brick.

Isenhour & Sons, brick manufacturers, of Salisbury, N. C., with plants at Whitney, East Spencer and Durham, N. C., have found business so unusually good this summer that they have been compelled to turn down some of their orders, and in consequence are now overhauling their pressed brick plant at Whitney for the purpose of increasing the capacity of same from 20,000 to 40,000 brick per day. Orders are now on hands to keep all the Isenhour plants busy for many months to come.

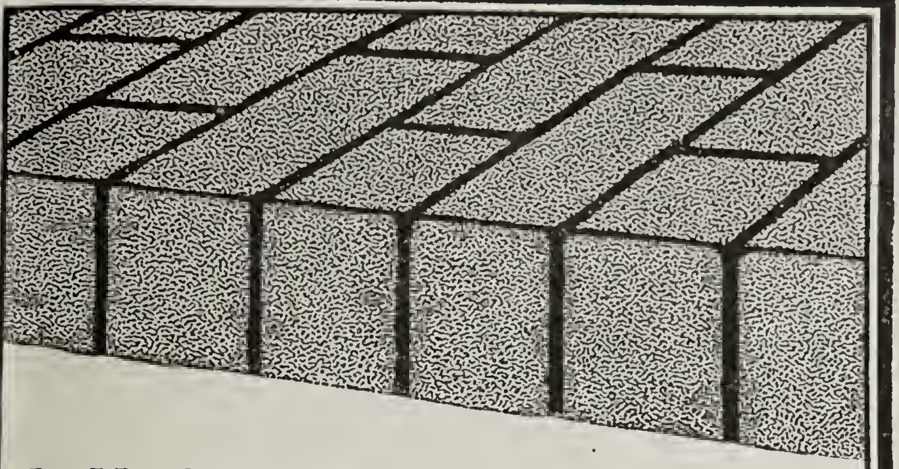
B. W. Ballou, general manager of the Kansas Buff Brick and Manufacturing Company, Buffville, Kans., requests that we take notice of the fact that the office of that company has been located at Buffville for the past five years, instead of Neodesha. For some reason some of their mail continues to come to the latter place, and inasmuch as Buffville is one of the best and most up-to-date towns of its size in Kansas, they are proud of being located there and want their mail addressed accordingly. Mr. Ballou also states that his company will make a display of their new texture brick at the Complete Building Show in Cleveland in February.

Judge John L. Stevens and his son-in-law, A. B. Scott, have sold their common stock in the Boone Brick, Tile and Paving Company, at Boone, Ia. The company has been reorganized, and the new president is Mr. H. F. Graefe, of Des Moines, while W. H. Brecht continues to serve as secretary and manager. Mr. Brecht writes that the prospect for fall business is exceptionally good. The present annual output is about 15,000,000 brick, and it will be their policy to improve and enlarge the plant, in keeping with the demand for their

(Continued on page 446.)

*In Cold Weather*

*the blocks contract, the joints widen, the pitch sinks and keeps the seal intact.*



*In Hot Weather*

*the blocks expand, the joints grow narrow, the pitch squeezes upward. The seal is intact.*

# Barrett's PAVING PITCH

## Every Joint an Expansion Joint

THE use of cement grout as a filler for brick pavement attempts to defy one of the oldest laws of nature. In hot weather, brick will expand; in cold weather, contract. When brick and cement are combined in one pavement, making a great monolith, tremendous internal stresses reveal themselves, sometimes by explosion, when the pavement buckles up with a shower of fragments. Sometimes the expansion throws the curb out of line or develops long, unsightly cracks.

To remedy this condition engineers attempted more or less unsuccessfully to provide for expansion by the use of an expansion joint filled with a plastic material.

If the block is of inferior quality the use of cement in the joints may serve to protect the edges from abrasion by traffic, but good brick requires no such protection, especially if the bricks are laid properly, close together. On the other hand expansion joints, coming at a distance of 8 or 10 feet apart, must necessarily be so wide, in order to take up the great expansion, that protection of the edges is impossible and so in old cement-filled pavements you will find wide grooves running across the pavement at the expansion joint where the exposed edges of the last line of bricks have been hammered into dust.

The use of Pitch Filler instead of cement obviates all these difficulties. Every joint is an expansion joint. In cold weather the pitch sinks in the joint as the block contracts, but as every joint is an expansion joint the amount is infinitesimal. In warm weather the pitch merely rises a little in the joint. In either case the pitch adheres firmly to the block, preserving an absolutely waterproof, perfect seal.

The best pitch for the purpose is Barrett's Paving Pitch.

*Booklets on request*

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle Peoria
The Paterson Mfg. Co., Limited: Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

TRADE B MARK

## EDITORIAL NOTES AND CLIPPINGS—Continued.

brick. Their new line of Nuvogue Rug Face is gaining in favor as it becomes more widely known.

F. H. Myers, president and principal stockholder of the St. Anne Brick Tile Company, of St. Anne, Ill., has sold his interest to W. H. Cote, his partner.

Anton Riedele, brick manufacturer at Bowles, Minn., contemplates establishing a similar plant at Aitkin, Minn., where they have a clay suitable for the manufacture of building brick.

A patent has just been granted F. A. Hoiles, of Alliance, Ohio, upon the method for ornamenting rough texture brick which are now manufactured by the Alliance Brick Company. The letters of patent were issued September 21.

The plant of the Champlain Brick Company, Champlain, N. Y., which was destroyed by fire May 27, will be ready for operation within a short time. The plant will be operated almost entirely by electric power.

Defiance, Ohio, a city of about 8,000 inhabitants, recently let a street paving contract amounting to $83,000. This is an entire brick-paved city, and shows streets which have been down for a quarter of a century and are still in good condition, despite the fact that considerable heavy hauling is done.

Business has been unusually good with the Krick-Tyndall Brick and Tile Company at Decatur, Ind., the past season, and they have been enlarging their plant with the construction of an additional kiln. The work is being done under the supervision of Mr. George M. Krick, who gives every detail of the plant his closest attention.

The fall meeting of the Oregon Clayworkers' Association will be held in Portland on November 4 and 5. S. Geijsbeek, who is secretary of the association, expects a large attendance from all the clayworkers of the state. There will be held at the same time a Manufacturers and Land Products Exposition in Portland, and both attractions will add to the Oregon Clayworkers.

The drain tile factory of Sheron Bros., at Marion, Ind., was destroyed by fire September 28, entailing a loss of something like $30.000. The factory will be rebuilt and will be much larger than before and equipped with the most modern machinery and appliances for the manufacture of tile. It is planned to have a capacity of 600 cars of tile a year and to have the plant ready for operation the first of March.

The McArthur Brick Company, at McArthur, Ohio, celebrated their tenth anniversary October 4. With the exception of a short period when it was necessary to shut down for repairs, the plant has been running continuously for ten years, during which time the demand for their products has steadily increased and millions of brick have been sold and shipped each year. The company has had an exceptionally good season and the prospects are bright for the continuance of this happy condition.

The immense plant of the Monmouth Mining and Manufacturing Company at Monmouth, Ill., has been purchased by James Green & Sons, and the concern renamed the Monmouth Clay Manufacturing Company. A. W. Gates, the former superintendent, will still have charge of the plant, which has been entirely overhauled and a number of improvements made in same. One hundred or more men will be given employment at the beginning and the force will be increased as necessity demands.

Articles of incorporation for the Western Brick and Supply Company, of Lincoln, Neb., were filed October 1. The capital stock of the company is placed at $100,000. This is simply an incorporation of all the plants of the old firm and means a change in some of the officers of the present firm. A. H. Farrens is president of the new company, J. E. Shreve is general manager and J. H. Johnson is promoted from assistant secretary to secretary and treasurer. The company will control the plants of the old company at Nebraska City, Hastings and Holdrege, all of which will be overhauled and brought to the best working efficiency possible.

Fire of unknown origin completely gutted the entire plant of the Mason City Brick and Tile Company at Mason City, Iowa, October 8. The dryer, machinery and engine and boiler rooms were completely wrecked. The only thing being left standing were the fire proof brick walls. The heat was so great that the machinery was warped and twisted until it was nothing but scrap iron and will have to be replaced, but a careful examination of the brick walls showed that not a brick had been cracked by the intense heat. The loss on buildings and machinery is placed at $15,000. The plant will be rebuilt at once.

Written for The Clay-Worker.

## NORTHWESTERN OHIO BRICK AND BUILDING NEWS.

TOLEDO BRICK PLANTS are all busy, although none are rushed at this time. Business is easy, and orders are being filled about as rapidly as they are made. The early part of the season, trade in brick, as in practically all other similar lines, was dull. As the season advanced, business became gradually better. There are no heavy stocks on hand at present, as the call about equals the supply, and it is not believed that winter will find many piled up here. It is predicted, however, that the local brick plants will find it necessary to run all winter. The best demand comes from Toledo and the vicinity within a radius of sixty miles of the city.

One of the recent big brick contracts in this city is that for the new million-dollar addition to the Willys-Overland automobile plant, which will make this the largest factory of its kind in the world, and embraces 3,000,000 brick. The Administration Building will be of granite-colored enamel, 300,000 of these brick being required. Common brick will be used for interior work on all the buildings. One of the factory buildings will be of red shale brick and will require 100,000.

A new strip of state highway, paved with brick, between Toledo and Perrysburg, through Ross township, was recently opened to the public. It is 1.6 miles long and cost $50,000. This was one of the very few bad spots on the public highways out of Toledo.

There has been an exceptional call here, this season, for red shale and golden mottled brick for use in porch columns. The wooden column is practically a dead issue here. A few years back, nearly every house was finished with wooden columns. These columns, in the course of from three to five years, rotted out and had to be replaced. The result was a tryout by builders of the brick column on frame houses. The result from an architectural standpoint was good, and people liked them. Practically all the new houses put up this year and last had the brick column, and many of them show built-in brick porches.

Lumber dealers here seem to be getting scared over the excessive use of brick and other materials rather than lumber in residence construction work, as well as factory buildings. They held a "Build with Lumber" rally on the evening of September 23, which is the beginnng of a national campaign to promote the lumber industry. The initial meeting was held in Toledo, and the local lumbermen's club spared no pains in getting a big crowd assembled to hear what their speakers had to say relative to the good points of lumber. Architects, contractors, building and loan association men, bankers, and every one interested in the building business were urged to be present, and a good many attended. Some of the speakers made a point of the activity of brick men and others handling competitive materials, and declared that the lumbermen had been asleep and declared that they must wake up and advertise their wares. A good deal was said about "fire protection," and an effort made to prove that wood can be made as "fireproof" as other structures. Lumbermen are advertising extensively in the Toledo papers, and are making an extreme effort to secure a trade that is rapidly passing from the lumber dealers to the brick men. Lumber dealers generally feel that they are on the defensive, and that lumber as a material for construction work is rapidly losing ground in this country, as it has long and long ago in other countries. Brick has been strengthening year by year in Toledo, and this awakening of the lumber dealers to their danger is one of the best indications brick men can have of the growing strength of their product.

T. O. D.

# The Man Who is Spending Money for New Buildings---Where is He?

That is what the fellows with the building materials to sell want to know.

Bradstreet reports say that the Middle States are leading in building operations. The new structures in these states for August more than doubled the expenditures in any other section of the United States.

Cleveland is the center and the metropolis of this busy section and—in spite of wars and its effect upon the sensitive banker—is now $3,000,000.00 ahead of last year in building operations.

Some field to cultivate, isn't it?

Here is an economical way to reach all the builders and prospective builders of the vast Cleveland District:

Demonstrate your materials in The Complete Building Show to be held in Cleveland February 16th to 26th, 1916.

More than $125,000.00 will be expended in educational exhibits filling a floor space of 65,000 square feet—on one floor. Sixty percent of this space already applied for.

If you are not already in you will have to hurry, but you can't afford to stay out.

Write for floor plan and particulars.

# THE COMPLETE BUILDING SHOW

## Leader-News Building, Cleveland, Ohio

## DRYING OF CLAY WARES.

Continued from page 391.

### Another Method of Determining Air Volume.

Another, and perhaps simpler, method of determining the air volume is by use of a formula developed by H. M. Prevost Murphy and published in the Engineering News in 1908.

The water vapor which a pound of dry air can carry is found by the formula: $W=\frac{KH}{2.036P-H}$, in which W=pounds of water vapor per pound of air at temperature t, and pressure P in pounds per square inch. P for 29″ barometric pressure=29×.4912=14.24.

The values of H and K are given in the following table:

| t | K | H | t | K | H | t | K | H | t | K | H |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | .6113 | .0439 | 78 | .6206 | .9585 | 156 | .6320 | 8.744 | 234 | .6463 | 45.61 |
| 2 | .6115 | .0481 | 80 | .6209 | 1.024 | 158 | .6323 | 9.177 | 236 | .6467 | 47.32 |
| 4 | .6117 | .0526 | 82 | .6211 | 1.092 | 160 | .6326 | 9.628 | 238 | .6471 | 49.08 |
| 6 | .6120 | .0576 | 84 | .6214 | 1.165 | 162 | .6330 | 10.10 | 240 | .6475 | 50.89 |
| 8 | .6122 | .0630 | 86 | .6217 | 1.242 | 164 | .6333 | 10.59 | 242 | .6479 | 52.77 |
| 10 | .6124 | .0690 | 88 | .6219 | 1.324 | 166 | .6336 | 11.10 | 244 | .6484 | 54.69 |
| 12 | .6126 | .0754 | 90 | .6222 | 1.410 | 168 | .6340 | 11.63 | 246 | .6488 | 56.67 |
| 14 | .6128 | .0824 | 92 | .6225 | 1.501 | 170 | .6343 | 12.18 | 248 | .6492 | 58.71 |
| 16 | .6131 | .0900 | 94 | .6227 | 1.597 | 172 | .6346 | 12.75 | 250 | .6496 | 60.81 |
| 18 | .6133 | .0983 | 96 | .6230 | 1.698 | 174 | .6350 | 13.34 | 252 | .6501 | 62.97 |
| 20 | .6135 | .1074 | 98 | .6233 | 1.805 | 176 | .6353 | 13.96 | 254 | .6505 | 65.21 |
| 22 | .6137 | .1172 | 100 | .6236 | 1.918 | 178 | .6357 | 14.60 | 256 | .6510 | 67.49 |
| 24 | .6140 | .1279 | 102 | .6238 | 2.036 | 180 | .6360 | 15.27 | 258 | .6514 | 69.89 |
| 26 | .6142 | .1396 | 104 | .6241 | 2.161 | 182 | .6364 | 15.97 | 260 | .6518 | 72.26 |
| 28 | .6144 | .1523 | 106 | .6244 | 2.294 | 184 | .6367 | 16.68 | 262 | .6523 | 74.75 |
| 30 | .6147 | .1661 | 108 | .6247 | 2.432 | 186 | .6371 | 17.43 | 264 | .6528 | 77.30 |
| 32 | .6149 | .1811 | 110 | .6250 | 2.578 | 188 | .6374 | 18.20 | 266 | .6532 | 79.93 |
| 34 | .6151 | .1960 | 112 | .6253 | 2.731 | 190 | .6377 | 19.00 | 268 | .6537 | 82.62 |
| 36 | .6154 | .2120 | 114 | .6256 | 2.892 | 192 | .6381 | 19.83 | 270 | .6541 | 85.39 |
| 38 | .6156 | .2292 | 116 | .6258 | 3.061 | 194 | .6385 | 20.69 | 272 | .6546 | 88.26 |
| 40 | .6158 | .2476 | 118 | .6261 | 3.239 | 196 | .6389 | 21.58 | 274 | .6551 | 91.18 |
| 42 | .6161 | .2673 | 120 | .6264 | 3.425 | 198 | .6393 | 22.50 | 276 | .6555 | 94.18 |
| 44 | .6163 | .2883 | 122 | .6267 | 3.621 | 200 | .6396 | 23.46 | 278 | .6560 | 97.26 |
| 46 | .6166 | .3109 | 124 | .6270 | 3.826 | 202 | .6400 | 24.44 | 280 | .6565 | 100.40 |
| 48 | .6168 | .3350 | 126 | .6273 | 4.042 | 204 | .6404 | 25.47 | 282 | .6570 | 103.70 |
| 50 | .6170 | .3608 | 128 | .6276 | 4.267 | 206 | .6407 | 26.53 | 284 | .6575 | 107.00 |
| 52 | .6173 | .3883 | 130 | .6279 | 4.503 | 208 | .6411 | 27.62 | 286 | .6580 | 110.40 |
| 54 | .6175 | .4176 | 132 | .6282 | 4.750 | 210 | .6415 | 28.75 | 288 | .6584 | 113.90 |
| 56 | .6178 | .4490 | 134 | .6285 | 5.008 | 212 | .6419 | 29.92 | 290 | .6590 | 117.50 |
| 58 | .6180 | .4824 | 136 | .6288 | 5.280 | 214 | .6423 | 31.14 | 292 | .6594 | 121.20 |
| 60 | .6183 | .5180 | 138 | .6291 | 5.536 | 216 | .6426 | 32.38 | 294 | .6600 | 125.00 |
| 62 | .6185 | .5559 | 140 | .6294 | 5.859 | 218 | .6430 | 33.67 | 296 | .6604 | 128.80 |
| 64 | .6188 | .5962 | 142 | .6298 | 6.167 | 220 | .6434 | 35.01 | 298 | .6610 | 132.80 |
| 66 | .6190 | .6393 | 144 | .6301 | 6.490 | 222 | .6438 | 36.38 | 300 | .6615 | 136.80 |
| 68 | .6193 | .6848 | 146 | .6304 | 6.827 | 224 | .6442 | 37.80 | 302 | .6620 | 141.00 |
| 70 | .6196 | .7332 | 148 | .6307 | 7.178 | 226 | .6446 | 39.27 | 304 | .6625 | 145.30 |
| 72 | .6198 | .7846 | 150 | .6310 | 7.545 | 228 | .6451 | 40.78 | 306 | .6631 | 149.60 |
| 74 | .6202 | .8391 | 152 | .6313 | 7.929 | 230 | .6455 | 42.34 | 308 | .6636 | 154.10 |
| 76 | .6203 | .8969 | 154 | .6317 | 8.328 | 232 | .6458 | 43.95 | 310 | .6641 | 158.70 |

We determine from the above formula that a pound of incoming dry air at 80° F. and 90% saturation carries .02046 pounds of water vapor $\left(\frac{.6209\times1.024\times.90}{2.036\times14.24-1.024}=.02046\right)$.

The weight of a pound of air with water vapor will be 1.02046 pounds. A pound of the mixture will have $\frac{.02046}{1.02046}=$ .02 pound of water vapor and .98 pound of air.

This weight of dry air at 100° F. and 100% saturation will carry $\frac{.6236\times1.918\times.98}{2.036\times14.24-1.918}=.0432$ pound of water vapor.

Each pound of the incoming air mixture has capacity to remove from the dryer .0432—.02=.0232 pound of moisture.

Since there are 1,000 pounds of moisture to be removed per thousand bricks, there will be required $\frac{1{,}000}{.0232}=43{,}100$ pounds of initial air mixture.

This method of figuring gives us a result of 2.8% higher than the method previously used.

The weight of a cubic foot of dry air at 80° F. is determined from the formula $\frac{1.325271\ M}{459.2+t}$ (page 584, Kent), in which M is barometric pressure in inches of mercury and t equals temperature.

From this we determine the weight of a cubic foot of dry air at 80° F. and 29″ barometric pressure to be .07128 pound.

Air expands as moisture is taken up, and in one cubic foot of 90% saturated air at 80° F. there will be less than .071 pound, since vapor is lighter than air.

From the formula $\frac{29}{29-(1.024+.90)}$ we determine that one cubic foot of dry air, in taking up moisture to the degree of 90% saturation, expands to 1.0328 cubic feet. This formula is based on Boyles law, that the volume is inversely proportional to the pressure. In the formula, 29=barometric pressure, 1.024=elastic force of vapor at 80°. (H in above table.)

The actual weight of air in one cubic foot of the mixture will be $\frac{.07128}{1.0328}=.069$ pound.

A pound of mixed air and vapor, as previously determined, contains .98 pound dry air and .02 pound water vapor. The weight of water vapor in a cubic foot of air at 80° and 90% saturation is found from the proportion: $\frac{.98}{.02}=\frac{.069}{X}$, in which X=.00141. By Seger's formula, used in our capacity table, this value is .00145.

The weight of a cubic foot of the air mixture is .069+.00141=.07041 pound.

The volume of air required will be $\frac{43{,}100}{.07041}=612{,}129$ cubic feet per thousand bricks. Under the other method of determination, the volume was 597,014, a difference of about 10 cubic feet of air per minute per thousand bricks.

Either method gives results sufficiently accurate for any practical purpose.

Calculations along this line should be of great value in adjusting a waste heat dryer to the highest efficiency. We can determine the temperature by thermometers, the degree of saturation by wet and dry bulb thermometers or the more convenient diagramatric modifications of the same, and the air volume by anemometers. With such data we should be able to properly adjust the operation of the dryer.

In the waste heat dryer, the highest efficiency will come from an initial high temperature. The advantage comes in several ways:

1. The high temperature means materially less volume.
2. Less volume means slower progress through the tunnels, with consequent proportionately greater reduction in temperatures.
3. Less volume and lower exit temperature assure more complete saturation.
4. Less volume takes a correspondingly less heat out through the exhaust.
5. More complete saturation means less trying conditions on the ware entering the dryer.
6. Less volume means less power to drive the fans.

The size of the fan is always a perplexing question, and one that usually has to be decided before the exact data in regard to moisture and perhaps temperature can be determined. Fortunately, a fan has a wide range; and, provided we install one of sufficient size, it can be adjusted to any desired volume.

The capacities of fans, as given by the manufacturers of such equipment, do not apply to our conditions, nor would any capacity table be of general application. We draw the air through a simple to complex checker work and flue system, and force it into and through the dryer against a resistance much greater than an ordinary heating system.

It has been our practice to determine the actual air requirement under adverse conditions, and then select a fan of double this capacity at three-fourths ounce pressure.

The piping required for a waste steam heat application will depend upon the weight of exhaust steam.

Under the discussion of periodic dryers, we presented a formula $(R=\frac{T\text{-}t}{k})$ to determine temperatures possible from coil heaters. R=rise in temperature, T=temperature of the steam, t=temperature of the air, k=factor from table accompanying the table. If the steam pressure is 4.3 pounds, which would approximate 5 pounds back pressure on the engine, its temperature will be 225°. The temperature obtainable from a six-section heater with air velocity of 900 feet per minute, air temperature of 80° will be $T=(R+80)\frac{225-80}{1.49}+80=177°$ F. We ordinarily install eight sections, but the last two are arranged for high pressure steam, to enable us to supplement with live steam when there is a shortage of kiln waste heat.

Each pound of steam condensed at atmospheric pressure delivers 970.4 heat units.

Each pound of air requires:

Air (177—80) [.234+.000012 (193)] .97935=...22.45 heat units

Moisture (177—80) [.42+.00001 (193)] .20265= .88 heat unit

23.23 heat units

Each pound of steam, therefore, will beat $\frac{970.4}{23.23}=41.6$ pounds of air.

If there is 100 horsepower available, we will have 100×34.5=3,450 pounds of steam per hour, and this will heat 3,450×41.61=143,520 pounds of air per hour, or 2,392 pounds per minute.

In the discussion of periodic dryers, we determined 2.79 square feet of heating surface in each row of pipes per square foot of free area. This gives 2.79×24=66.96 square feet in six sections, and this radiating surface heats 900 cubic feet, or .07021×900=63.19 pounds of air per minute. $\frac{2,392}{63.19}\times 66.96=2,534$ square feet of radiating surface, or 7,602 lineal feet of one-inch pipe to condense the steam from 100 horsepower.

This result is only approximately correct, since it does not take into consideration any radiation loss from the coils, and in consequence some of the steam will be required to maintain this loss; but, as this would reduce the amount of piping required, the result obtained gives us a desired factor of safety, and no correction should be made.

The addition of two sections using live steam will decrease the radiating surface required.

From the formula $\frac{T\text{-}t}{k}=R$, we determine that live steam at 60 pounds in two sections of heater coils will advance the temperature from 177° to 218°. This advance of temperature will require a heat consumption of 9.937 heat units per pound of air.

We have previously determined that a pound of air from 80° to 177° requires 23.33 heat units, making a total of 33.267 heat units to heat a pound of air from 80° to 218°.

We found that a pound of exhaust steam heats 41.61 pounds of air to 177°, and similarly determine $(\frac{904}{9.937})$ that a pound of live steam will heat 90.96 pounds of air from 177° to 218°.

The relative steam consumption is proportional to the

(Continued on page 450.)

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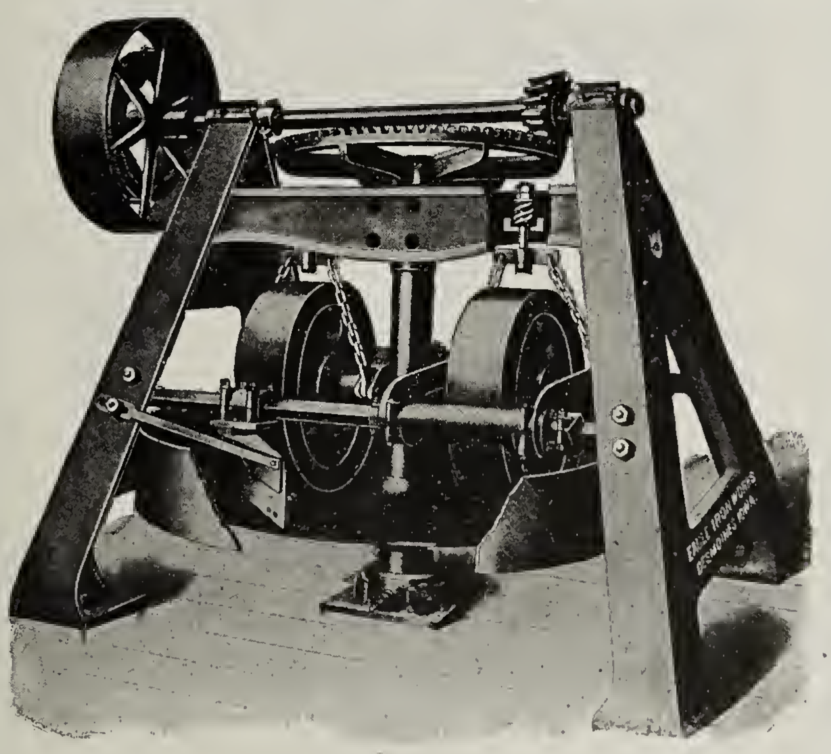

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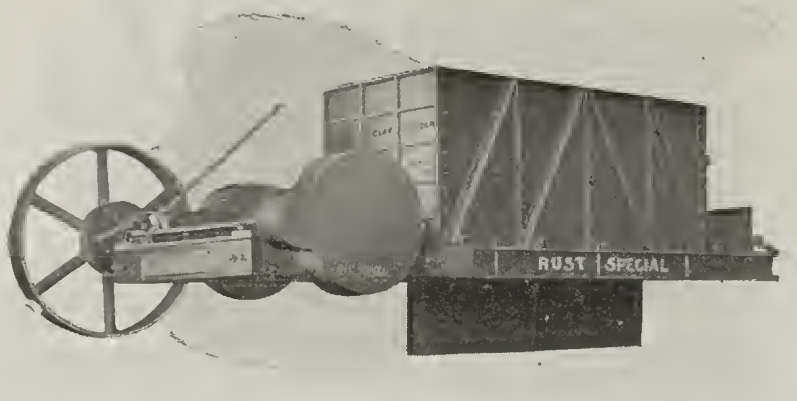

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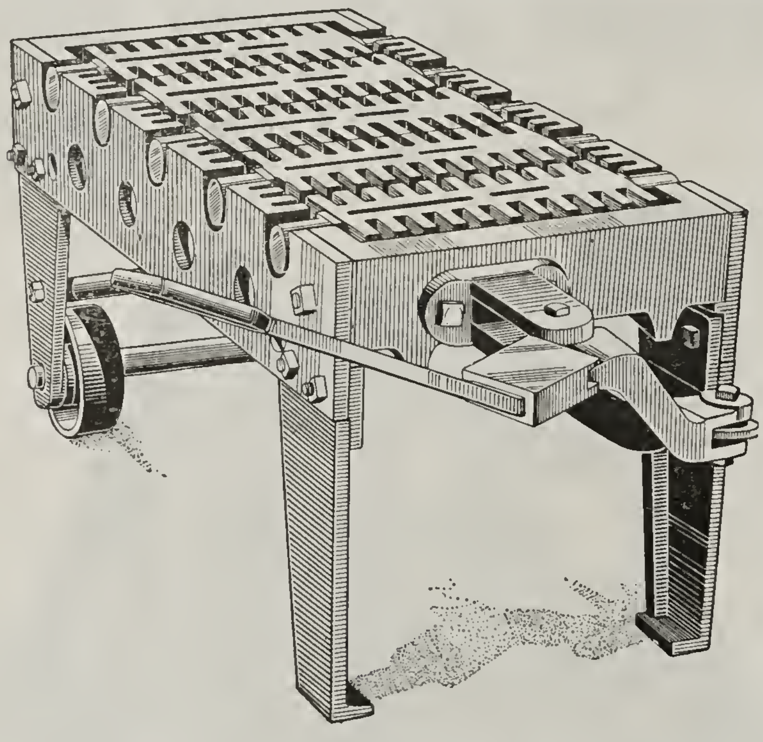

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## DRYING OF CLAY WARES.

(Continued from page 449.)

weight of air heated, and may be determined from the equations $\frac{1}{132.57}=\frac{1-x}{41.61}$ and $\frac{1}{132.57}=\frac{1-x'}{90.96}$, in which x equals .686 for exhaust steam and x' equals .314 for live steam.

The live steam radiating surface per square foot of free area is $2.79\times 8=22.32$ square feet.

One hundred horsepower in live steam will heat $3,450\times 90.96=313,812$ pounds of air per hour, or 5,262 pounds per minute. $\frac{5,262}{63.19}\times 22.32=1,859$ square feet of radiating surface to condense 100 equivalent horsepower in live steam.

We found that 2,534 square feet would be required for exhaust steam.

If both are used at the same time, the surface of each will be:

$1,859\times.314=$ 584 square feet of live steam pipe surface.
$2,534\times.686=1,738$ square feet of exhaust steam pipe surface.

2,322 total surface required, or 6,966 lineal feet of piping.

Making due allowance for uneconomical dryer operation, this amount of piping will suffice for 30,000 bricks per day, each brick containing one pound of water.

It will be noted that the result bears no relation to the dryer capacity, being simply dependent upon its volume of steam available.

If we wished to determine the piping required to supply heat to dry 1,000 bricks under the conditions of the original problem, we must first determine the temperature of the steam in part of the piping, since exhaust steam alone will not give the necessary temperature. We will assume that two sections are to be used for live steam. In the formula $R=\frac{T-t}{k}$ and the table of the factor k included in the discussion of periodical dryers, we know, or can easily determine, the value of R=61, t=177, k=3.13; and from these, by substitution in the formula ($61=\frac{T-177}{3.13}$), we determine that the live steam must have a temperature of 368°, which is a boiler pressure of 155 pounds.

This steam temperature is higher than we would have in practical operation, but it can be reduced by the use of a greater number of sections of live steam coils.

The number of sections required is easily determined. The temperature of the air entering the live steam sections is 177°, and it must be advanced to 241°, an increase of 64°.

Substituting in the formula $R=\frac{T-t}{k}$, we have $64=\frac{T-177}{2.30}$ for three sections and $64=\frac{T-177}{1.91}$ for four sections. The first equation gives 324° for T, which corresponds to a steam pressure of approximately 80 pounds, and the second equation gives 299°, which is slightly in excess of 50 pounds pressure. Either of these pressures are commonly used in brick plants, and for our problem we will use four sections of live steam piping.

Since the air velocity through the heater is assumed to be 900 feet per minute, each square foot of free area passes $900\times.07021=63.2$ pounds of air per minute.

As already shown, the exhaust steam in six sections heats the air to 177° F, and there must be heat developed in the live steam sections to advance the temperature to 241° F.

The heat requirement will be:

1. $63.2\ (177-80)\ [.234+.000012\ (193)]\ .97935=1{,}418.2$
   $63.2\ (177-80)\ [.42+.0001\ (193)]\ .02065=\ldots\quad 55.6-1{,}473.8$
2. $63.2\ (241-177)\ [.234+.000012\ (354)]\ .97935=\ 943.8$
   $63.2\ (241-177)\ [.42+.0001\ (354)]\ .02065=\ldots\quad 38.0-\ 981.8$

Total heat units per sq. ft. of free area=.... 2,455.6

The total heat units required for 1,000 bricks is 1,630,822, which, on the basis of a twenty-four-hour drying period, would be $\frac{1{,}630{,}822}{1{,}440}=1{,}132.5$ heat units per minute.

The free area per thousand bricks will be: $\frac{1{,}132.5}{2{,}455.6}=.46$ square foot.

The piping included within this area will be $2.79\times6\times4\times.46=30.80$ square feet for exhaust steam and $2.79\times4\times4\times.46=20.53$ square feet for live steam, making a total of 51.33 square feet, or 154 lineal feet of one-inch pipe for 1,000 bricks.

Note—Since the weight of air required for 1,000 bricks is a factor in determining the total heat requirement, we can determine the free area required direct from the weight of air, $\frac{41{,}916}{1{,}440}=29.1$ pounds of air per minute, and $\frac{29.1}{63.2}=.46$ square foot of free area.

The amount of piping, as above determined, is that required for perfect operation of the dryers; but dryers are seldom operated economically, and to whatever extent they vary from the theoretical operation, in the same proportion will the heat requirement increase, and correspondingly must the steam heating system be enlarged.

In many installations, double the theoretical amount of piping is installed, which is an admission that practical operations may be only 50% perfect; but in no instance need the piping be more than 50% in excess of the theoretical requirement.

However, excess piping does not necessarily involve loss of heat, because the steam is condensed only in proportion as the heat is removed from the piping by the air. The greatest loss in waste heat dryers is in using an excess of air, which must be heated up.

About 12% of the total dryer heat requirement is used in heating the air, and if the air is only 50% saturated, as it leaves the dryer the requirement for the air becomes 24%.

The boiler horsepower required per thousand bricks can easily be approximately determined, since we only need to divide the heat requirement per hour by the heat value of a pound of steam, $\frac{1{,}630{,}822}{24\times970.4}=70$ pounds of steam, or about 2 H. P. A safety margin of 50% would increase this to 3 H. P.

(To be continued.)

**Scarcity of Bone for English Potteries.** According to Consul R. S. Bergh, Stroke-on-Trent, a serious difficulty in connection with the manufacture of pottery, that threatens to become very acute unless some speedy relief arrives, is the growing shortage of bone, a very important constituent of the pottery industry. The material is imported extensively from the Argentine, but owing to the shortage of vessels available for charter, very little bone is finding its way across. It is stated that vessels that would naturally be carrying bone are now transporting foodstuffs. Bone supplies that were at one time available in the potteries for $22 to $24.30 per ton of 2,240 pounds are now realizing from $63 to $68, and even more. If the bone famine is not relieved very speedily, there is a possibility that some factories, which buy their material from hand to mouth, will have to close down; and, in any case, where bone is to be had, the price is fast becoming almost prohibitive.

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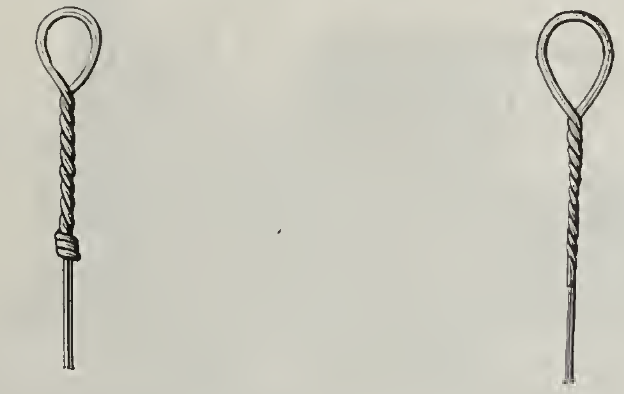

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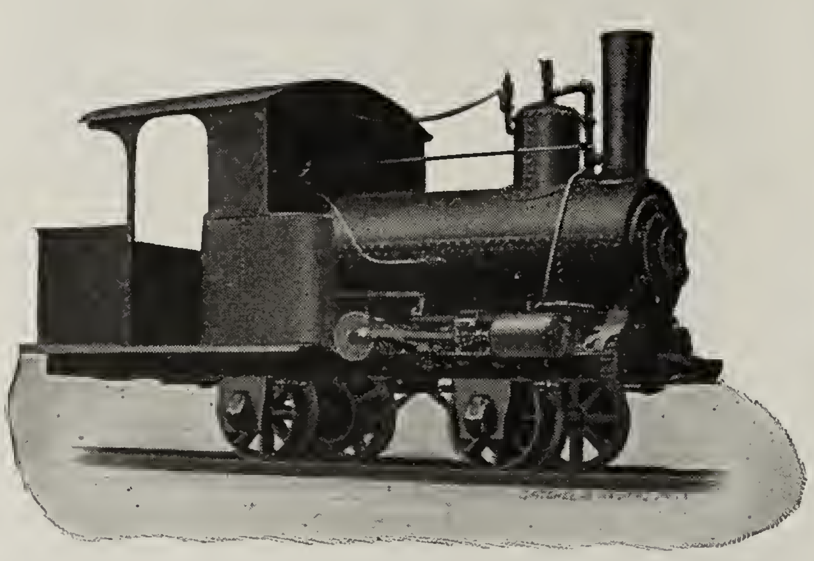

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Written for The Clay-Worker.

## PACIFIC COAST NEWS.

HAD NOT SAN FRANCISCO building material dealers become accustomed to exceptionally big orders and abnormal building conditions the few years following the disaster of 1906, they might regard the present situation in the building trade with a little more patience. It is true that there is not a really normal activity; at the same time there is a steady amount of building going on, and a growing discrimination on the part of builders in regard to high-grade materials. In the absence of large public construction work, and taking into consideration the tendency for general economy on the part of the state and municipalities, the amount of construction work by private individuals and companies is worthy of special mention.

The plan for American Builders' Week at the Exposition, scheduled for October 18 to 23, is most happy. The idea has appealed to the people here, and they look with interest upon the posters advertising the event. Local contractors and dealers have awakened to the possibility of this builders' week in arousing wide attention to the advantages of California as a home and business location. There will be something doing that week, not only at the Exposition, but in the city. It will be a week of fine entertainment and solid education. The program is being planned to appeal to the public, the prospective builders, great and small. The people will learn something about the building trades, and those engaged in the building business will be brought together in a spirit of fuller co-operation and harmony. Eastern manufacturers of building materials and accessories will find it to their advantage to be present, also. In a day or two, it is expected that the National Terra Cotta Association will have decided to hold its conventions during this week. The National Brick Manufacturers' Association has already so decided.

Charles Hidecker, president of the Ione Fire Brick Company, has just returned from a trip to Oklahoma and Texas. He came back by the way of Kansas. Mr. Hidecker says there is no material change in the fire brick situation here, the demand being steady and fairly normal. There has been no change in fire brick quotations for some time, prices having become established on a very reasonable basis.

The new exhibit hall of N. Clark & Sons, in their headquarters at 116 Natoma street, is now practically completed, after some months of delay in adding the final touches. The room is finished in various clay and terra cotta products of wonderful richness in design and colorings. The general effect of the decorative scheme is oriental, with Byzantine columns and panelings of pressed brick. Polychrome effects in certain of the company's products greatly enhance the display. The room is furnished with a window seat, two revolving sample cases, a terra cotta and brick table and a bookcase. The room, notwithstanding the variety of colors and products used in its construction, is most harmonious in the architectural design.

San Francisco favors vitrified brick paving, but the expense of this class of improvement is too great for extensive street work at this time. The board of supervisors has authorized, however, certain sections of Worth street, in the vicinity of Twenty-first street, to be paved with vitrified brick.

The Steiger Terra Cotta and Pottery Company is supplying terra cotta on a number of buildings throughout the state, but report no new work of special importance. Gladding, McBean & Co. also report a lack of important work demanding terra cotta construction. The United Material Company is having a pretty good business in roofing tile and pressed brick, but Mr. Hoyt, the manager, says things are quiet this month on the whole.

The Richmond Pressed Brick Company, formerly known as the Los Angeles Pressed Brick Company, Richmond branch, is planning to enlarge the capacity of the plant. John Gerlach, the manager, says business has been holding up well, and that recently heavy shipments have been made to the Hawaiian Islands and Vancouver.

The Port Costa Brick Works is running a steady force and turning out a fair average of product. Mr. Berg states that business might have been a great deal worse than it has been this summer.

It has been announced that the headquarters of the Oregon Denison Block Company are to be transferred from Portland to Tacoma, Wash. SUNSET.

San Francisco, Cal., October 3, 1915.

Written for The Clay-Worker.

## WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.

THE PITTSBURGH brick trade and allied industries report business conditions as having experienced a little improvement during the past month. The majority of the concerns in this city are now doing a better business than during the summer months. More building work is going on now, and there seems to be a better feeling for going ahead and making repairs and building, than has been the case for a long time past. There is a general feeling of optimism throughout the entire trade, and every one is looking forward for a period of prosperity.

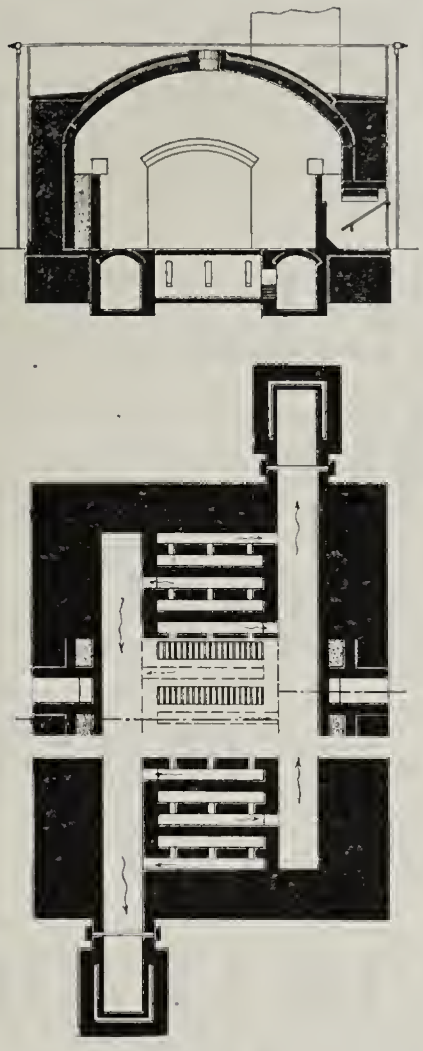
Granite and terra cotta will be used in the outer construction of the new county-city building in Pittsburgh, Pa., according to the report of a joint committee representing the city and county, submitted and accepted recently, followed by the awarding of the contracts. The Woodberry Granite Company, bidding $230,653, was awarded the contract for "Bids A, B and C." The Atlantic Terra Cotta Company was awarded the "Bid B" terra cotta work for $13,875, and the New England Granite Company was awarded the granite work included in "Bid D" for $107,000. The bids were opened August 16, and since that time a committee, composed of Robert Swan, director of publilc works; J. C. Chalfant, county engineer, and Edward B. Lee, architect, has been testing the quality of materials submitted in samples by the bidders. It was left to the committee to determine the material to be used, either granite or limestone.

An application for a Pennsylvania State charter of incorporation will be made October 13 by Robert A. McDonald, H. W. Graib and Ida L. Easton for an intended corporation, to be called the Sylva Mica and Kaolin Mining Company, of Pittsburgh, Pa., the character and object of which is the mining, quarrying, excavating and boring for mica, kaolin clay and other minerals and substances incidentally developed, the manufacture of the same into mica, kaolin and clay products and their by-products, and other manufactured products, and the sale thereof in crude or manufactured form, and to the extent required in such business, the purchase, lease and sale of real estate.

At a dinner at the Beaver Valley Country Club recently the name of the Beaver Ceramic Society was changed to the Beaver Section of the American Ceramic Society. Covers were laid for fifty-five, which included those who came for the occasion from Cressendale, Pa. The address of welcome was delivered by Prof. Edward Orton, Jr., head of the Department of Ceramics, Ohio University, Columbus. Frank W. Walker, of Beaver Falls, made the response.

It was decided to retain the officers who had served in the old organization for the new one. They are: President, R. R. Hice, Beaver; vice president, Ernest Mayer, New Brighton; secretary, Herford Hope, New Brighton; treasurer, W. S. Mayer, New Brighton.

AN EDUCATION IN KILNS---Continued.



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LABOR.

IMPROVE THE QUALITY OF YOUR WARE.

INCREASE THE CAPACITY OF YOUR KILNS

By turning them more often.
All this can be done by the installation of the

HOOK SYSTEM OF BURNING

Old kilns can be converted to the Hook System at comparatively small expense and new kilns built at less cost, as a rule, than kilns of other types.

We can furnish plans for remodeling old or building new kilns, or where desired, send competent masons.

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Written for The Clay-Worker.

## PACIFIC NORTHWEST CLAY NOTES.

THE GENERAL BUSINESS CONDITIONS in the Pacific Northwest are erratic. Some lines are good and are enjoying a large volume of business, while other lines are still in bad shape. The clayworking industries are neither enjoying good nor bad business, and much improvement could be made before the clayworkers are busy again. According to building statistics, the permits for Seattle dropped off considerable, as compared by last year. For the month of August the total permits amounted to $454,960, as against $1,565,527 for August, last year. Portland showed, however, considerable increase, and the permits increased from $390,915 in 1914 to $728,970 for the month of August this year. Tacoma and Spokane held about their own, while Vancouver, B. C., is still far behind in the building line. The following list shows the standing of the building situation for the first eight months of the five big cities in the Pacific Northwest:

| | 1914 | 1915 |
|---|---|---|
| Seattle | $9,969,970 | $4,044,080 |
| Portland | 5,461,045 | 3,747,455 |
| Vancouver, B. C. | 2,761,631 | 1,293,351 |
| Spokane | 810,922 | 818,804 |
| Tacoma | 1,024,109 | 549,053 |

In order to reduce the cost of paving county roads with brick, the Denny-Renton Clay & Coal Co. has submitted to the board of county commissioners of Kind county a set of specifications in which the saving will be from $6,000 to $8,000 a mile on a 22-foot highway. The specifications call for a vertical fibre, wire-cut, non-repressed paving block, and the experimental stretches laid with this class of pavement has proven very satisfactory. On the sides and on the ends of the new block the specifications call for not less than two grooves to each inch, such grooves to be not less than one-eighth inch in depth and extending from the upper to the lower face of the brick. The pavement also calls for a cement mortar bed instead of the ordinary sand cushion.

That brickyards are sometimes located on very expensive real estate property, was shown some time ago, when the Portland school board was hunting for new property. Mr. Versteeg maintains on his property a brickyard and has twenty-six acres close at the residential section, and it is valued at $100,000. The property could be platted in 150 lots, and at $50,000 for the property the lots would have to sell at an average of $666 each. This would mean without any improvements, and is considered high, even at that price.

Brickyard troubles were augmented for L. F. D. Lehmann, who has been operating a brickyard at Sellwood, near Portland, when he was bound over to the grand jury by District Judge Jones on charges of paying his employes with worthless checks. About $2,000 worth of these checks are said to have been issued by Mr. Lehmann.

Mr. A. Klose, who is building patented Oregon kilns and is president of the Columbia Brick Works of Portland, left for the southeastern states to look after his new kiln installations.

The Weston Brick Yard, of Weston, Ore., has contracted to furnish half a million brick for the new government building at Pendleton. They have another order for 150,000 brick for the Milton schools.

The Lake Union Brick and Fireproofing Company, of Seattle, is now installing new machinery for the making of partition tile and hollow blocks. Mr. C. S. Engelbrecht, of St. Paul, has charge of the plant.

A soft mud brickyard has been started at Drain, Ore. The first kiln has been built and contained some 80,000 brick.

The Denny-Renton Clay and Coal Company, of Seattle, has secured some large orders for its paving blocks. Several of the streets of the tideflats are now paved with block, and will take about one million. The same company just completed the furnishing of 700,000 block for the new county road between Renton Junction and Orillia. "SIWASH."

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Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

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Ask us to show you how we do it.

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Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

The WEBB WIRE WORKS, New Brunswick, N. J.

Written for The Clay-Worker.

## THE CHICAGO SITUATION.

AT THE present rate of building in Chicago the closing six months of the year promise to make a splendid record. If a new high-water mark in construction is not established as against any preceding six months period in the history of the city, at least a remarkable showing will be made when the totals are computed at the end of December. Compared with the last six months of last year, the current period looms up with especial magnificence. Each week the number of building permits granted by the building commissioner has exceeded the number granted during the corresponding week of 1914, frequently twice over, and almost invariably by a hundred or more. The week-by-week gain in cost of contemplated improvements for which the permits are issued is ranging from $900,000 to $1,500,000.

Just at present the real estate men of Chicago are speculating as to the effect which Mayor Thompson's edict closing all saloons on Sunday will have upon values of outlying property, especially the choice saloon corners. Some hold that the curtailment in the week's business is going to affect the saloons unfavorably; that many of them will retire from business, and that their departure will be followed by closing of many neighborhood billiard halls, bowling alleys, dance halls, cafes, restaurants and the like, which, in turn, will injure business in the outlying districts and bring about a depreciation in outlying business property.

The optimists, however, and the anti-saloonists argue that instead of putting a damper upon other amusements, the closing of bars on Sunday will leave more money to go into other channels and more people to frequent the other places of resort and amusement not affected by the sudden enforcement—for the first time in forty years—of the Sunday closing law. These predict freely that if the mayor's order affects real estate valuations at all, it will be favorably rather than unfavorably.

Builders and building material men, however, look for no immediate result one way or another, so far as the building activity is concerned. The reason for this view is found in the fact that the bulk of building now in progress is in so-called "dry" territoroy, or in territory where the liquor trade is not sufficiently extensive to contribute very largely to the business life of the community. Even in the outlying business districts this is true.

For example, Frederick Becklenberg is now improving the entire frontage on Fifty-fifth street between Ingleside and Drexel avenues with two attractive, up-to-date business buildings of brick, tile and terra cotta exterior. This portion of Fifty-fifth street has developed absolutely independently of the saloon business. The saloon business has flourished for years around the corner of Lake avenue and Fifty-fifth street, eight or ten blocks east of this location, but not until the real development of the residence territory north and south of Fifty-fifth street, with the erection of numerous apartment dwellings, set in, did Fifty-fifth street begin to be the business street—west of Kimbark avenue—that it is today, and its growth is constant. This is only a fair illustration of the situation throughout the city. Undoubtedly there are locations where a sudden "drying up," or, perhaps, even the Sunday closing, might, for the time being at least, depreciate real estate values and seriously deter the work of lasting and desirable improvement. Geographically speaking, however, Chicago has far more "dry" than "wet" territory.

In strictly residential territory, of course, the "wet" and "dry" issue cuts no material figure so far as building activity goes, and it is in this territory that a very large percentage of this year's building record is being made.

Important gains are being made also in the erection of new manufacturing plants, and it is interesting to note the inroads into the old-time fine residence districts of commercial and industrial structures. The Hump Hairpin Company has purchased the old Samuel W. Allerton homestead, at the corner of Prairie avenue and Twentieth streets, and the W. P. Hennebry Company is about to put up a $250,000 printing plant at Twenty-second and Grove streets (the latter not being in the same class of territory precisely as the former), while Marshall & Fox, architects, are to remove from the Loop district to a new home of their own at the corner of Huron and Pine streets, on the North Side. SCRIP.

Written for The Clay-Worker.

## NEW YORK AND VICINITY.

WITH COMMON BRICK at $7.00 to $7.25 and still going up, New York City buyers are beginning to wonder where they will get off. Up-river makers will quote for only an hour or two at a time. Early in the month a broker asked for prices and was given them. He waited two hours and said he would take them. In the meantime the price had advanced another twenty-five cents. That about represents the general conditions, and brokers see no indication of relief. Prices have been irregular for some weeks, but it took October to upset them and send all quotations up twenty-five and fifty cents.

Again, makers will not quote for next spring's delivery. They profess to see prospects of further advances before spring and have no intention of getting tied up, so they cannot take advantage of whatever increase comes. A deadlock naturally follows these two opposing opinions and sales are limited to actual requirements. As this is written, prices are uncertain and the irregularity in the market keeps brokers and other dealers nervous all the time.

Few of the promised big building projects have come out yet. The truth is New York is too busy to realize much about home matters. It is raking in the shekels that flow this way because of the war in Europe and as long as the golden stream continues it will be difficult to interest capitalists in anything so prosaic as brick and building. When they have made their millions perhaps they will turn to home improvements as a means for investing their money.

The difficulties over the new building code are not yet entirely adjusted, though they are gradually disappearing. The time has passed when either party can expect to obtain any material advantage without rousing a storm of protest. Fire-proofing is an important feature of the new code and brick and burned clay, generally, have been well cared for. Conditions favor burned clay when there is any contest between materials, but brick men need to be steadily on the job if they expect to retain the prestige they have gained through convincing others of the actual value and permanency of their product. BURTON.

Use The Schurs
DOLLAR SAVER
And Burn
BETTER BRICK
With the
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ASK US.

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MOTTO—Run plant as economical as is practical. Two last plants as references and others if desired.

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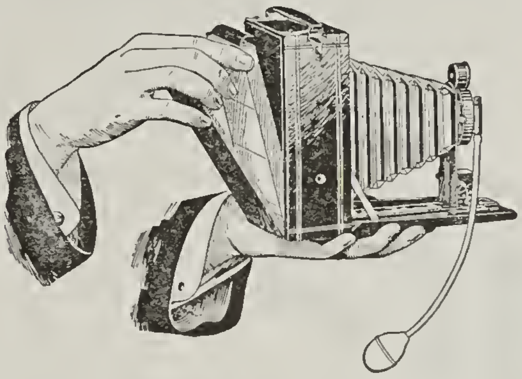

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Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it today.

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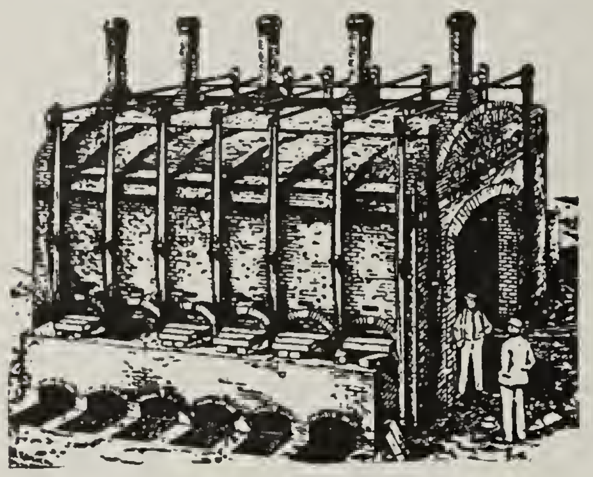
**Rochester Optical Division**
Eastman Kodak Co., Rochester, N.Y.

E. SCHMATOLLA
Consulting, Designing & Constructing
Engineer and Patent Attorney
To the Manufacturers of
Brick, Lime, Magnesia, Silica & Ceramic Wares.
150 Nassau St., New York, U. S. A.



**The Yates Patent Down=Draft Kiln Also Continuous Down=Draft.**

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

ALFRED YATES,
SHAWMUT, PA.

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**You Want to Sell or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If... You Want a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale and Want Columns of... The... Clay=Worker.**

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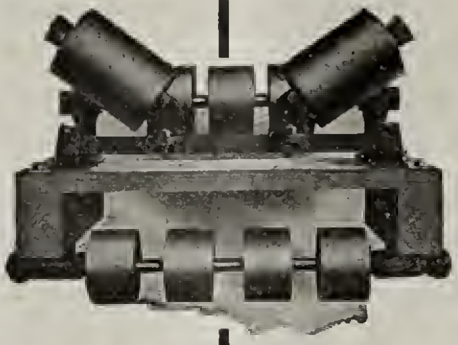
For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.



**Improved Belt Conveyors**

For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof*. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

H. W. Caldwell & Son Co.
Western Ave., 17th-18th Sts., CHICAGO.
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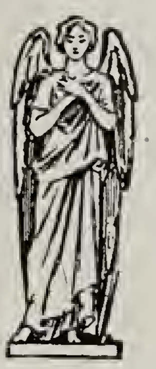

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**The Parker-Russell Mining and Manufacturing Co.**
ST. LOUIS, U. S. A.

Fire Clay and Silica Products of Quality for Service—Especially for Kiln Construction.

**Books of Interest to the Clayworker**

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Sold by

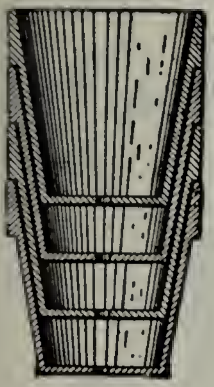
T. A. RANDALL & CO. (Inc.). Indianapolis.

**Chicago Retort & Fire Brick Co.**

**"AJAX" Fire Brick for Building Kilns**

'Phone
Wabash 6131

GENERAL OFFICE;
208 South La Salle St.
CHICAGO, ILL.



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WITH THE ONLY SUCCESSFUL

## Flower Pot Machine

(PATENTED.)

No expert workmen required.
Capacity in 10 hours:
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "
Write for Circular and prices.

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# Anchor Brand Colors

For Mortar Cement and Brick.

**BROWN, BLACK, RED AND BUFF.**

Strongest and Most Durable.

Manufactured by

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Correspondence solicited.

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A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

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A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

SOLD BY

T. A. RANDALL & CO. (Inc.) Indianapolis, Ind.

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# Chattanooga Paint Co.,

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Manufacturers of

## Red Oxides for Brickmakers' Use.

**ECLIPSE MORTAR COLORS,**

**Red, Brown, Buff, Black.**

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# PHILLIPS & McLAREN CO.

PITTSBURGH, PA.

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
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Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

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YOU HAVE KNOWN FOR YEARS THAT

## RICKETSON'S MORTAR COLORS

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

**Why Not Insist on Having Them?**

They are the acknowledged best for all uses--Mortar, Brick, Cement, Concrete and Stone.

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T. A. RANDALL & CO.,
Indianapolis, Ind.

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**$2.00** THE CLAY-WORKER ONE YEAR (IN ADVANCE) **$2.00**

The

**ROESSLER-HASSLACHER CHEMICAL COMPANY**

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As a Preventative of Scums Use

# CARBONATE OF BARYTES

R. & H. PRECIPITATED.

**Oxide Tin,
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Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.**

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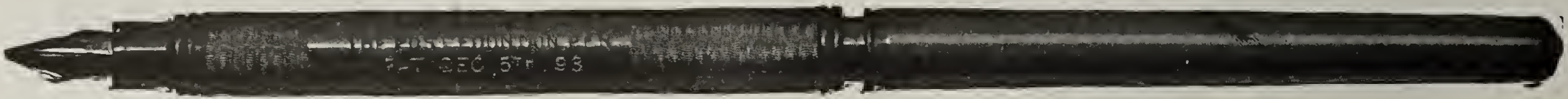

The Latest Fountain Pen. Guaranteed by Makers. No Filler. No Lost Time. No Soiled Fingers. Perfect. Simple.

## REMARKABLE OFFER.

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We will send this famous gold-pointed pen, post paid, and THE CLAY-WORKER, for one year, to any address in the United States and Canada for **$3.00**

**"POST" SELF FILLING CLEANING FOUNTAIN PEN.**

Gen, Lew Wallace, the author of "Ben Hur," wrote: "I have tried every kind in the market, and unhesitatingly give the preference to the "Post."

**ADDRESS THE CLAY-WORKER, INDIANAPOLIS, IND.**

The New Way

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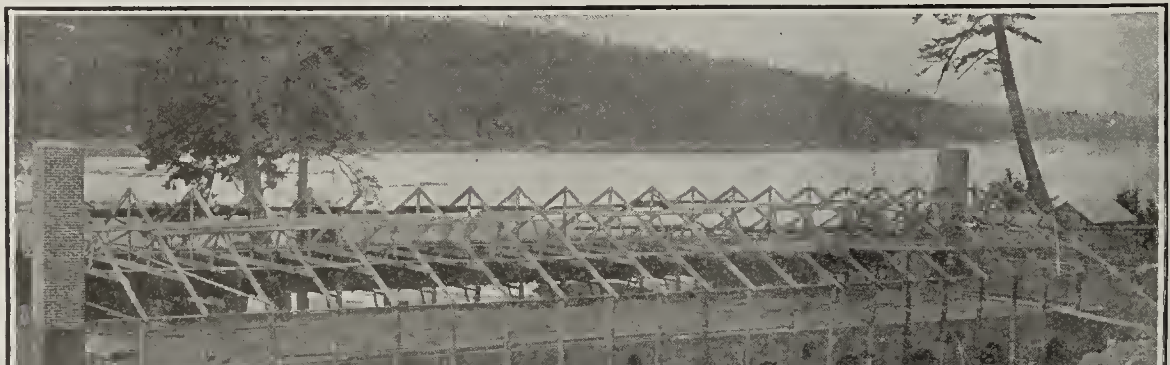

A semi-continuous kiln for large and small yards. Cheap to construct, easy to operate. You have perfect control of the draft and fire at all times. For information write to

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**277 Hawthorne Ave.**
**PORTLAND, ORE.**

# DO YOU KNOW

that in the BURNING OF BRICK a DRAFT GAGE is of greater advantage than a PYROMETER? We furnish both.

# DO YOU KNOW

that for many years we have made the BEST DRAFT GAGES for all styles of kilns?

Write us for information of all kinds of controlling apparatus for clayworkers.

**Ceramic Supply & Construction Co., Columbus, Ohio**

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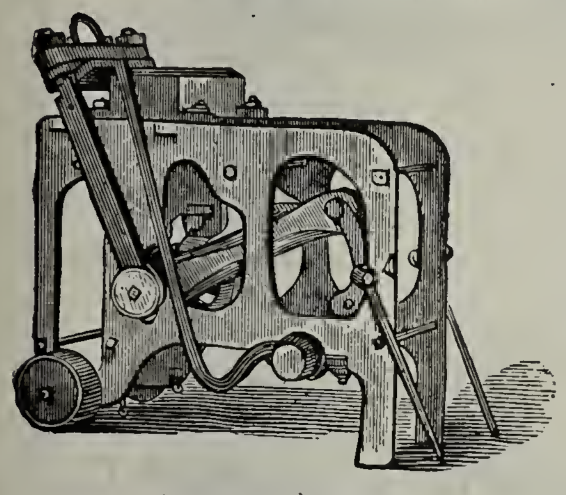
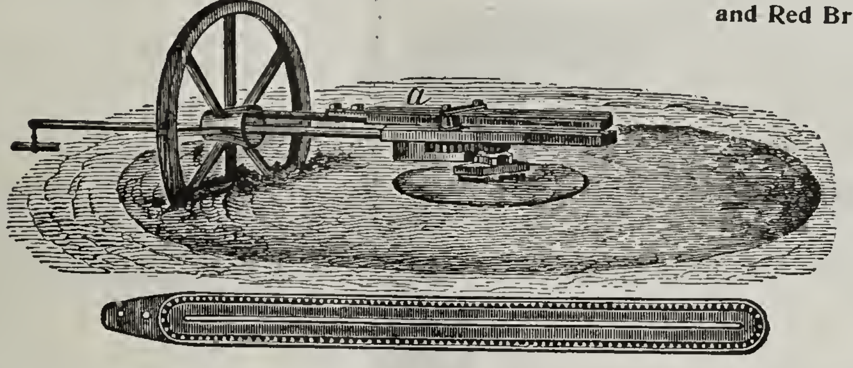


RED BRICK PRESS.

# Philadelphia Brick Machine Works.

**Fire and Red Brick Presses All Sizes. Machinists and Engineers.**

**Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.**



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

☞ Send for Circular and Price List.

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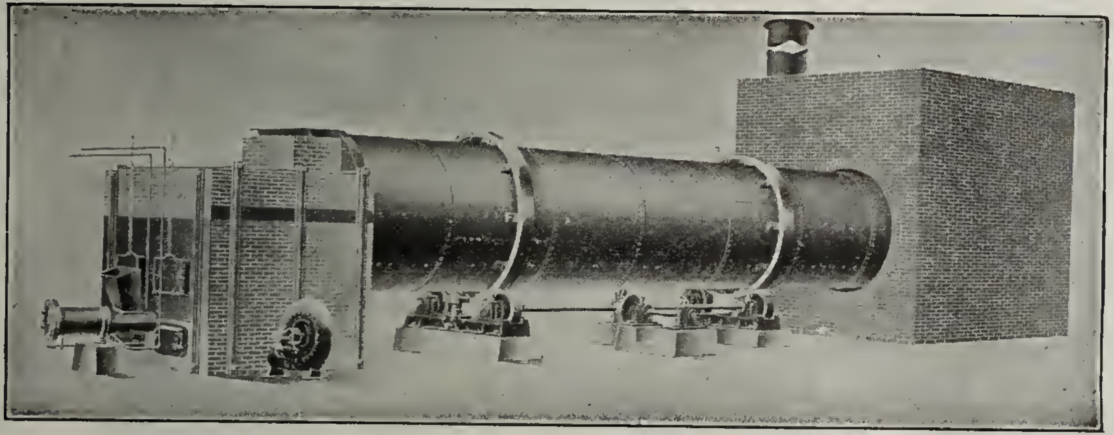

ROTARY CLAY DRYER

# DRY YOUR CLAY

AT LOW COST

YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON.

*It Assures Uniform Product.*

YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

**American Process Co.**
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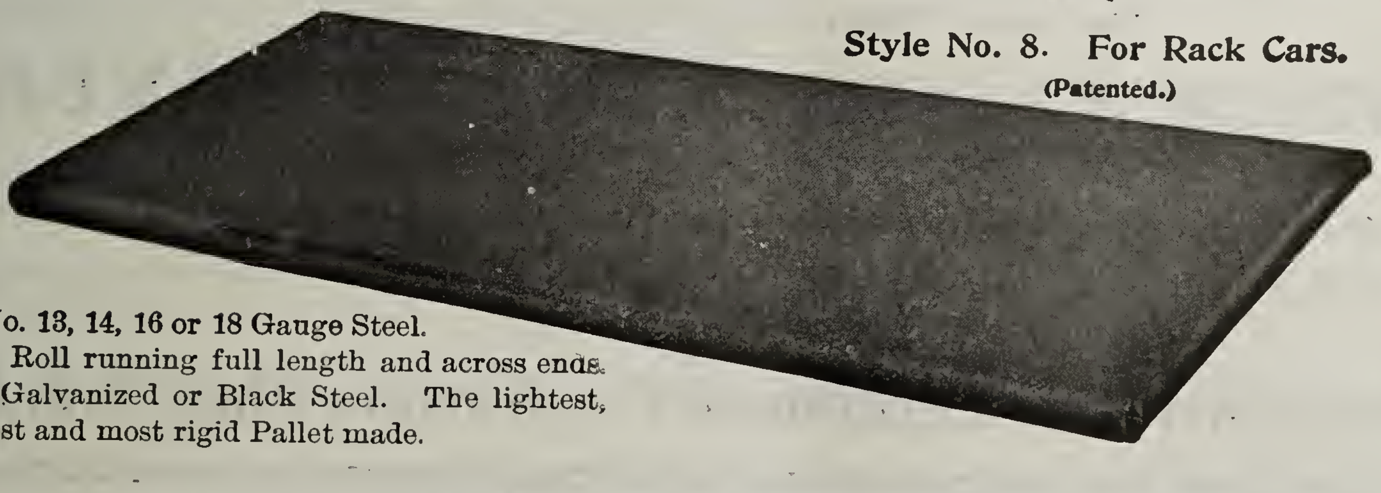
# "OHIO" ROLLED EDGE STEEL BRICK PALLET.

**Style No. 8. For Rack Cars.**
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
⅝-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

**THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.**

## MODERN CLAY-WORKING ENGINEERS

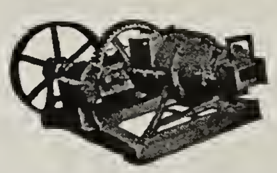
And Builders of Complete

**BRICK MAKING PLANTS**

For Either Soft or Stiff-Mud Processes.

Steam Power 50 Thousand
Animal Power 20 Thousand

We Build the Most Complete Line of Yard Supplies and **CRUSHERS**



**THE HENRY MARTIN BRICK MACHINE MFG. CO.**
**LANCASTER, PA., U. S. A.**

Get Our Big Catalog.

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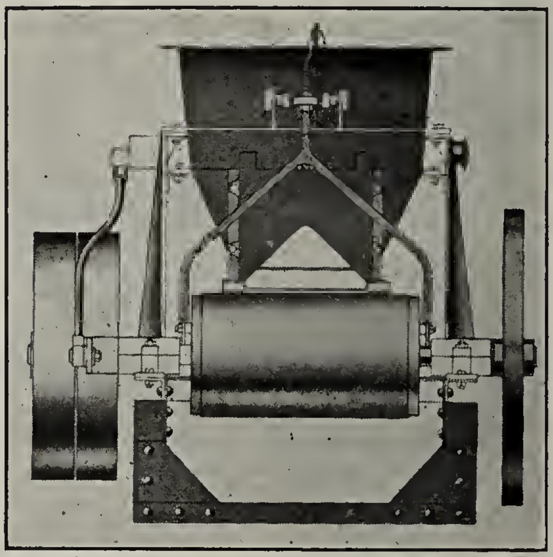
## The Schaffer Poidometer

PATENTED



The Poidometers automatically temper the clay. They unite any number of materials in correct proportions. They weigh the materials, measure the water and deliver them in a predetermined quantity per minute in an even, constant flow.

They cause a uniform column of clay to flow from the brick machine at a regular speed.

INVESTIGATE AND
INVEST IN THESE MACHINES.
IT WILL PAY YOU.

**The Schaffer Engineering & Equipment Co.**
**Tiffin, Ohio**

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The Above Illustration Shows a 22-Tunnel

## JUSTICE CLAY PRODUCTS DRYER

Patented

**Installed for the National Fireproofing Co., Haydenville, Ohio**

They are not only getting **dry ware now,** but are doing it at a cost that is surprisingly low. Isn't this an object lesson for you?

**The Manufacturers Equipment Co., Dayton, Ohio, U. S. A.**

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**BUFFALO - CLEVELAND DETROIT**

## An *Interested* Service

WHEN we say Hotels Statler offer a "complete service" we mean that every guest gets what he *wants* in a Hotel Statler. He is served by well-trained, unobtrusive employees who are in the background till the moment they're wanted, and are there right at hand *and interested.* He gets this service whether he spends $1.50 or $20 a day.

Every—*every*—Hotel Statler room has private bath; outside light and air; circulating ice water; writing desk with plenty of stationery, etc.; local and long distance telephones; pin-cushion, with needles, thread, buttons, etc.; candle for a low night-light, and numerous other unusual conveniences. Morning papers delivered free to every guest room.

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**BUFFALO**
450 Rooms
450 Baths

**DETROIT**
800 Rooms
800 Baths

**CLEVELAND**
700 Rooms
700 Baths

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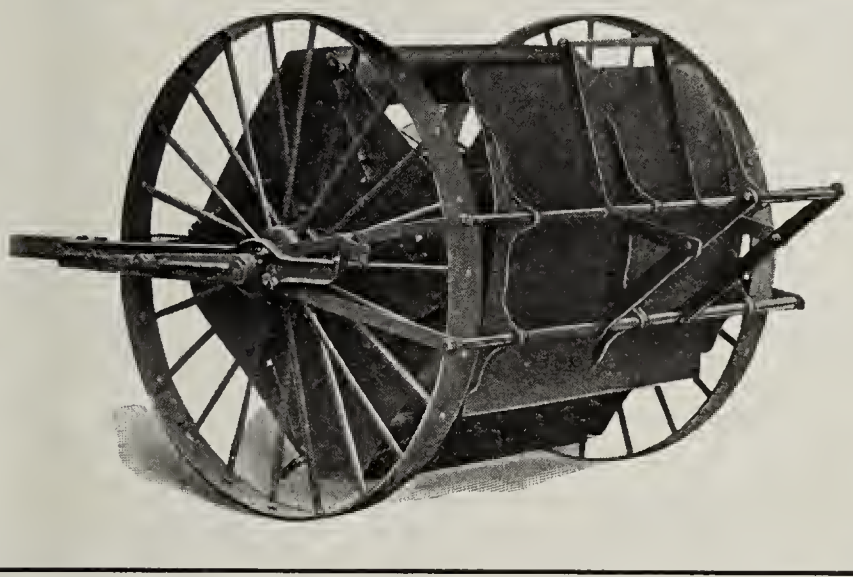
# THE QUINCY IMPROVED GATHERER

used in connection with our **SPECIAL CLAY PLOW** is adapted for taking clay or shale from the surface of the field. Actual tests and testimonials from brick, tile, cement and pottery manufacturers in nearly every state in the Union verify our claim that with their use about one-half of the cost of doing this work can be saved.



**LECHTENBERG BROS.**
**Successors to Central Iron Works**
**Quincy, Ill.**

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## BUILT FOR HEAVY DUTY. ALWAYS MAKES GOOD.

WE ALSO HANDLE EVERYTHING USED ON A BRICKYARD.

**CHICAGO BRICK MACHINERY CO.**

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Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

# BOOKS FOR CLAYWORKERS.

## These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price $2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price $5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price $5.00.

**With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.**

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price $5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

The Effect of Heat Upon Clays, by Prof. A. V. Bleininger. Price $2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price $3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Hollow Tile House, by Fred'k Squires. Price. $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

Radford's Brick Houses and How to Build Them, by Wm. A. Radford. Price, $1.00.

Replete with new and artistic designs for brick houses, apartments, stores, etc., together with instructions in the manufacture of brick and its practical uses as a building material.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price $2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price $2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Engineering for Land Drainage, by C. G. Elliott. Price $2.00.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

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A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

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Points out economical methods for every department of the business. Is practical and covers the field thoroughly.

Scumming and Efflorescence, by Ellis Lovejoy, E. M. Price, 50 Cents.

A book of authority, giving the cause and remedy of scum and efflorescence.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

Drying Brick, by W. D. Richardson. Price 25 Cents.

A little booklet giving and explaining the various styles of dryers, etc.

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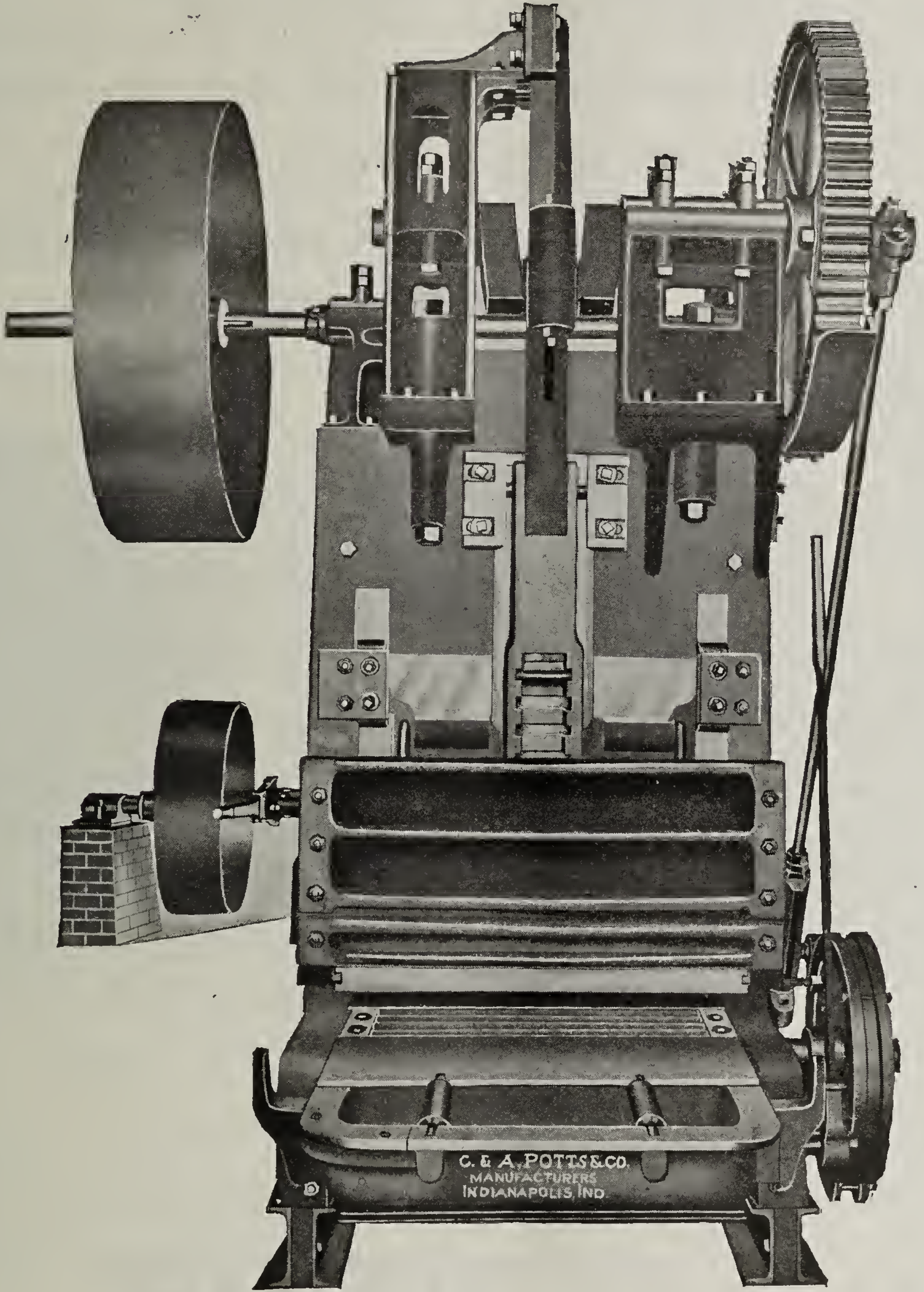
Indianapolis, Ind., U. S. A.

# The Potts Special
# Soft Mud and Fire Brick Horizontal Brick Machine

Drop Forged Crank Shafts. Cut Steel Gears. Large Bearings. Heavy Powerful Press. No Light Parts Working in the Clay.



FRONT VIEW

Note Heavy Construction of Press on Special Soft Mud and Fire-Brick Machine. Built for Service.

**The Most Complete Brick Machine Ever Built**

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FOR
CATALOGUE.

**C. & A. POTTS & CO.**
**INDIANAPOLIS, IND.**

LET US
KNOW
YOUR WANTS.

# AND THEY SAID IT COULDN'T BE DONE!

More than one hundred firms and individuals in a dozen different states have united in a campaign to educate the American builder in the way of SAFE building.

The men back of this national movement represent every accepted fire-safe material and include engineers, architects, contractors, fire engineers and city officials.

This is not a campaign to sell any one material, nor is it an effort to "knock" any type of construction.

The medium of this great movement is an organization devoting its whole enery to convincing prospective builders that it not only is safer and better to build with materials that will resist fire, but that it actually is cheaper in the long run.

This organization is known as THE SAFE and it is making converts every day, and in the territories where it is active the building records show a marked increase of the use of fire-safe materials.

Why aren't you a part of this movement?

Let us send you free copy of address delivered by John J. Thomas, The Lloyd-Thomas Co., Chicago, which PROVES that safe buildings are cheapest.

# THE SAFE

## Society Advocating Fire Elimination

R. P. Stoddard, Secretary

356 Leader-News Building CLEVELAND, OHIO

# TURN FAILURE INTO SUCCESS

## With The Wonder Machine.

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**A Machine of Large Capacity. Unequaled in Record of Durability.**

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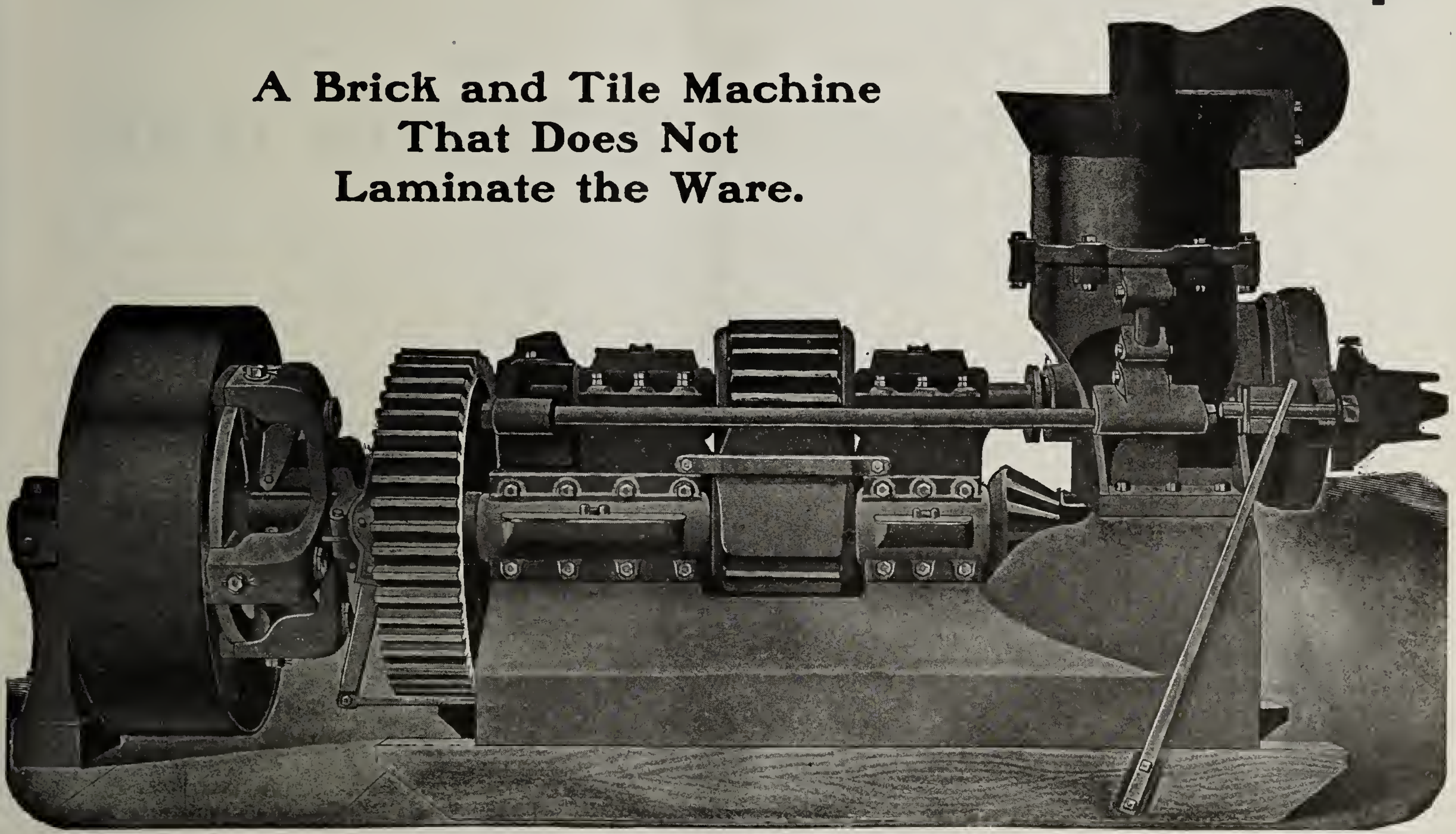
**A Brick and Tile Machine
That Does Not
Laminate the Ware.**



**The Big Wonder Brick and Tile Machine**

**We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.**

*Write for Catalog and Prices.*

# THE WALLACE MFG. CO.

**FRANKFORT, IND.**

# Worth Its Weight In Gold

**Every Clayworker in the Land Should Have a Copy of Prof. Bleininger's Book**

# THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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**Price $2.00**

**Sold Only by**

## T. A. RANDALL & CO.

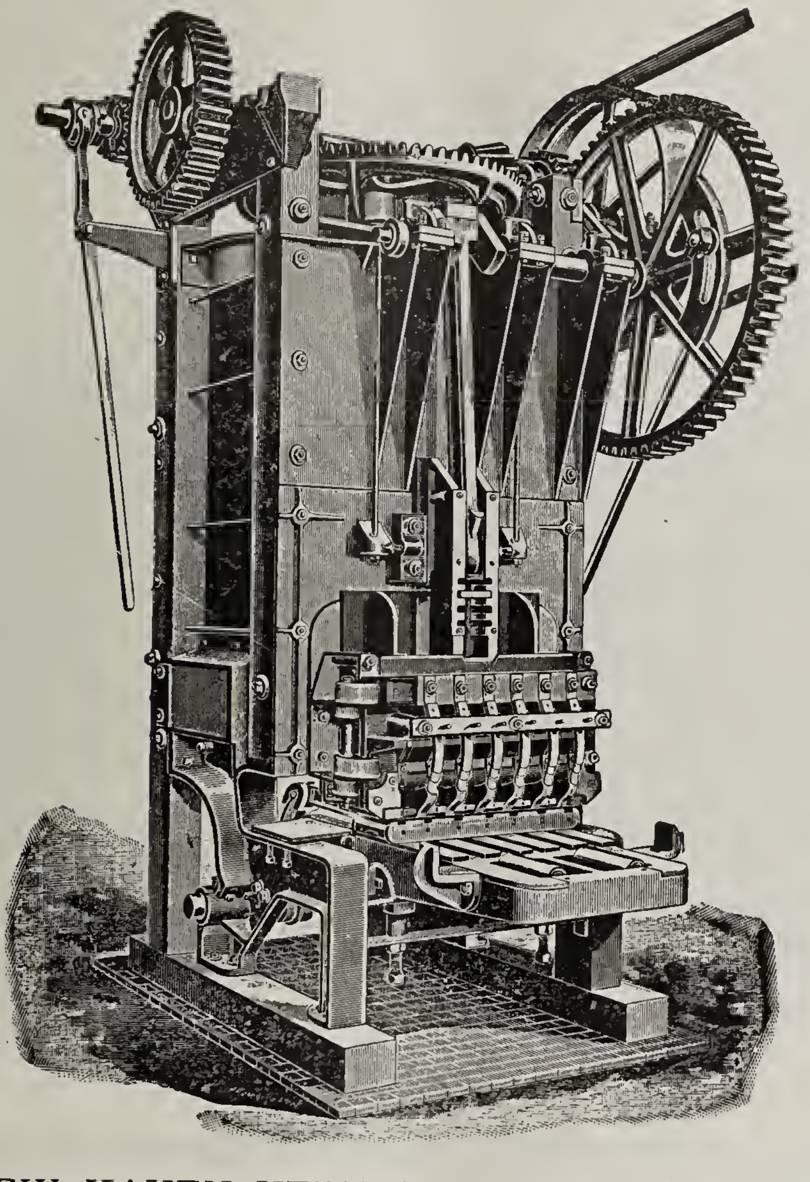
**Indianapolis, Ind.**

# Every Buyer of New Haven Machines a Satisfied User

The "New Vertical" Brick Machine is the most substantial Upright Soft Clay Brick Machine in the world.

We manufacture a full line of supplies including

- Pug Mills,
- Clay Crushers,
- Clay Elevators,
- Winding Drums,
- Tempered Steel Brick Strikes,
- Clay Cars,
- Brick Trucks,



- Stamp Mills,
- Freight Elevators,
- Friction Clutches,
- Clutch Pulleys,
- Revolving Dump Tables.

"NEW HAVEN VERTICAL BRICK MACHINE."

In fact we can furnish machinery of the most improved modern construction for brick manufactories of any capacity. Competent workman are employed in every department, hence we can guarantee our machinery to be well made and capable of performing the work for which it was designed.

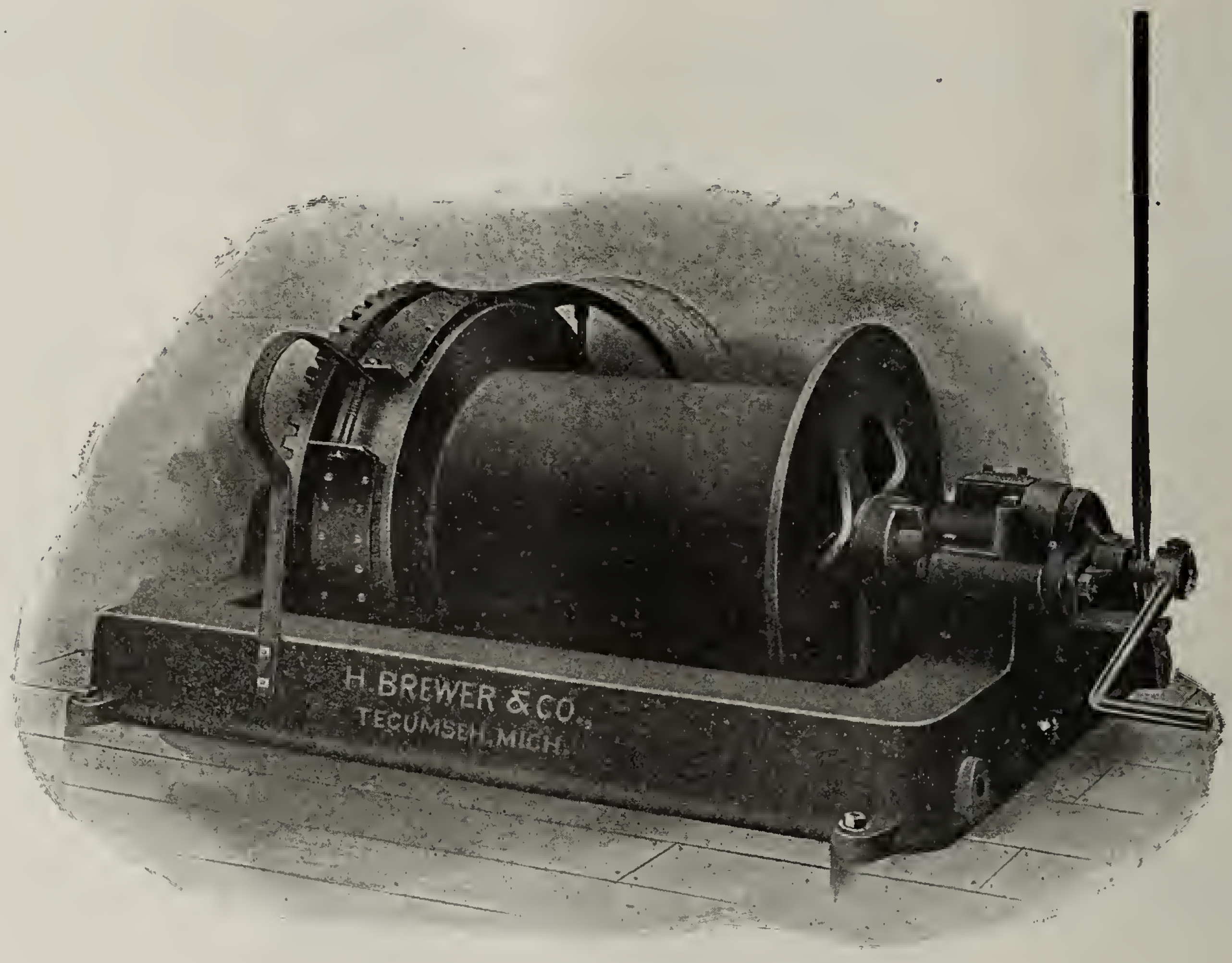
**The EASTERN MACHINERY CO.**

NEW HAVEN, CONN.

IF MARKED BREWER IT'S GOOD

# HOISTS

You can buy a Brewer Hoist without buying trouble with it. It will keep on hoisting without any coaxing. We have spur-geared hoists, bevel-geared hoists, spur-friction hoists and bevel-friction hoists. Large ones and small ones and all of them **good.**



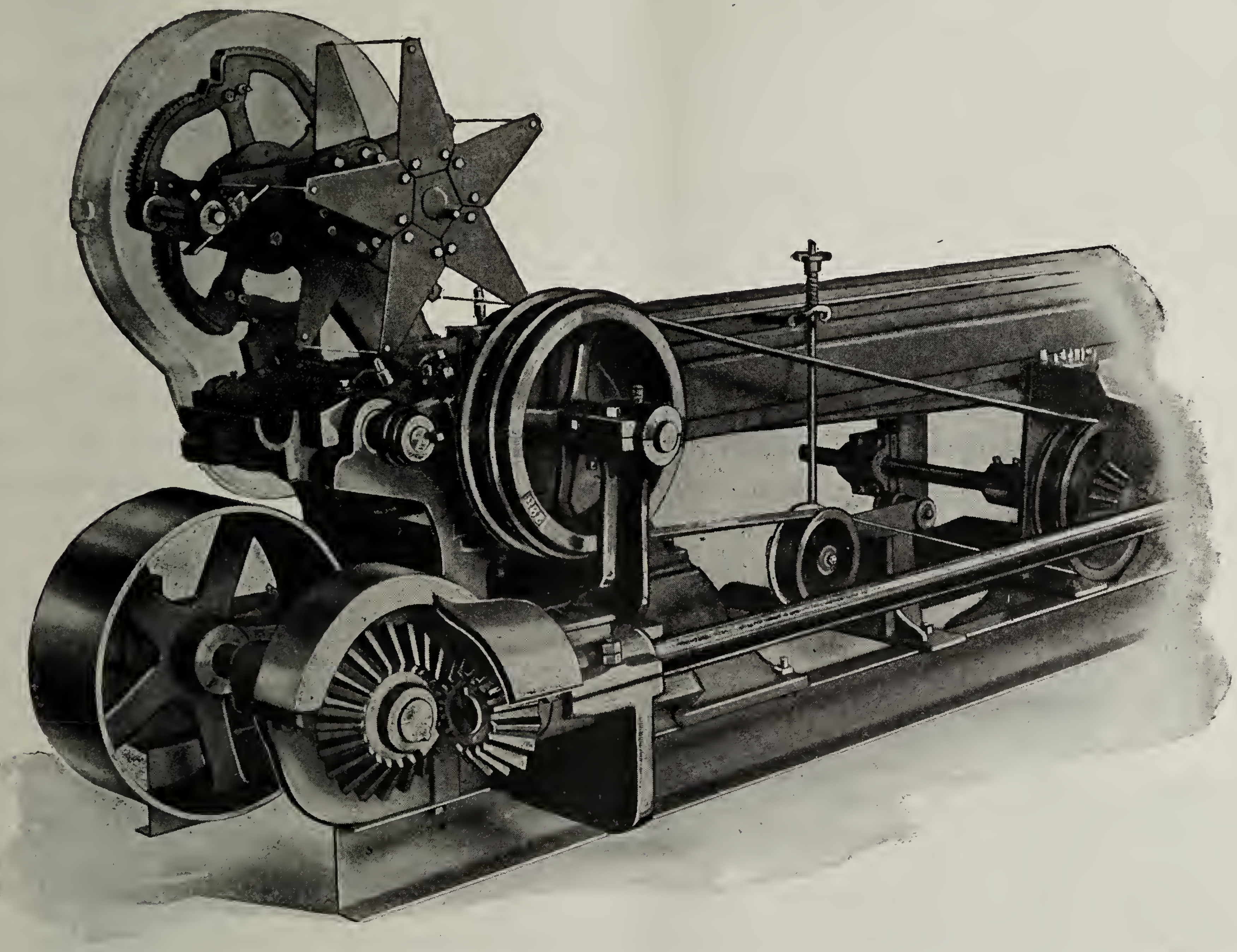
## This is a Heavy Bevel-Geared Pattern

It is No. 28. It weighs 3,000 pounds. The drum is 20 in. diameter, 28 in. between flanges and the flanges are 30 in. diameter. The journals are self-oiling, the gears 4 in. face, the brake band 5 in. wide. Can be made right or left hand. Illustration above is left hand. It is enough of a hoist for the biggest plants, and we have smaller ones for the others.

**If you ask for our catalog you will get it**

**H. BREWER & COMPANY, Tecumseh, Mich.**

## You Have Heard of the Reputation of the Steele End Cutter
## You Realize the Advantage of Square Cut Brick
## If You Have Any Doubt of the Superior Principle or Workmanship of This Cutter Frankly Ask Us to Show You



The cut is controlled direct by Irregular Gears which prevents lost motion, reduces friction and practically eliminates wear.

Will handle the largest capacities.
Will work with any machine.
Nearly one thousand in use.

Don't let your competitor get in this cutter first.

# J. C. STEELE & SONS

**STATESVILLE, N. C.**

**George H. Smith, Western Agent, 203 Sheidley Bldg., Kansas City, Mo.**

# HOLLOW=WARE

This product is growing in favor, and indications point to one thing—more and better machinery for its manufacture. No doubt you have limited your output to brick and tile, but have thought of hollow-ware as an additional product.

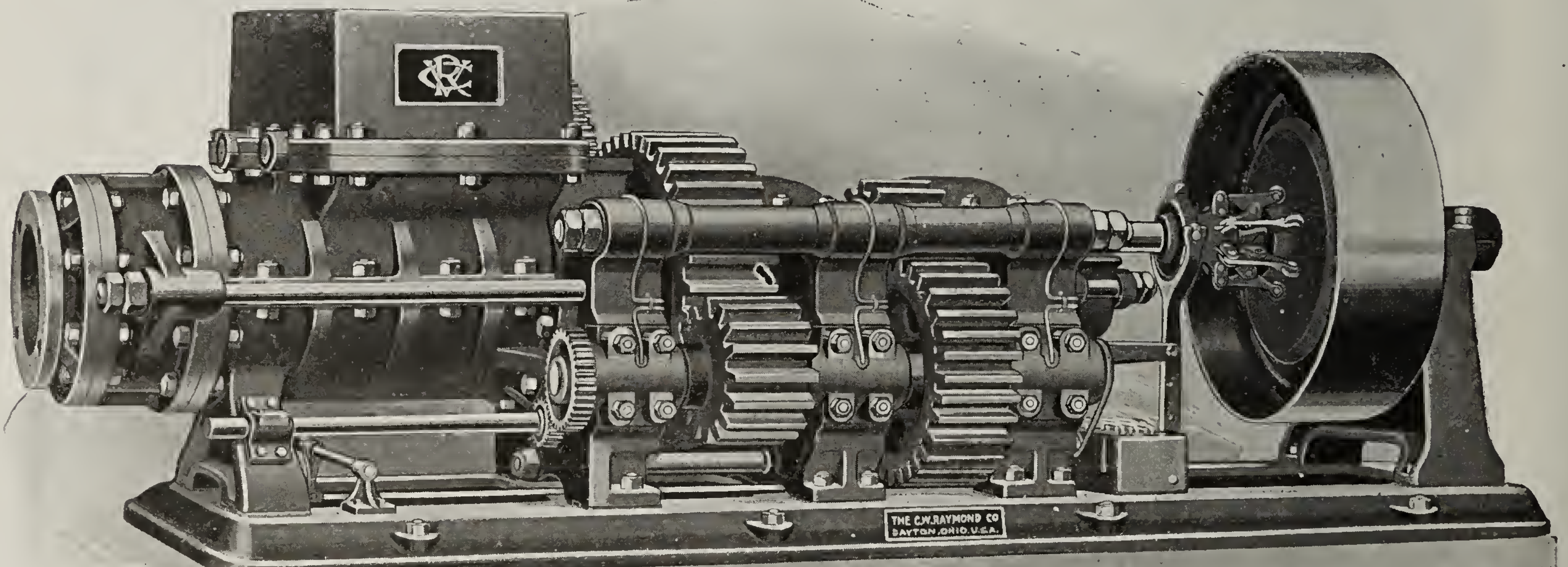
To do this properly, you should buy the best machine for your needs—whatever they may be. But don't think that any machine you may see will give good service because there are certain features on a hollow-ware machine that are not on a brick machine.

The back pressure is much greater and the force required to push the clay through the die is increased, so that greater bearing surface and stronger auger construction is needed. Thus you see this product

## CALLS FOR STRONGER MACHINES.

Therefore, just a brick machine with a hollow-ware die will not give satisfaction. Many little things which may seem trivial may be the very ones that may soon cause trouble. Look into the construction of our machines thoroughly, and find out all you can about them. Get advice from a reliable source.

We might mention that the Hollow-ware Machine here shown—



**The Raymond "C V R" Holloware Machine**

Is the choice of those who appreciate a trouble-proof machine.

## The C. W. Raymond Company,

**The Largest Exclusive Builders of Clayworking Machinery in the World.**

**Dayton** **Ohio** **U. S. A.**

# DOES THIS APPLY TO YOU?

How often have you lost your sleep figuring out why you do not get results from your dryer? The coal bills accumulate rapidly, the product does not, and it's worry along the best you can, and make the best of it.

But now the time has come when your trials and tribulations are over. You don't believe it, but can you get away from the facts? No—at least not in your own mind. Just think as you read this what a benefit this dryer would be to you.

It stands proven that this is the most economical to operate—that alone is not to be thought of lightly. It is turning out more and better ware than any previous design—in fact, the product is so much better that new customers nearly swamp the place. These facts can be proven without any trouble. They are happening right now.

Don't you think that it might be to your advantage to drop a line or so to the manufacturers of this dryer?

Their name is

**The C. W. Raymond Company.**

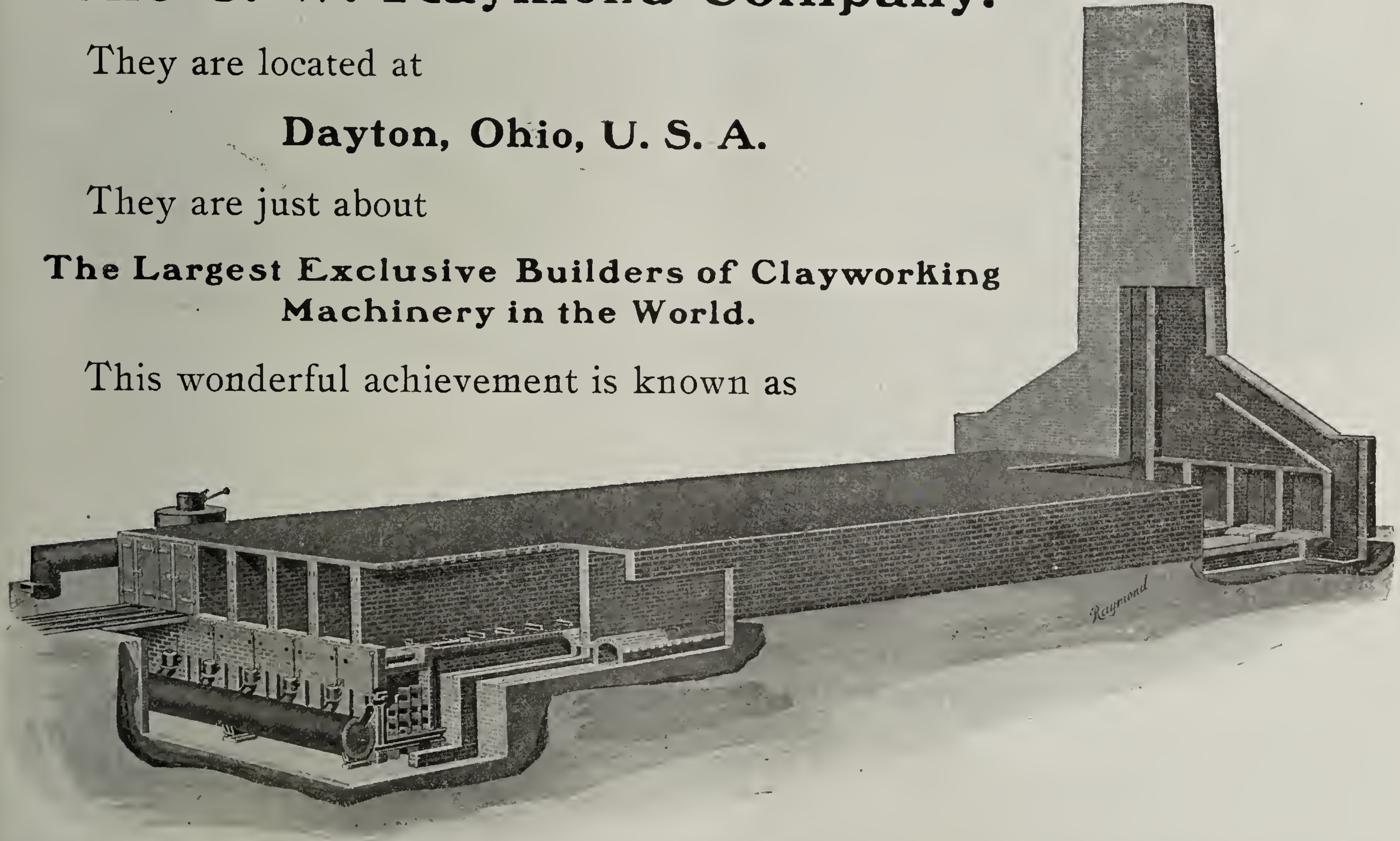
They are located at

**Dayton, Ohio, U. S. A.**

They are just about

**The Largest Exclusive Builders of Clayworking Machinery in the World.**

This wonderful achievement is known as

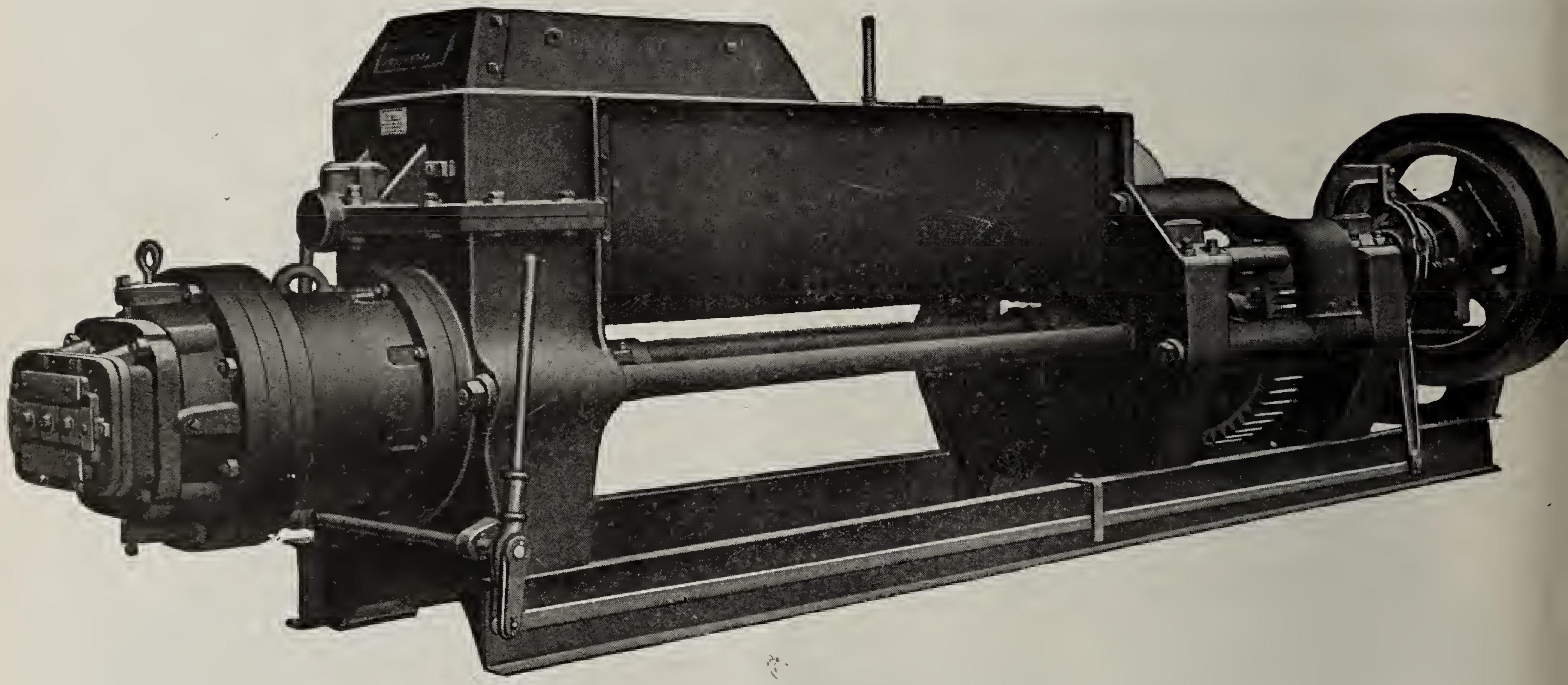


**The Raymond Producer Gas Fired Metallic Radiation Dryer**

Why does the KB Union Hollow-ware Machine produce 50% more ware than the machine previously used—a machine nearly as large?

Why does it consume 25% less power than the machine previously used?

Why does one of its users say it is the nicest piece of clayworking machinery he has ever had on his plants?



Union Hollow-ware Machine

**A worry-eliminator for the hollow-ware manufacturer**

**E. M. FREESE & COMPANY, 140 South St., Galion, Ohio**

**Dependable Machinery of Proven Efficiency**

For
Sixty-Three
Years
The Name

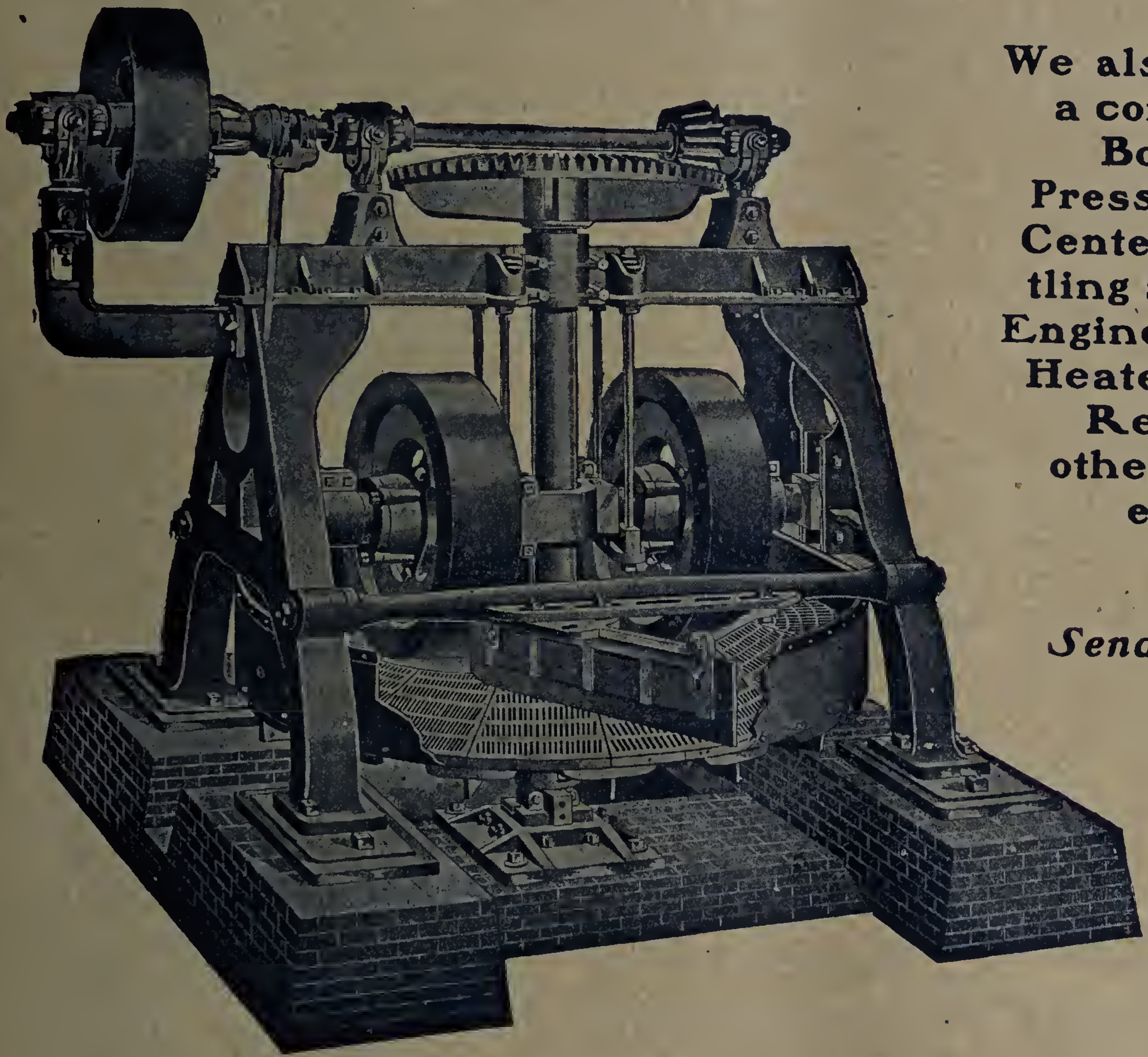
# Frost

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.

**WHY!** Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.



We also manufacture
a complete line of
Boilers for all
Pressures, Side and
Center Crank Throttling and Automatic
Engines, Feed Water
Heaters, Tanks, Air
Receivers and
other power plant
equipment.

---

*Send for Bulletins.*

## The Frost Manufacturing Co.

Works at
GALESBURG, ILL.

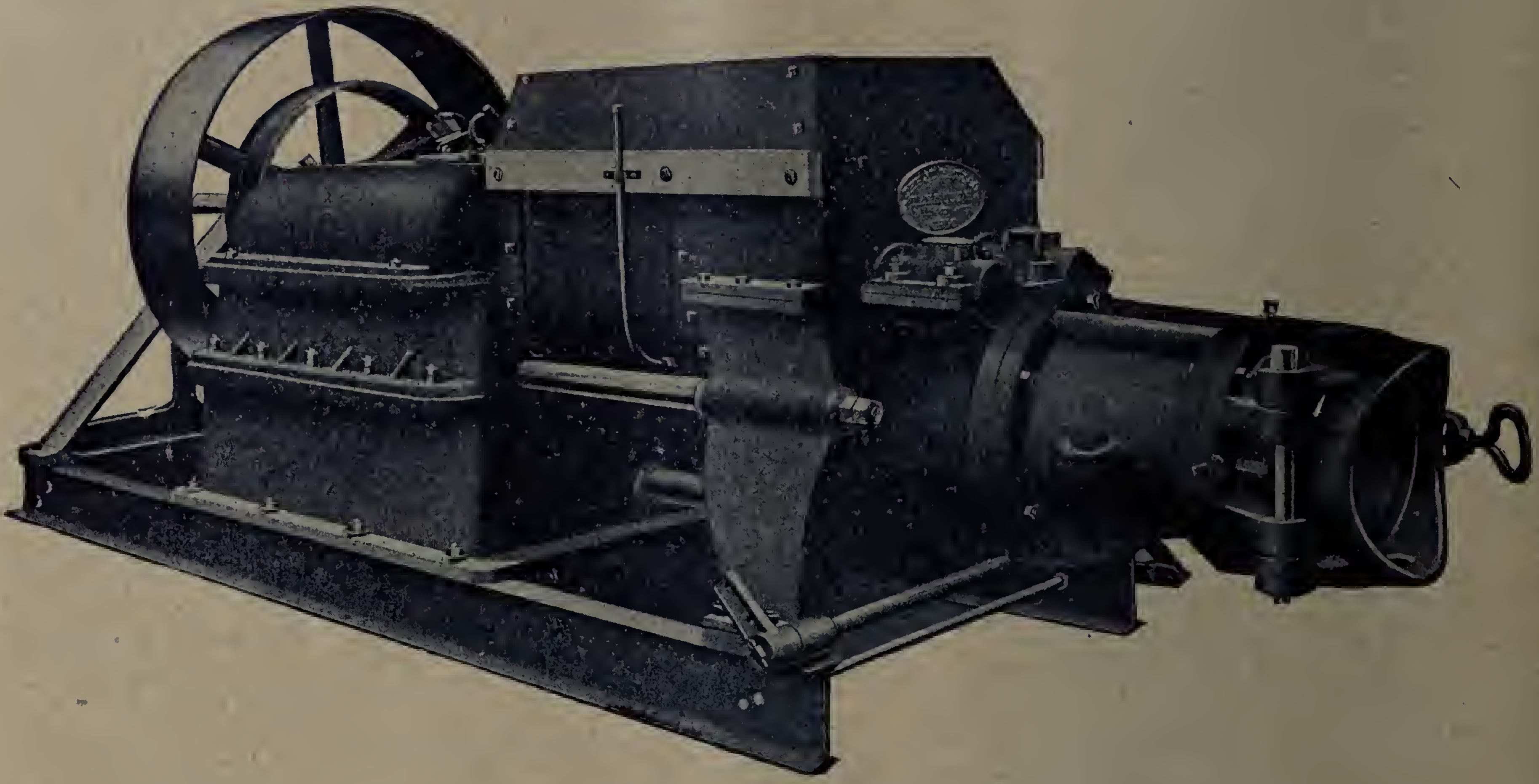
Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

THE PREMIER LINE
THE J. D. FATE COMPANY

*These factors enter into the product of the House of Fate.*



OUR NEW "H" SPECIAL AUGER MACHINE.

This machine has been developed from our well and favorably known Imperial Machine and embodies the best points of our heavier and famous Special Premier and "M" Special Machines. It has been so designed that it can, with a few changes, be splendidly adapted to the making of either brick, hollow-ware or drain tile in reasonably large quantities.

Built in this short, stocky form, with plenty of room in the hopper for feeding, it makes an ideal machine for use in connection with a pug mill that is already installed, or where for any reason a combined machine is not desired.

It has our regular double feeder shaft arrangement—large, heavy shafting throughout, an exceedingly large diameter roller thrust bearing on the auger shaft and all gears are cut and enclosed in a dustproof oil chamber.

Those who have already used it are strong in their praise of it. Let us tell you more about it. A postcard request will bring you full information.

We can also supply a machine of the same size and type in a combined machine, called our Special Imperial.

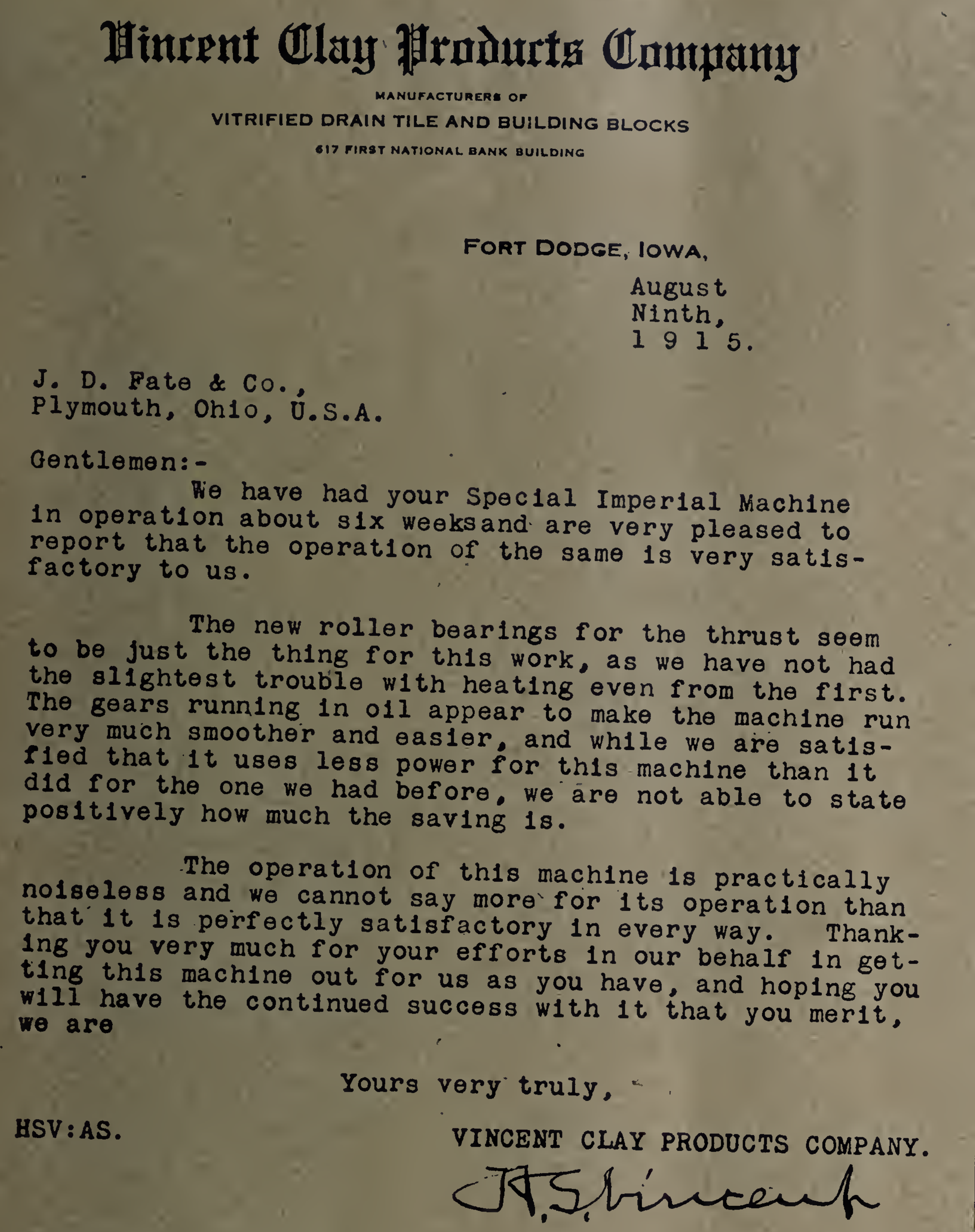
**Read one of the comments on this machine on the opposite page.**

---

## The J. D. Fate Company

### Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent



**Vincent Clay Products Company**

MANUFACTURERS OF
VITRIFIED DRAIN TILE AND BUILDING BLOCKS
617 FIRST NATIONAL BANK BUILDING

FORT DODGE, IOWA,
August
Ninth,
1915.

J. D. Fate & Co.,
Plymouth, Ohio, U.S.A.

Gentlemen:-

We have had your Special Imperial Machine in operation about six weeks and are very pleased to report that the operation of the same is very satisfactory to us.

The new roller bearings for the thrust seem to be just the thing for this work, as we have not had the slightest trouble with heating even from the first. The gears running in oil appear to make the machine run very much smoother and easier, and while we are satisfied that it uses less power for this machine than it did for the one we had before, we are not able to state positively how much the saving is.

The operation of this machine is practically noiseless and we cannot say more for its operation than that it is perfectly satisfactory in every way. Thanking you very much for your efforts in our behalf in getting this machine out for us as you have, and hoping you will have the continued success with it that you merit, we are

Yours very truly,

HSV:AS.

VINCENT CLAY PRODUCTS COMPANY.
H. S. Vincent

## Read Carefully This Letter.

Note that the Thrust Bearing does not heat—not even when first started.

Note that with the gears running in the enclosed oil chamber, the machine runs smooth and easy.

Note that less power is required than with the machine with small thrust and open gearing.

The machine referred to in the above letter is the same as the "H" Special shown on the opposite page, except that it is a regular combined machine with a full length pugging tub. It has in addition the large roller thrust bearing to take the severe backward thrust of the auger shaft, large well proportioned shafting throughout—iron rim friction pulley, with our new positive working clutch, adjustable from the outside; and is an entirely self-contained machine.

It is a machine that any clayworking plant may well be proud to own and operate.

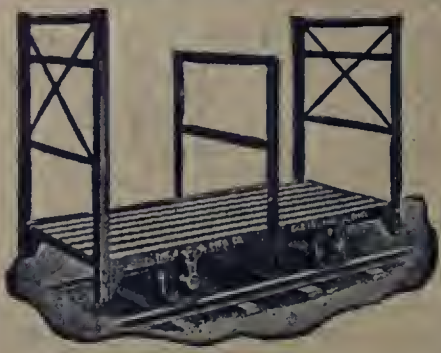
Why not take up with us now your needs for next season in the way of new equipment.

---

# The J. D. Fate Company

## Plymouth, Ohio

Wsetern Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent

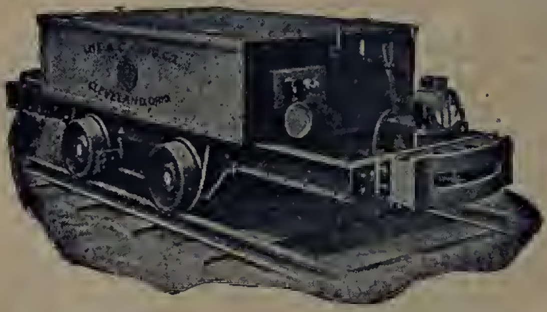


## REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives



Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

---

# BAIRD

## POT MOLDING MACHINERY

We specialize
Machines
for the
Manufacture
of Pottery
and Guarantee
Every One We Sell

*Write us for information*

**Baird**
**Machine & Mfg. Co.**
54-56 Jefferson Ave.
Detroit, Mich.

---

With Chase Flexible and Reversible Bearing and Folding Deck.

**Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.**

**The Chase Foundry & Mfg. Co., Columbus, O.**

---

# "LAKEWOOD LINE CARS"

LAKEWOOD NO. 166

**Dryer Cars**
**Rack Cars**
**Dump Cars**

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
Cleveland, Ohio

Chicago: 506 S. Canal St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802.
Baltimore: Munsey Bldg. Kansas City: N. Y. Life Bldg.

NOVEMBER, 1915

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NOV 23 1915

# THE CLAY-WORKER

**Prize House to be Given Away at the Complete Building Show, Cleveland, February 16-26, 1916. See page 517.**

Published Monthly by
T. A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

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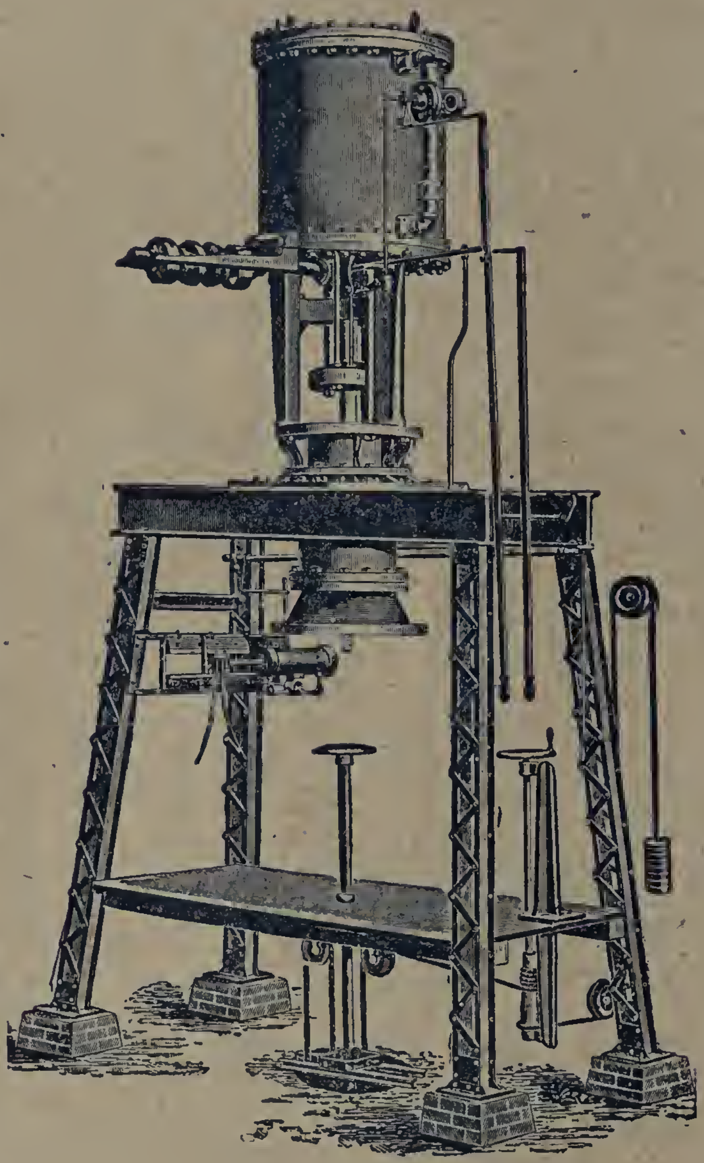
All men get stung sometime. Some men get stung all the time, except the ones who buy PIONEER CLAYWORKING MACHINERY.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

---

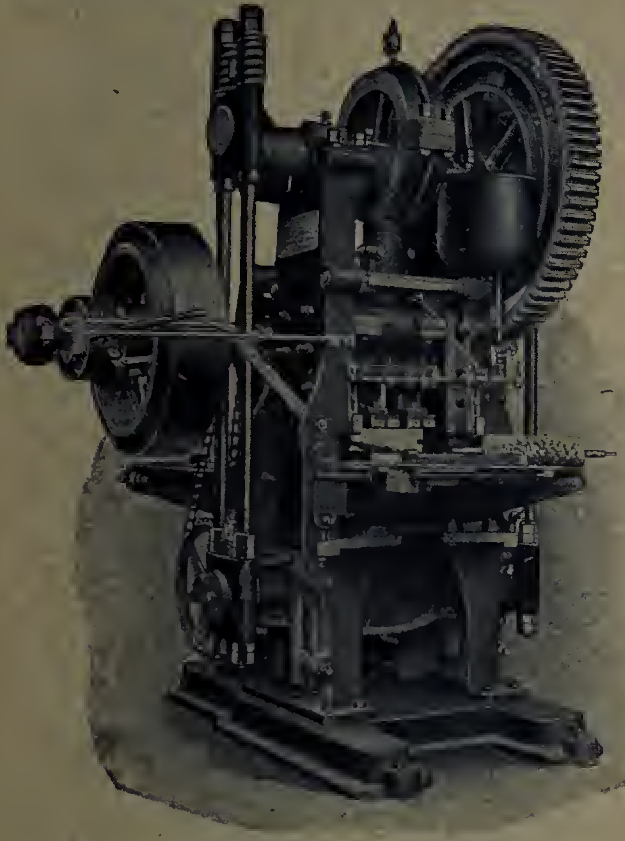
## THE TAPLIN, RICE-CLERKIN CO.

**Akron, Ohio**

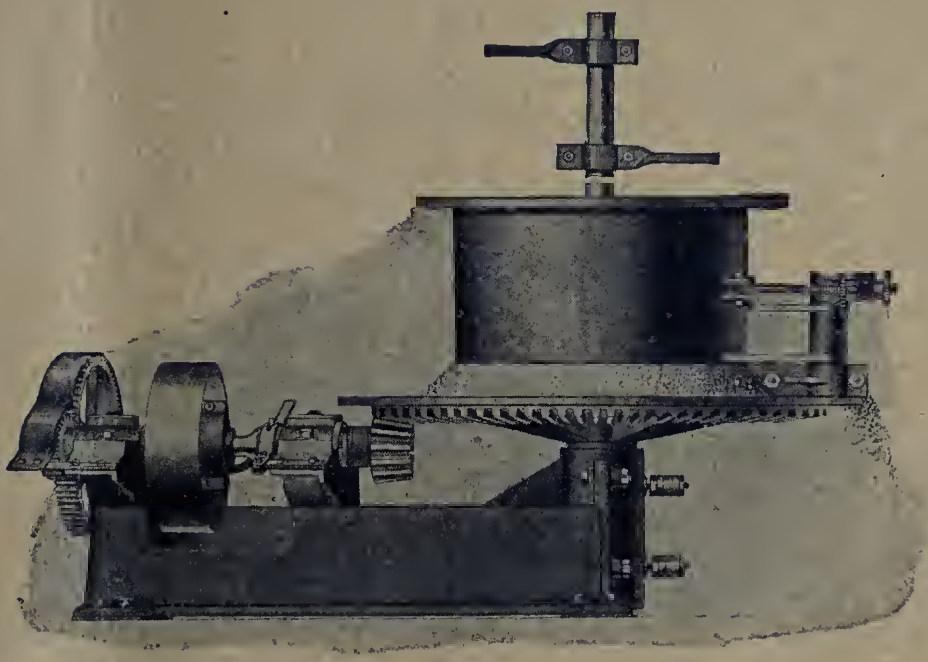
The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.

**We manufacture a complete line of machinery for Brick and Hollow Ware.**

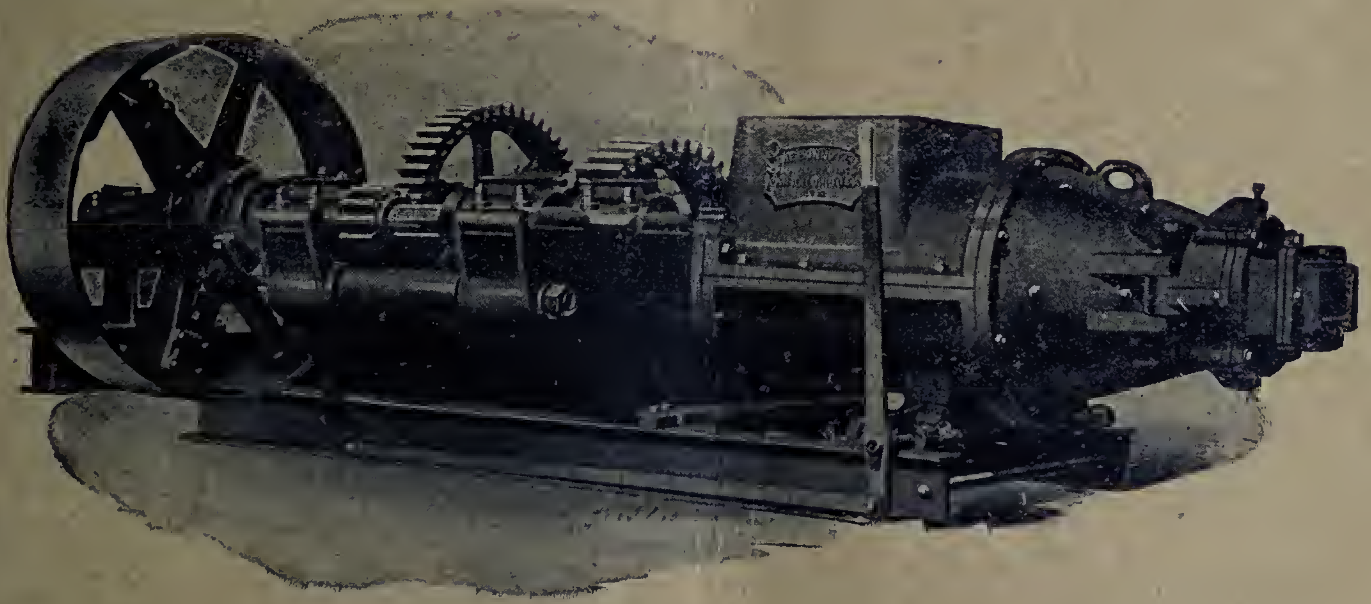
Complete catalog sent on request.



BONNOT REPRESS.



CLAY FEEDER.



AUGER MACHINE, 50,000-70,000 CAPACITY.

CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

# THE BONNOT COMPANY

909 N. Y. Life Bldg., KANSAS CITY, MO. CANTON, OHIO
211 Higgins Bldg., LOS ANGELES, CAL.

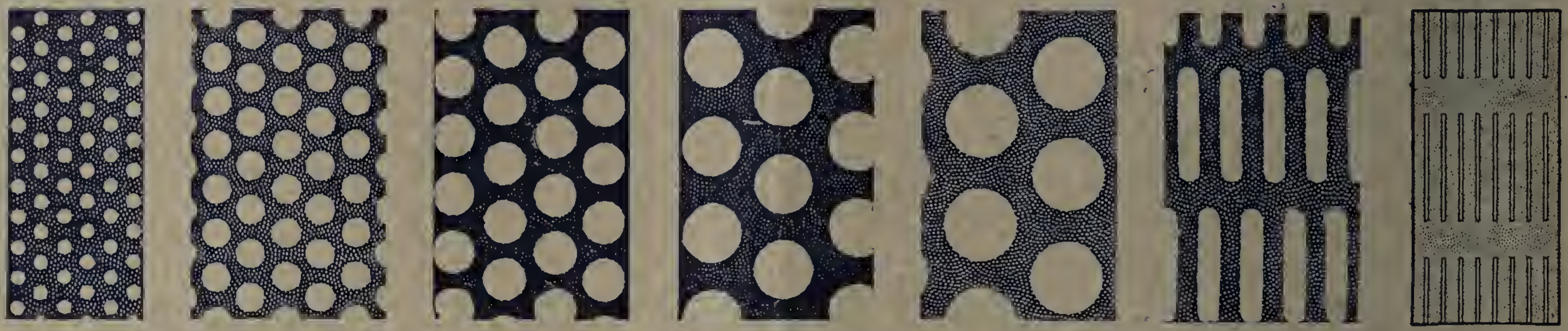
CLAY WORKING QUALITY BONNOT SERVICE MACHINERY

Mention The Clay-Worker.

# PERFORATED STEEL SCREENS

## FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

**The Harrington & King Perforating Co.**

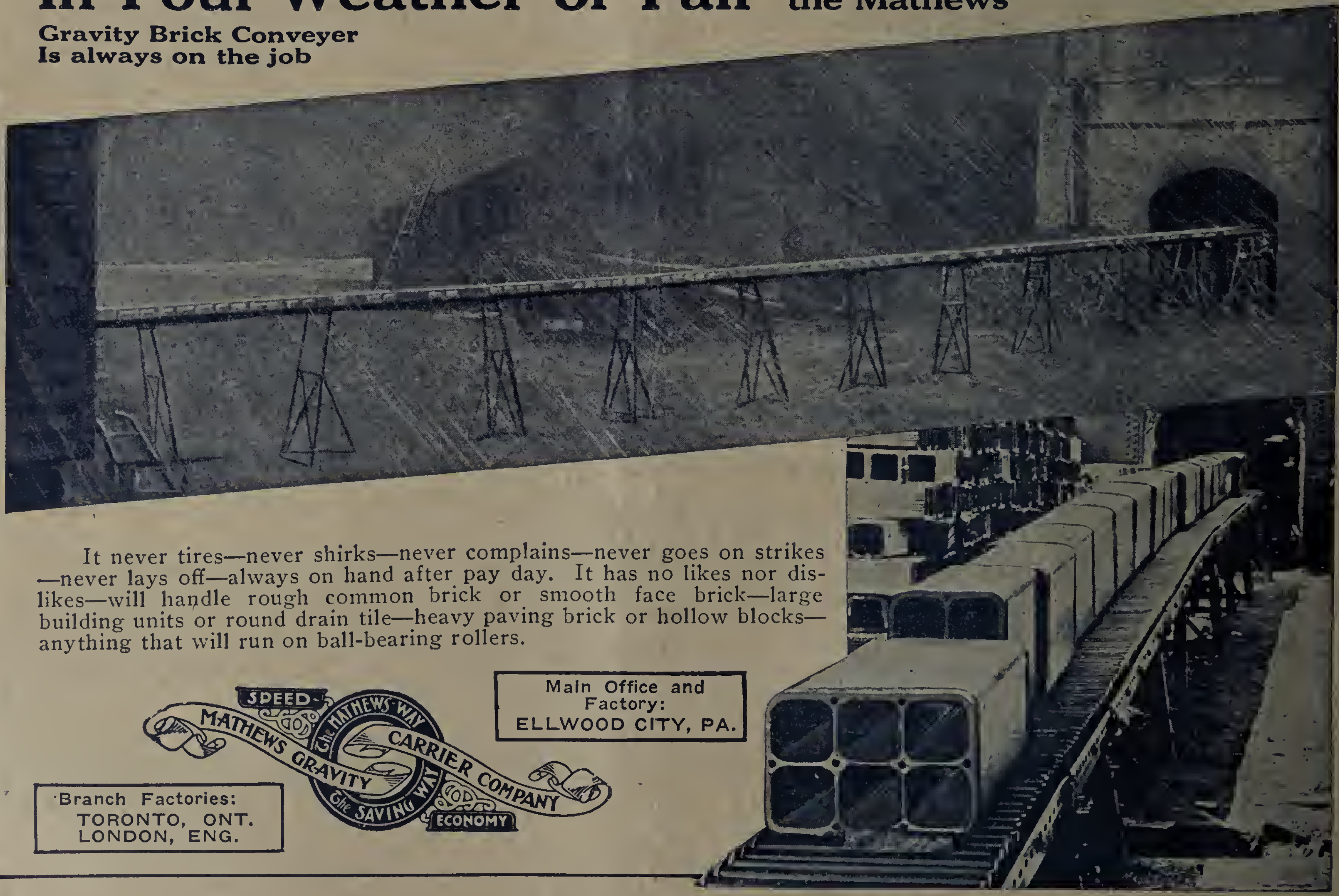
NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

---

# In Foul Weather or Fair the Mathews

**Gravity Brick Conveyer
Is always on the job**



It never tires—never shirks—never complains—never goes on strikes—never lays off—always on hand after pay day. It has no likes nor dislikes—will handle rough common brick or smooth face brick—large building units or round drain tile—heavy paving brick or hollow blocks—anything that will run on ball-bearing rollers.

SPEED
MATHEWS GRAVITY CARRIER COMPANY
The Mathews Way
The Saving Way
GOOD
ECONOMY

Main Office and
Factory:
ELLWOOD CITY, PA.

Branch Factories:
TORONTO, ONT.
LONDON, ENG.

RODGERS

# PERHAPS YOU THINK

it **LACK OF ECONOMY** to employ efficiency experts.

## TO THE CONTRARY,

it is **TRUE ECONOMY**---the spending **JUDICIOUSLY** of one's money.

The production of a poor product is a waste of labor and material. It is time, money and strength wasted on a product with no goodness in it, which might have been spent—properly directed—in the production of a product of value.

If you believe in **ECONOMY**, you will practice it to your advantage by employing our efficiency experts to dry your output.

## RODGERS WASTE HEAT DRYERS

are individually designed, each being constructed to meet the individual requirements of the clay to be dried.

Our tender clay Dryer, the

**"UNI-TROL"**

is in successful daily operation, in various parts of the country, and, like all our dryers, does all we claim for it.

## L. E. RODGERS ENGINEERING CO.

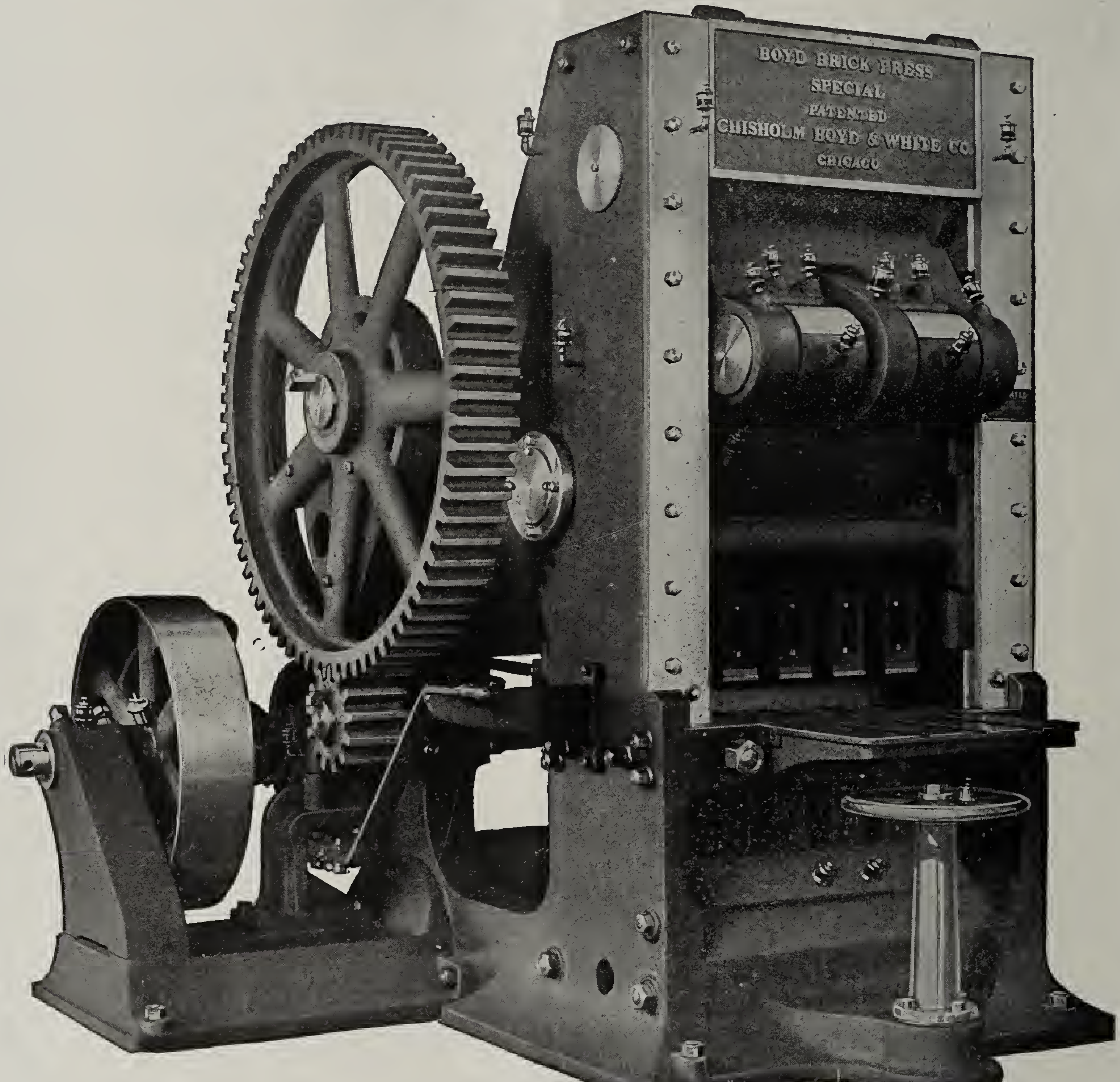
Waste Heat Dryer Specialists
Brick Works Engineers
Largest Manufacturers of Brick Drying Equipment in the United States
General Offices and Works

O
H ZANESVILLE, I
O

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



### SPECIAL FEATURES OF THE BOYD BRICK PRESS

**BALANCED-PRESSURE**—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—ACCESSIBILITY unequaled.
TOP and BOTTOM of brick equal hardness—NO granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

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**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

---

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The Brown Instrument Co.

**Analysists and Chemists.**
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

**Arch Cutting Apparatus.**
Ceramic Supply & Con. Co.

**Automatic Clay Bin Emptier.**
Fate Co., The J. D.
Raymond Co., The C. W.

**Automatic Cutting Tables.**
(See Cutting Tables.)

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Chambers Bros. Co.
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Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Barytes, Carbonate of.**
Roessler-Hasslacher Chem. Co.

**Bearings, Roller.**
(See Supplies.)

**Belting.**
Ceramic Supply & Con. Co.
Gandy Belting Co.

**Belt Conveyors.**
American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
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**Blowers.**
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American Clay Machinery Co.
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Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Boilers.**
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.

**Brick (Building).**
Bloomfield Clay Co.
Kushequa Brick Co.
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Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

**Brick (Paving).**
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Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

**Brick Conveyors.**
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.

**Brick and Tile Machinery.**
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Mchy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Brick Machines (Soft Mud).**
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.
Raymond Co., The C. W.

**Brick Machines (Stiff Mud).**
American Clay Machinery Co.
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Bonnot Co., The
Brewer & Co., The
Chambers Bros. Co.
Fate & Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

**Brick Machines (Dry Press).**
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Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Manufacturers Equipment Co.
Mueller Bros.
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Raymond Co., The C. W.

**Brick Setting Machinery.**
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American Clay Machinery Co.

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Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Yates, Alfred.

**Cars.**
(See Dryer and Dumping Cars.)

**Castings.**
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Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

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Schaffer Eng. & Equip. Co.

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Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
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**Clays.**
American Clay Machinery Co.
Bloomfield Clay Co., The

**Clay Dryers.**
American Process Co.
Schaffer Eng. & Equip. Co.

**Clay Feeders and Mixers.**
American Clay Machinery Co.
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Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Marion Mach., Fdy. & Sup. Co.
Raymond Co., The C. W.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.

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**Clay Steamers.**
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Raymond Co., The C. W.

**Clay Technologists.**
American Clay Machinery Co.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

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Williams & Co., C. K.

**Cones.**
Orton, Edward, Jr.

**Conveying Machinery.**
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

**Continuous Kilns.**
American Clay Machinery Co.
Raymond Co., The C. W.

**Contracting Engineers.**
Ceramic Supply & Con. Co.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

**Couplings.**
(See Supplies.)

**Cutting Tables (Brick & Tile).**
American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Cutting Wires.**
American Clay Machinery Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Mittler Wire Mfg. Co.
Freese & Co., E. M.
Raymond Co., The C. W.
Webb Wire Works.

**Dampers.**
(See Supplies.)

**Dies.**
(See Supplies.)

**Disintegrators.**
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Drills.**
Ceramic Supply & Con. Co.

**Drain Tile Machinery.**
(See Brick & Tile Machinery.)

**Drums, Hoisting and Winding.**
(See Supplies.)

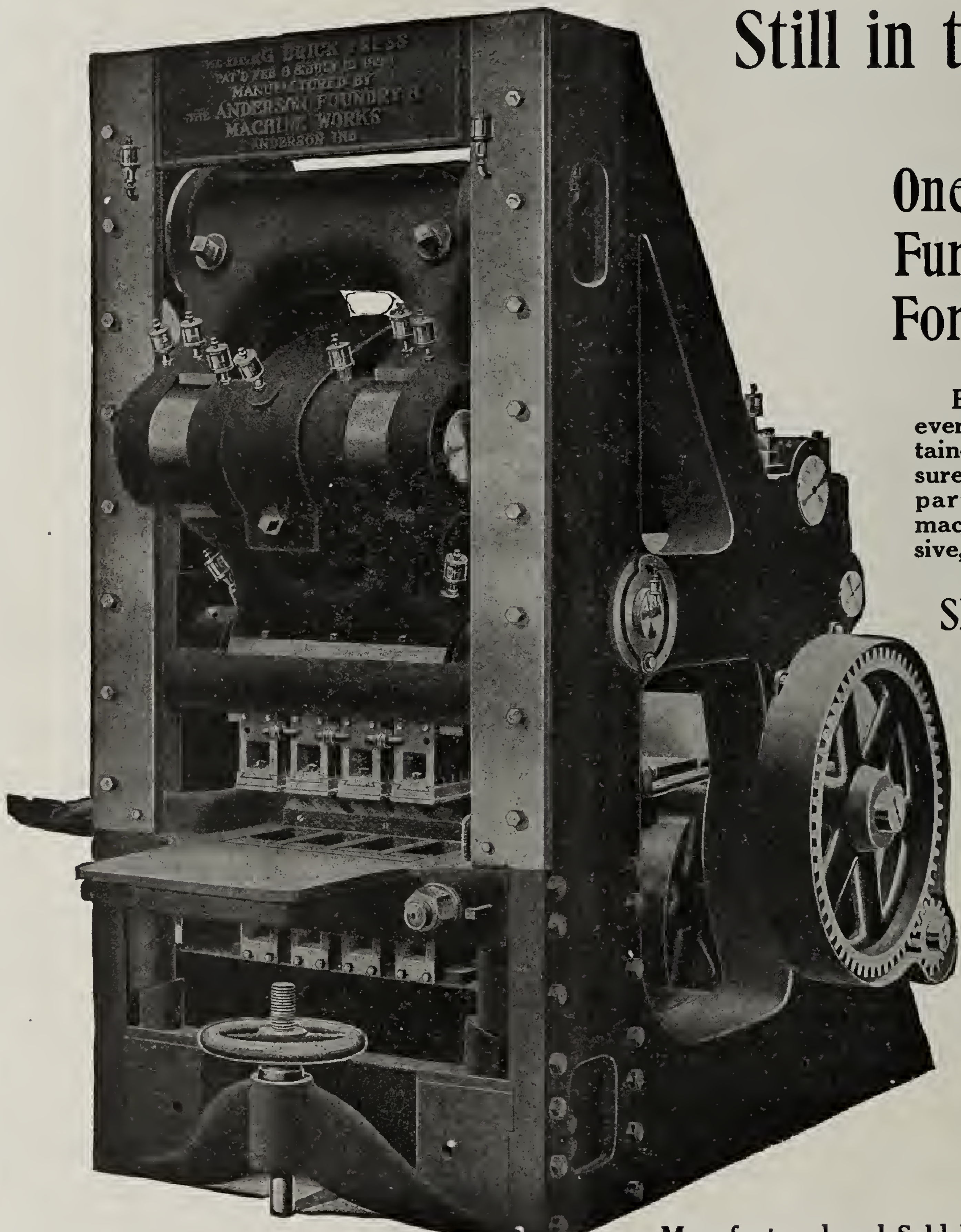
**Dryers.**
American Blower Co.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

**Dryer Cars.**
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.

(Continued on page 489.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple. massive, compact and

**SHIPPED IN ONE PIECE.**

All Machines Are Equipped With

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

**ANDERSON, IND.**

## Buyers Ready Reference List—Continued.

Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

### Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.

### Electric Instruments.

Brown Instrument Co., The
Thwing Instrument Co.

### Electric Shovels.

Thew Automatic Shovel Co.

### Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

### Electrical Locomotives.

Atlas Car & Mfg. Co.

### Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.
Westinghouse Elec. & Mfg. Co.

### Elevating Equipment.

(See Conveyors.)

### Engines.

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

### Engineers.

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

### Fans.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Filler (Paving).

Barrett Mfg. Co.

### Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

### Fire Clay.

Bloomfield Clay Co.

### Floor Tile.

Chicago Ret. & Fire Brick Co.

### Flower Pot Machinery.

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The
Taplin-Rice-Clerkin Co.

### Friction Clutch Pulleys.

(See Supplies.)

### Furnaces.

Brown Instrument Co., The
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.

### Gas Fire Continuous Kilns.

Raymond Co., The C. W.

### Gears.

(See Supplies.)

### Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Grates.

American Clay Machinery Co.
Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.

### Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin-Rice-Cerkin Co.

### Gravity Haulage.

American Clay Machinery Co.

### Grouter.

Marsh-Capron Mfg. Co.

### Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Stevenson & Co.

### Hollow Blocks.

Smith, W. W.

### Hand Winch.

(See Supplies.)

### Hangers.

(See Supplies.)

### Hoists.

(See Supplies.)

### Hollow Brick Machinery.

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Illustrators.

Lamb, J. & R.

### Insurance.

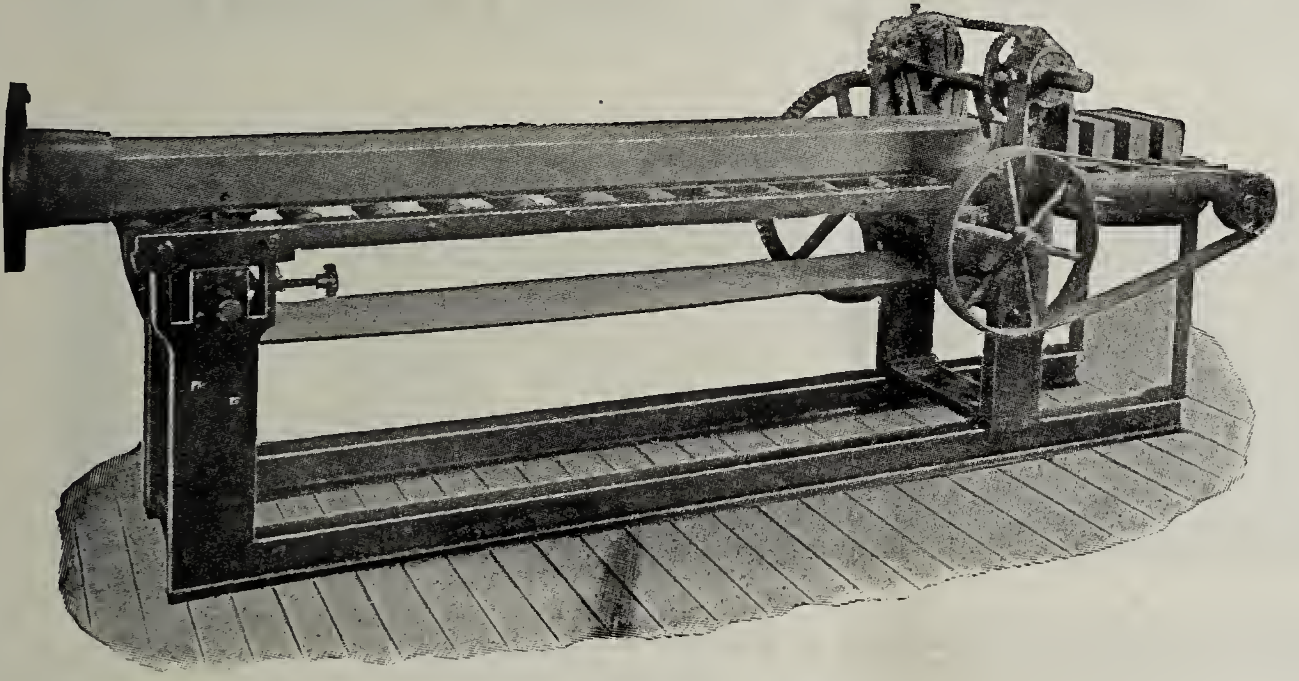
Mantle, Tile & Grate Monthly.

### Jacks.

(See Supplies.)

(Continued on page 491.)

MUELLER'S NEW AUGER BRICK MACHINERY



Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

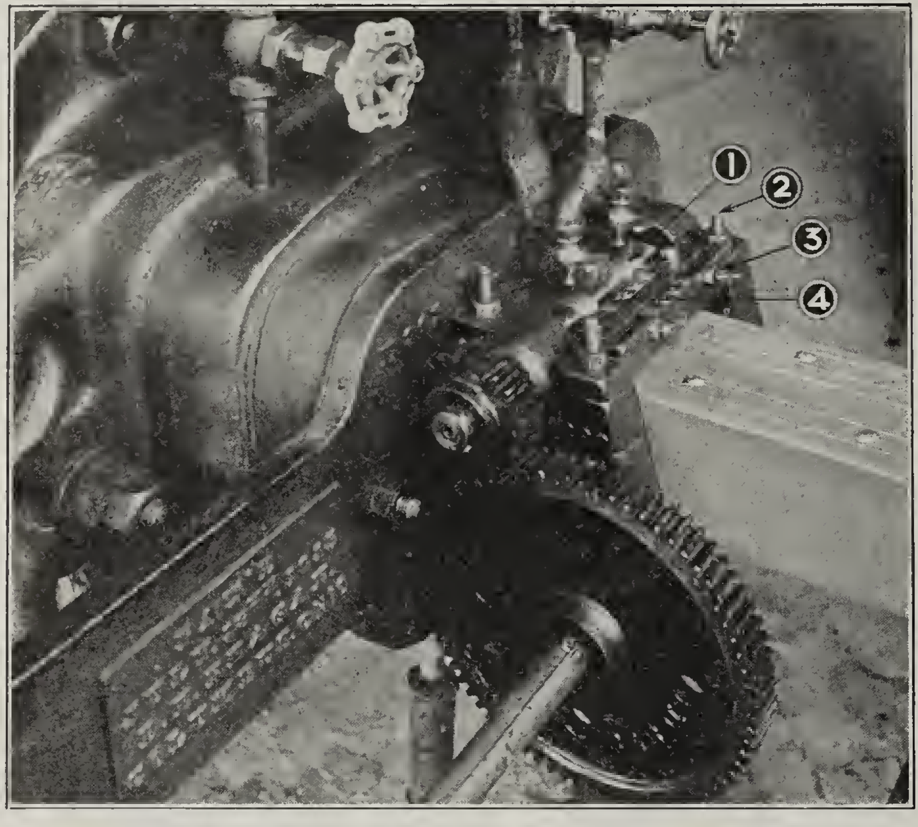
MUELLER BROS.

1436 Macklind Ave. (on Frisco Tracks) ST. LOUIS, MO.

# The American Ideal End Cut Paver

## *Made in the REAGAN ROLLER DIE*

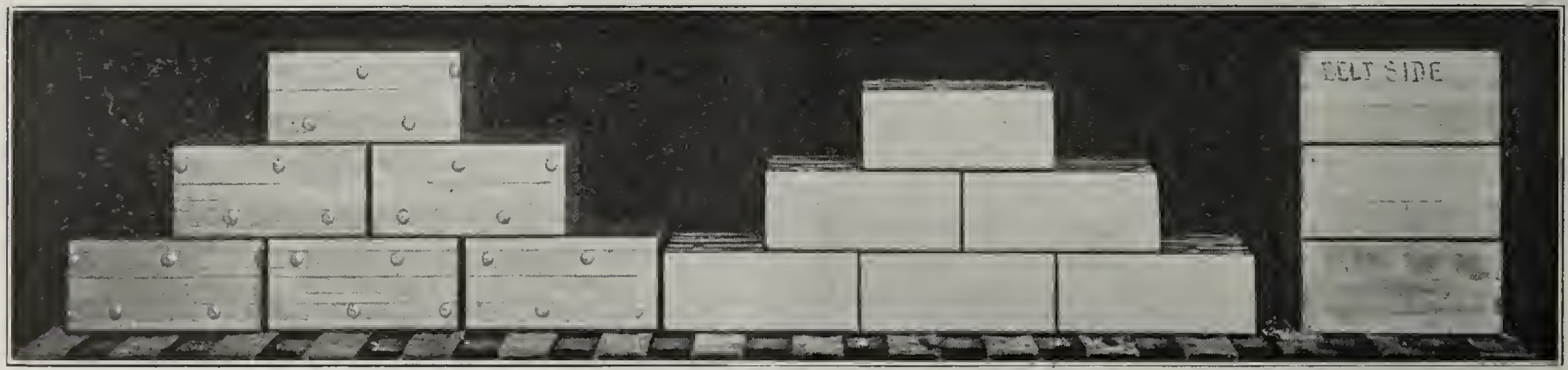
***Patented July 13, 1915. No. 1,146,594***



Separating lugs (any shape desired).
Interlocking groove for grout.
Ideal square corners (round if wanted).
The most perfect paver made complete in one continuous operation in the Reagan patent integral roller die. Can be readily attached to any Stiff-Mud Brick Machine.
Is sprocket driven from table to cutter.
Every brick and lug and groove perfectly formed within die.
No deforming of clay after leaving die.
No Repress. No Repressing.
No labor for repressing.
No oil for repressing.
Less chance for lamination than any other method.
Increased production at reduced cost.
Each brick has two perfect faces.
Can be used for face brick or backing up.
No further excuse for culls on yard.

**1==Roll**
**2==Roll Adjustment**
**3==Packing Adjustment**
**4==Packing**

**Best==Test**



**License nnd machine very reasonable**

## D. E. REAGAN

**175 So. High St.** **Columbus, Ohio**

## Buyers Ready Reference List—Continued.

**Kilns.**

American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
Klose, A.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred

**Kilns, Doors, Castings and Frames**

(See Supplies.)

**Kiln Floor Tile.**

Chicago Ret. & Fire Brick Co.

**Knives.**

(See Supplies.)

**Locomotives.**

Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

**Manganese.**

(See Coloring Materials.)

**Mechanical Draft.**

American Clay Machinery Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

**Mineral Paint.**

(See Coloring Materials.)

**Molds (Brick).**

American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.

**Mold Sanders.**

American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.

**Mortar Colors.**

(See Coloring Materials.)

**Motor Trucks.**

Fate Co., The J. D.

**Oil Burners.**

Schurs Oil Burner Co.

**Paints.**

(See Coloring Materials.)

**Pallets.**

Fouts Co., The C. C.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

**Pans (Dry and Wet).**

(See Dry and Wet Pans.)

**Paving Brick or Block.**

(See Brick.)

**Perforated Sheet Metal.**

Caldwell & Sons, H. W.
Ceramic Supply & Con. Co.
Harrington & King Perf. Co.

**Pitch (Paving).**

Barrett Mfg. Co.

**Plows.**

(See Scrapers.)

**Poidometers.**

Schaffer Eng. & Equip. Co.

**Portable Track.**

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

**Pottery Machinery.**

American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Taplin-Rice-Clerkin Co.

**Power Plant Equipment.**

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

**Presses.**

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

**Pug Mills.**

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

**Pulleys.**

(See Supplies.)

**Pulverizers.**

American Clay Machinery Co.
American Pulverizer Co.
Fate Co., The J. D.
Taplin-Rice-Clerkin Co.

**Pumps.**

Ceramic Supply & Con. Co.
Dean Bros. Steam Pump Wks.
Potts & Co., C. & A.

**Pyrometers.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

**Rails and Railway Equipment.**

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Ceramic Supply & Con. Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

**Rattlers (Paving Brick).**

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

**Recording Gauges.**

Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

**Represses.**

American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

**Revolution Indicators.**

Brown Instrument Co.
Ceramic Supply & Con. Co.

**Revolving Steam Shovels.**

American Clay Machinery Co.
Thew Automatic Shovel Co.

(Continued on page 492.)

# When the Demand for Brick is Slack

Is the time to improve your plant operation and secure reduced operating costs.

Others have done it by installing Westinghouse Motors and by using Central Station Power.

Our power engineers have studied the power requirements of clayworking plants and have helped many companies to save money.

How they did it makes a very interesting story. Their services are free.

**Westinghouse Electric & Manufacturing Co.**

Sales offices in all
large American cities

East Pittsburgh,
Pennsylvania

## Buyers Ready Reference List—Continued.

### Rock Crushers.

American Clay Machinery Co.
American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.

American Clay Machinery Co.
Fate Co., The J. D.
Mueller Bros.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.

### Rope.

(See Supplies.)

### Rotary Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Schaffer Eng. & Equip. Co.

### Sand Dryer and Sand Sieves.

American Clay Machinery Co.
Ceramic Supply & Con. Co.

### Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Lechtenberg Brothers.
Eagle Iron Works.

### Screens.

American Clay Machinery Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
Lakewood Engineering Co.
Raymond, Co., The C. W.
Taplin-Rice-Clerkin Co.

### Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.

### Steam Gauges.

(See Supplies.)

### Steam Shovels.

American Clay Machinery Co.
Thew Automatic Shovel Co.

### Steam Specialties.

American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steam Traps.

American Clay Machinery Co.
American Blower Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.

Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Switches.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

### Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., H.
Brewer Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.

(See Rails.)

### Transfer Cars and Turn Tables.

(See Supplies.)

### Turn Tables.

American Clay Machinery Co.
Fate Co., The J. D.

### Unloading Device for Pans.

American Clay Machinery Co.
Frost Mfg. Co.
Raymond Co., The C. W.

### Voltmeters.

Brown Instrument Co.

### Wheels and Axles.

(See Supplies.)

### Wheelbarrows.

(See Barrows.)

### Wet Pans.

(See Pans.)

### Wire.

(See Cutting Wire.)

SCUMMING AND EFFLORESCENCE

BY

ELLIS LOVEJOY, E. M.

This is the finest treatise on the subject ever written. Every angle of the cause and best method of overcoming the scumming and efflorescence on brick is given in detail.

ONLY FIFTY CENTS THE COPY.

Address

T. A. Randall & Co. Indianapolis, Ind.

THE THEW SHOVELS

FULL CIRCLE SWING
THEW
HORIZONTAL CROWDING MOTION
STEAM SHOVELS

The first Thew Shovel Built. Has been in service over 15 years Ask the Central Shale Brick Co., St. Louis, Mo., what they think of it.

Type 2 Brick Shovels owned by the Streator Paving Brick Company, Streator, Ill. The upper shovel is digging clay, and the lower one is digging hard shale.

Type 3 Thew Shovel in Geo. Gynn plant of Farr Brick Company, Cleveland, O. This shovel has been in use 14 years and has operated every day but three in the past four years.

# Would You Like to Know Just What It Costs Others to Dig Clay and Shale?

## *THEN JUST ASK*

for Circular 22B. In it is compiled a record of actual results gathered from 55 different clay plants, many with conditions identical to your own. Cost per ton, per yard, and per thousand of brick are given, several photos of clay pits are shown and other information incorporated of a character that will interest all clayworkers.

The illustrations, which are taken from our latest booklet, represent three qualities of great advantage to clayworkers. They are a fair sample of the good results you may expect to get with a Thew Shovel.

## *THERE ARE NOW*

## *Over 300 Thew Shovels in The Clayworking Industry*

a fact which conclusively proves their great adaptability for the conditions peculiar to this work.

The Horizontal Crowding Motion and other Thew Features of particular advantage to this work are also fully described in this circular.

This is just another booklet such as business men are anxious to read in order to keep abreast of the times with reference to their industry.

Send for your copy today.

Sign and Mail or Use for Memorandum

**The Thew Automatic Shovel Co.**
**Lorain, Ohio**

Send at once Circular 22B containing material and facts about the Thew Shovel of interest to all clayworkers, as advertised in The Clay-Worker.

Name ..............................................

Address ..............................................

**THE THEW AUTOMATIC SHOVEL CO.** LORAIN OHIO

Trautwein
DRYERS

# INSURE YOUR CAPACITY

To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

## ASSURANCE

Of Increased Capacity
Greatest Economy
And Largest Profits

OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

**Trautwein Dryer & Engineering Co.**
**Manufacturers=Engineers**
**417 South Dearborn Street Chicago**

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# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP=TO=DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

**Claude Smith Company**
**KILN BUILDERS**
**Plymouth Building Chicago, Illinois**

# BOOKS FOR CLAYWORKERS.

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## These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

---

**The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price $2.00.**

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

**Modern Brickmaking, by Alfred B. Searle. Price $5.00.**

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

**Clay Glazes and Enamels, by Henry R. Griffen. Price $5.00.**

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

**Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price $5.00.**

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

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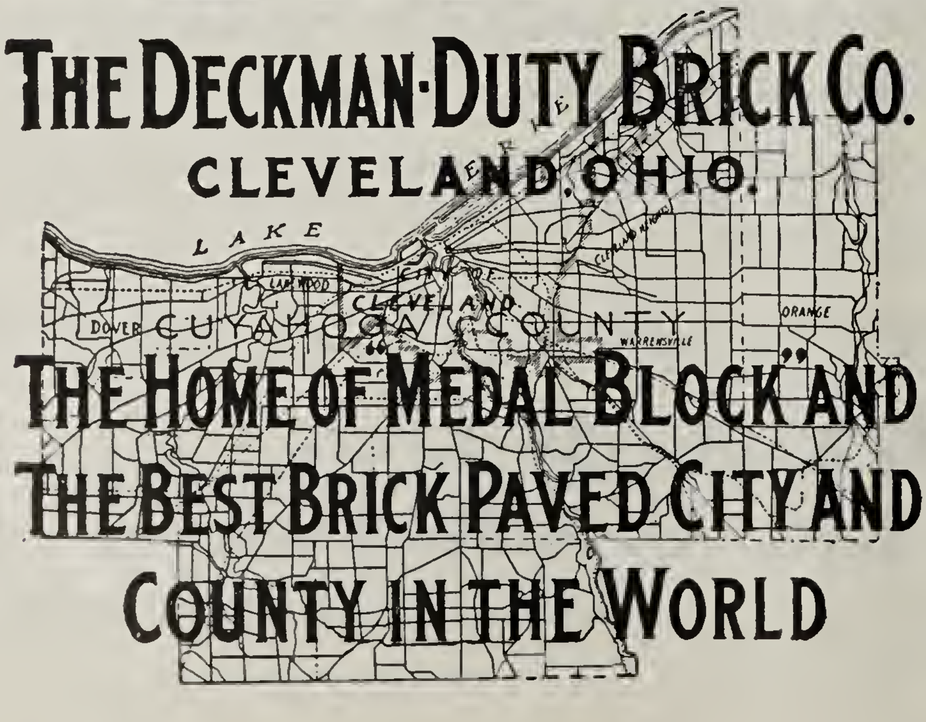

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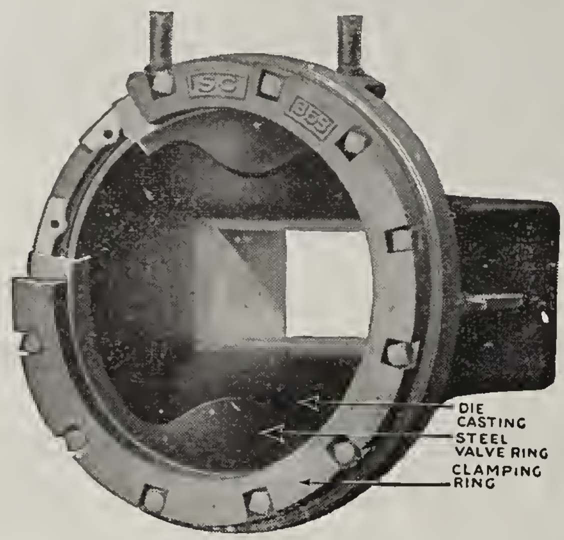

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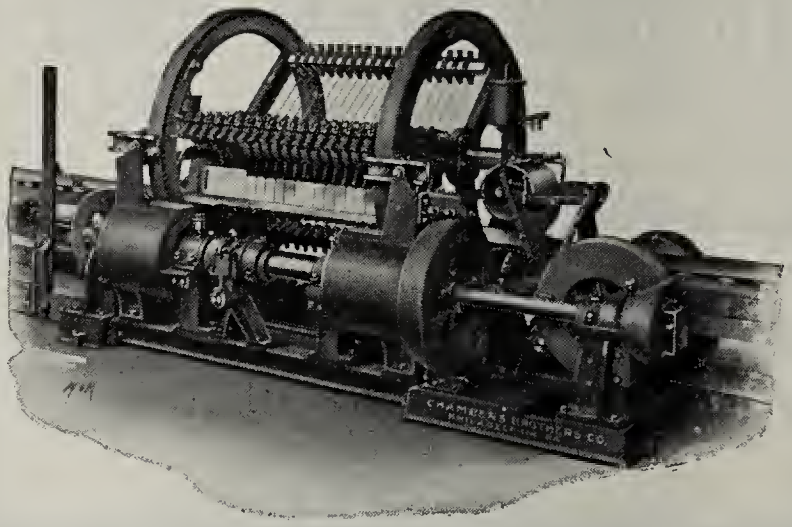

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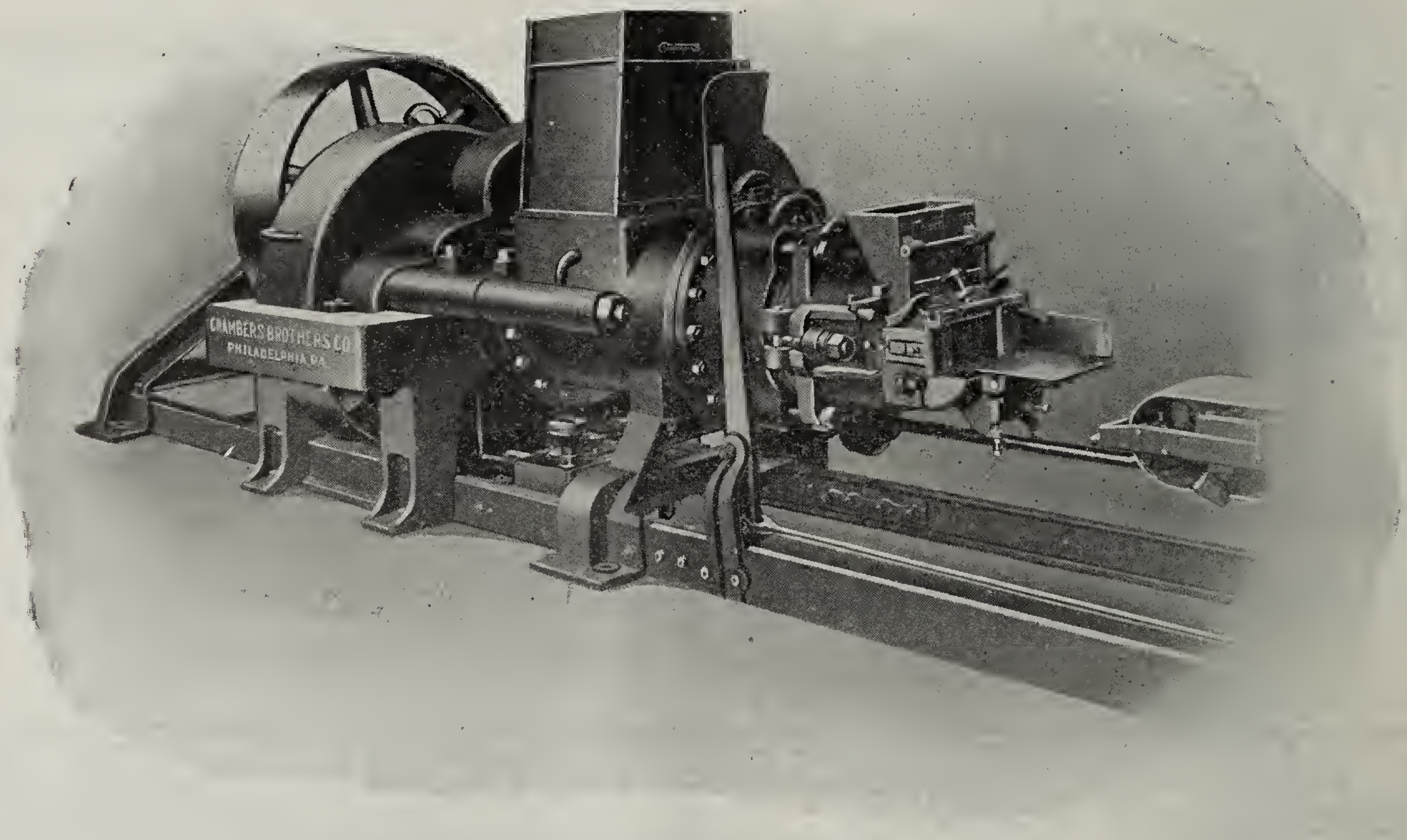

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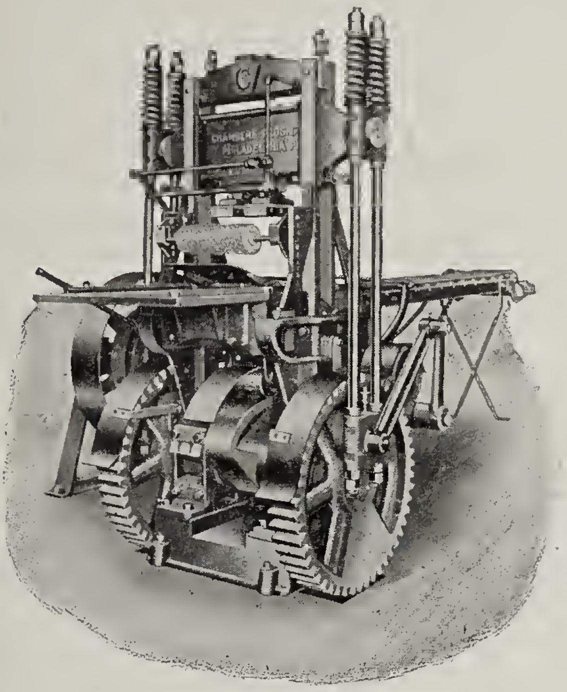

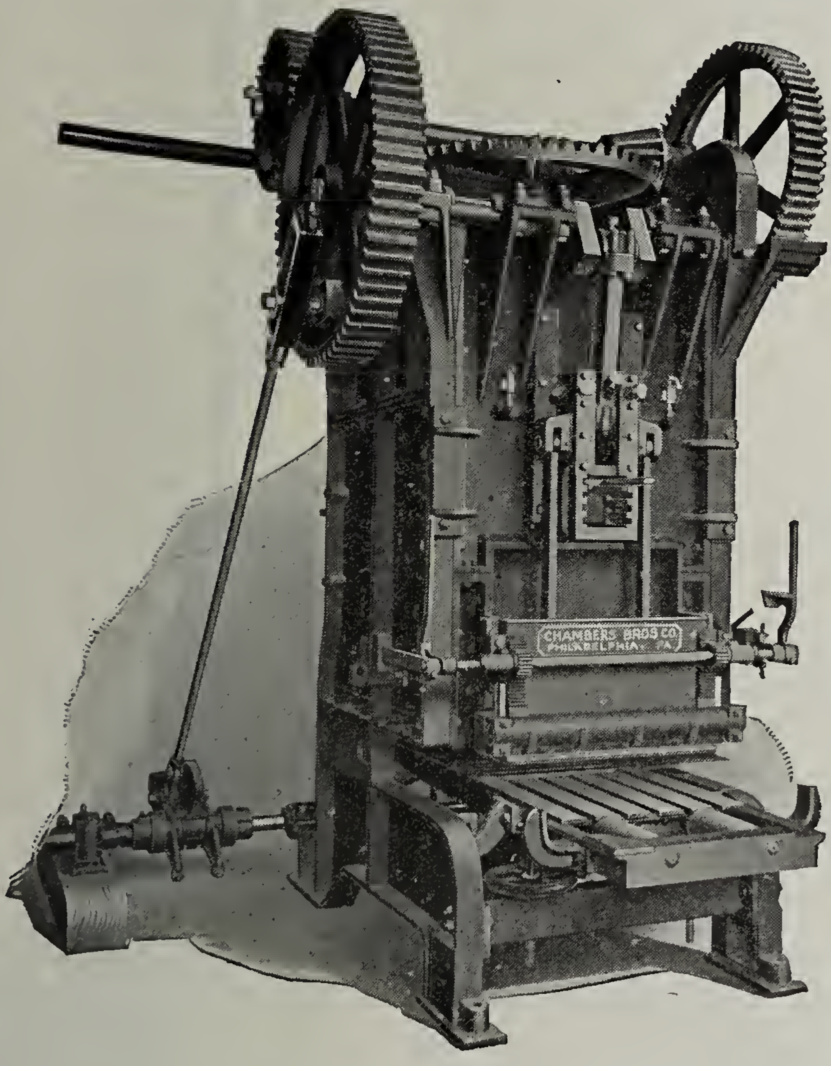

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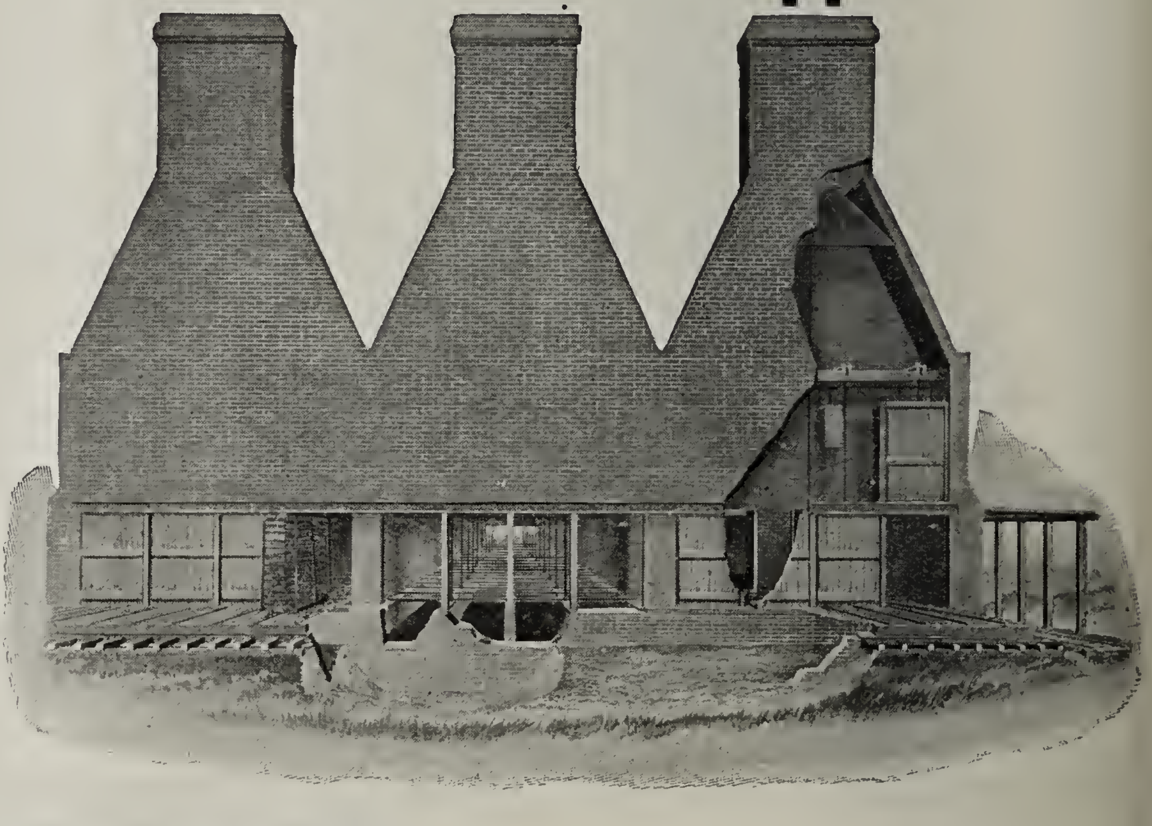


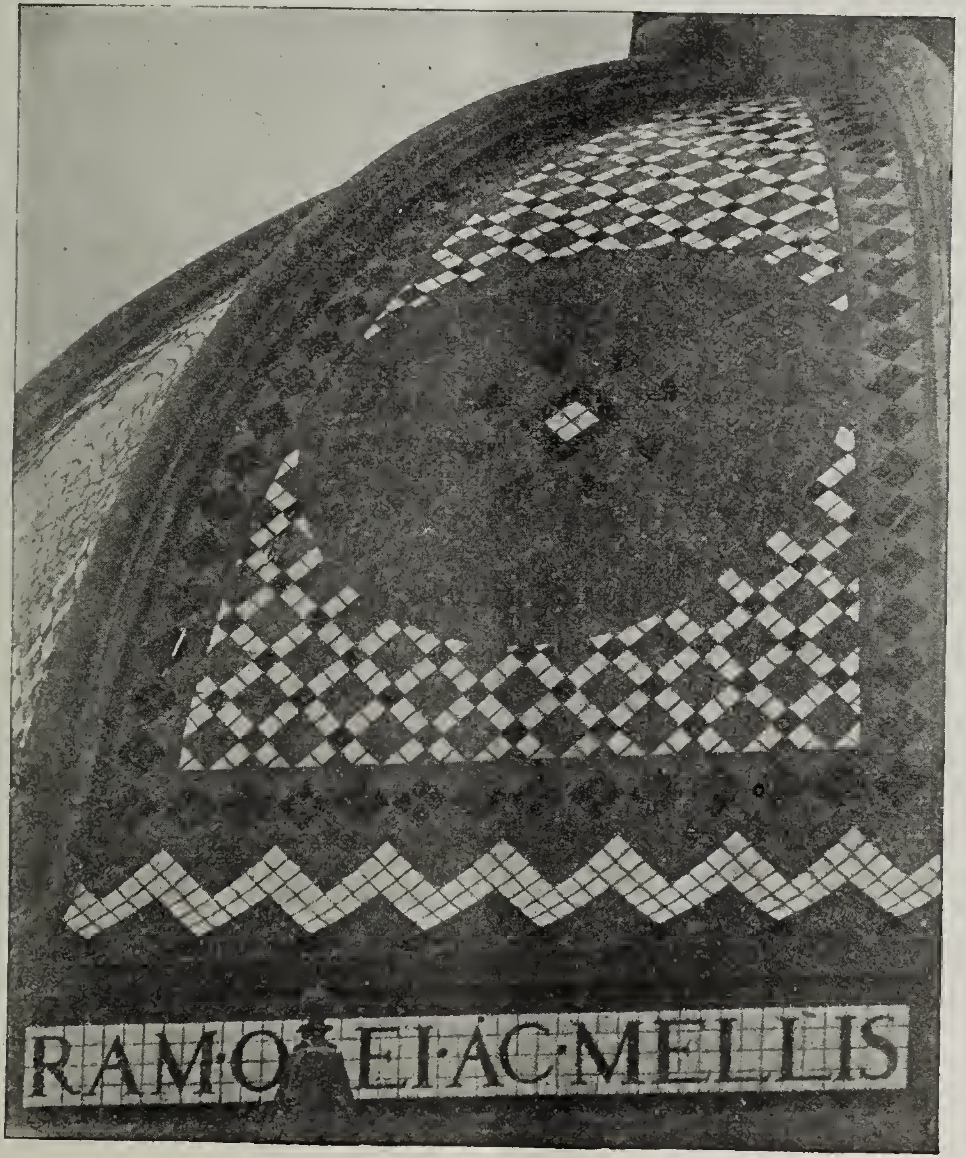
THE CLAY-WORKER

The Official Organ of the National Brick Manufacturers' Association of the United States of America.

Vol. LXIV. INDIANAPOLIS, IND., NOVEMBER, 1915. No.. 5

# MODERN USES OF COLORED GLAZED TILE.

THE LAST FEW YEARS, particularly on the Pacific Coast, have shown a steady increase in the use of colored glazed tile, both in exterior and interior construction. We reproduce herewith photographs, showing examples of the use of large quantities of tile in the San Diego and San Francisco Expositions, which are notable for the beauty of the effect achieved.



Panel of the Great Dome, California State Building, Panama-California Exposition, in colored glazed tile designs and letters; manufactured by the California China Products Company.

The tile work of the California State Building at the San Diego Exposition is of particular interest from an architectural standpoint, as it represents probably the largest application of this material to the true Spanish colonial type of architecture so far employed in this country. It is a curious instance of the hampering and binding influence of precedent that the dull colors and lack of all ornamentation, to which poverty and the lack of skilled workmen restricted the fathers of the early California church, should so long have continued to characterize and bastardize Spanish colonial architecture in the United States, a rich and prosperous nation. While the use of colored glazed tile for domes and walls is characteristic of the Spanish colonial abroad and even in Mexico, it has remained for Mr. Bertram Goodhue, of New York, the architect for the California State Building, to give us this splendid example of the true Spanish colonial in the United States. In all, about 10,000 square feet of colored glazed tile is here employed. The great dome, as will be seen in the photographs here reproduced, is entirely covered with glazed tile, while the tower is also richly decorated with the same material.

The glazes and colors for this tile were developed especially for Mr. Goodhue by the California China Products Company, of National City, Cal., and represent a long course of experimentation and research among the famous old Moorish glazes, of which they are the modern prototypes. The colors are blue, white, mirror black, pure yellow and green. The glazes employed are of the "semi-bright" type, having a bright surface, but being opaque or slightly translucent, so that the tile possess at once the strong color and high degree of reflective power desirable for this type of work.

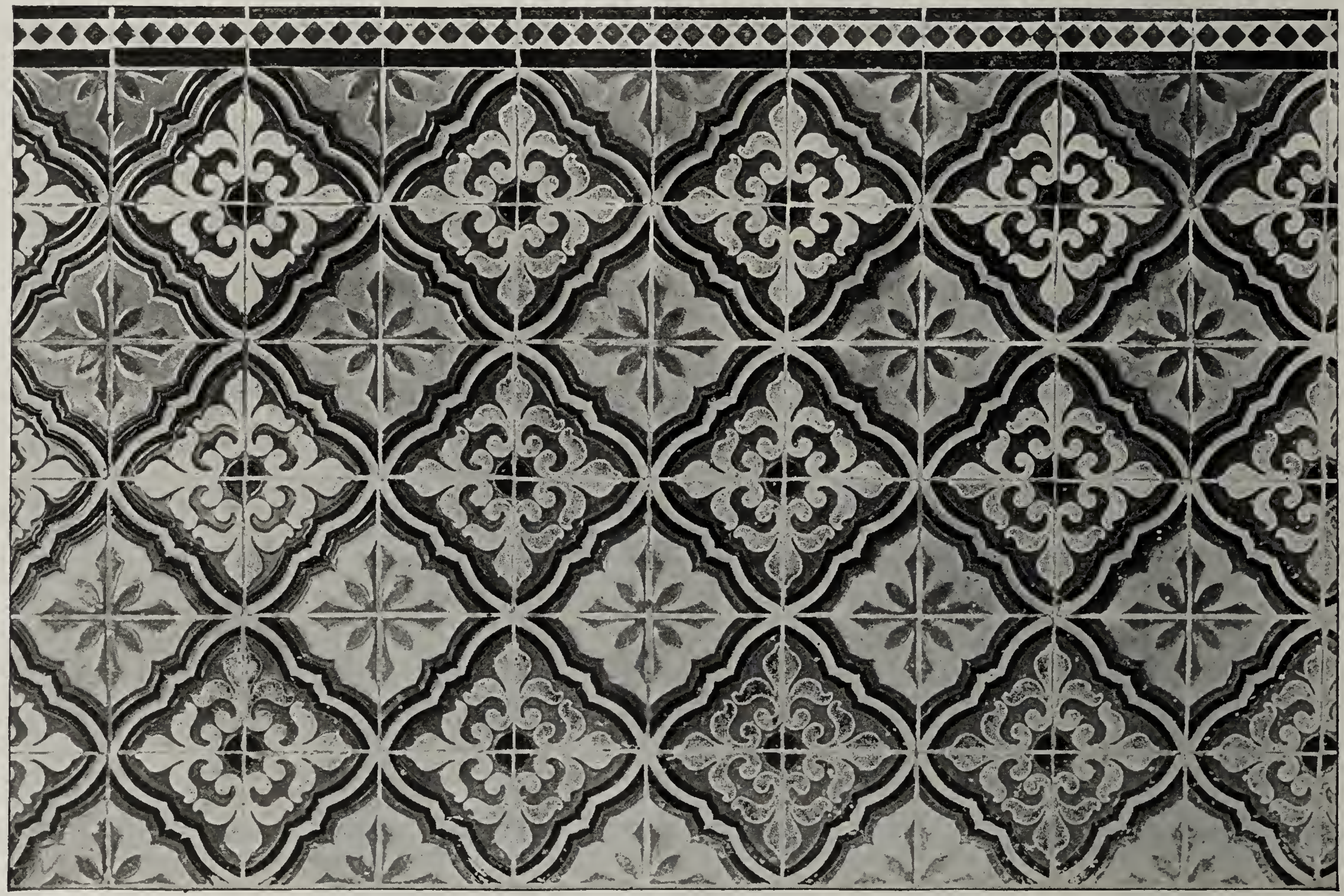
As will be seen from the photographs reproduced, the great dome is divided into gores, on each of which an elaborate and intricate pattern of tile work is applied. Below and entirely surrounding the dome, appears a band of white tile, carrying a Latin quotation appropriate to the products of California, which is worked out in dull brownish black glaze against the main surface of white. While all the colors mentioned are employed on this dome, the pattern is so adjusted that from a distance the effect blends to a grayish blue background, on which the great yellow star stands ous in strong relief, and the whole dome presents a pecular impression of airy lightness, as if it were a gigantic iridescent bubble floating against the blue of the sky. The tip of the dome and the tower are further ornamented with hemispherical bosses in mirror black glaze, which reflects the sun from whatever angle it may strike, and the effect is to crown the rich colors below with a band of glinting jewel-like flashes of light.

In the entrance hall of the same building, a somewhat different type of the work is employed. Here the wainscot is composed of 6x6-inch units, each carrying a pattern which is complete in four units, and which in turn matches with and repeats the adjacent pattern units. The wainscot is capped with 6x3-inch repeating pattern in black, white and blue. This tile was also designed by Mr. Goodhue, and executed by the California China Products Company. It represents a somewhat more difficult application of the potter's art than the plain tile of the dome, as the patterns are necessarily painted on the tile in the various colored glazes by hand. For this work, Mexican girls were employed, under the supervision of a glaze expert, and proved exceptionally adaptable for the purpose, surpassing even native American girls of much better general intelligence.

The San Diego Exposition is fortunate in the possession of this beautiful and—in this country—unusual example of the Spanish colonial type of architecture, and the fact that the building is of permanent construction, and will remain indefinitely as an indication of what may be achieved by the tactful application of colored glazed tile, should prove a powerful impetus to the increased use of this material, so long neglected in America. Certainly visitors at the exposition, who have had the opportunity to see for themselves its beauty of blended color or superb flare of reflected sunlight at late afternoon, will know and appreciate in the future the charm of the true Spanish colonial at its best.

### Floor of the New York State Building, San Francisco Exposition.

The tile work here exemplified is of a totally different type from that seen at the San Diego Exposition, and represents the most modern and advanced use of the latest type of heavy "matte" or dull surface faience tile for floor use. The architect of this building is Mr. Charles B. Meyers, of New York City, and the tile work, amounting to nearly 4,000 square feet in all, was executed in special colors and glazes developed according to his ideas by the California China Products Company, of National City, Cal. Several months of experimental work were necessary before it was possible to attain exactly the type of glaze desired; but the California China Products Company finally produced an extremely heavy dull matte glaze with a peculiar luminous, velvety surface, considerably harder than glass, and having sufficient water-mark to give a pleasing texture. This glaze also proved to possess an extremely desirable quality, in that the surface reflected no flares or flashes of "high light" from any angle, as it carried none of the shiny film characteristic of "matte" glazes heretofore familiar to the tile trade. In consideration of its many unique and valuable qualities, this glaze was finally selected for the work, and has since been adopted by the California China Products Company as its standard faience floor glaze.

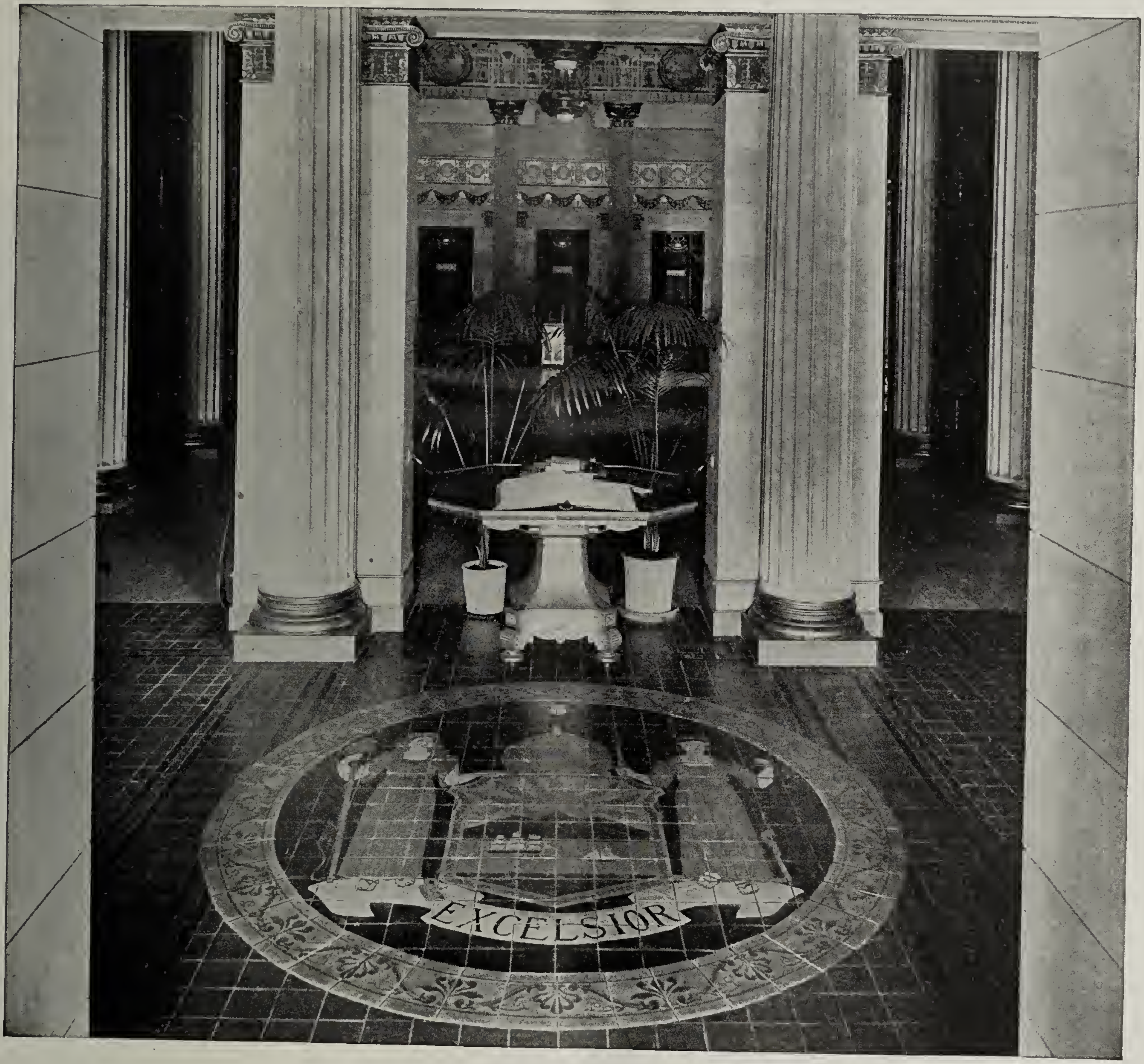


Wainscot Panel, Moorish Repeating Design (6-inch units), California State Building, Panama-California Exposition.

The floor as laid in the New York State Building comprises a main field of ruddy buff and border and panels of dust gray buff, separated from the main field by narrow border tile in blended copper-brown and green. In addition, a large amount of the most expensive and difficult decorative outline work in colors has been employed. The entrance hall bears the words "New York" inset in a decorative panel, and at the central portion of the main hall appears a great disk bearing the coat armor of the state of New York in correct heraldic color. This disk is surrounded by a border of special radius tile in lavender gray, sea green, dark green and dust gray. Flanking this large disk on either side are found two smaller disks, identical in design, bearing the American eagle perched on the starred and striped shield. These smaller disks are likewise surrounded by special radius tile in lavender gray, sea green and dark green.

The execution of this decorative work represents a very large amount of the most careful and expert work by a specialist in glazing. In character, the work is comparable to the Japanese cloisonne work, though, of course, on a much larger scale. A comparatively infusible outline is first burned on the tile, and the proper colors are then painted in by hand in their respective compartments, and the whole again reburned to the final form. In the work which appears in the New York State Building floor, the difficulty of execution was further increased by the large amount of delicate shading of the glazes employed in order to throw the figures into relief, avoiding the flat effect which usually characterizes such work. In some cases, six or seven shades of a single color were employed, each being carefully blended into the preceding and following shades. Thus the flesh and robes of the figures, the blue of the sky, the water of the river, the rays of the sun, the ribbon bearing the motto, and many other details in both large and small disks are thrown into relief by delicately blended shading. This sort of work is considerably more difficult, for an equal excellence of effect, than painting in oil colors, for the reason that the ceramist cannot see what he is doing, so to speak, and must work wholly from his knowledge by past experience of what the final colors will be. The color of the glaze before burning seldom has any resemblance to the final color, and an overaccentuation of shade or an outright mistake in color is practically impossible to detect from inspection before the final burn, after which, of course, it is too late for correction.

It is to be hoped that this very beautiful example of floor work in faience tile will lead to further use of this material in similar lines. In beauty of effect, faience is admittedly superior to any other flooring material, but it is only of late years that architects in this country have broken away from the traditional and time honored marble and ceramics which appear with wearying monotony again and again in our public buildings. Now that experience has demonstrated that faience tile in matte glazes is eminently durable, cleanly, not slippery like marble or ceramics, and supreme in beauty of effect, we may look for a wide extension in its use as a floor material in the finer sort of public buildings and private dwellings.



Beautiful Coat-of-Arms in New York State Building, Panama-Pacific International Exposition.
Executed in Tile by California China Products Co.

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Every time we are confronted with the tabulated figures of the clay working industry we have a spell of wondering what is the matter with common brick, since it has made practically no progress in ten years. We believe the main part of the answer is contained in lack of proper exploitation.

# BUILDERS' WEEK AT EXPOSITION.

### The Model Brick Home Makes a Great Hit with Thousands of Spectators Who Are Interested in Home Building.

AMERICAN BUILDERS' WEEK, October 18 to 23,in San Francisco, proved a notable success, both in attendance and interest. The eastern representation was much lighter than expected, but the number of visitors connected with the building trades on the Pacific Coast was very large. Coming as late as it did, nevertheless this week marked one of the best weeks of the fair for attendance, and the monster parade was said to be the most interesting of all that have taken place. It took about two hours for the parade to pass a given point. Most of the prominent building material concerns in San Francisco .were well represented by industrial floats, decorated automobiles, wagon trains with sample materials and other suitable devices. The spirit of the parade and the week was progress. The wonderful reconstruction of San Francisco after the fire was, of course, given prominence. The usual programs of speeches, social and public entertainments were carried out in the city and at the fair grounds. Vice-President M. H. de Young, for the Exposition, welcomed the builders, and Mayor Rolph made an address of welcome in behalf of the city. Addresses were made by such prominent men as Grant Fee, Henry A. Jacobs, G. W. Kelkham, Williard Done and others on topics related to the building trades. The week of festivities was brought to a close by a great banquet at the Palace Hotel Saturday evening. The chief credit for the success of Builders' Week is due to G. Alexander Wright, of the San Francisco firm of architects, Wright & Rushforth. Two years ago Mr. Wright conceived the idea that a big festival illustrating the importance of the building trades in the progress of California would be a most appropriate feature of the Exposition. To this end he devoted a great deal of time and travel. He interviewed leading men in the buildingi trades in the East as well as in the West, and by untiring efforts finally brought his dream to a successful materialization. The interest shown throughout the week by the general public was most marked.

### The Model Brick Home Proves Very Popular.

Naturally the Model Brick Home was the chief center of attraction to visiting clayworkers who thronged about it during Builders' Week. The total registration run into the thousands, and the many compliments paid the brick home greatly exhiliarated Custodian Kimball, who beamed on his guests in his most affable way—and "Dick" is some beamer, always. When he grows enthusiastic, as he did on this occasion, he melts the icicles from the eaves in a much colder climate than California. It is a certainty that the visitors who contemplate building homes will demand brick when building time comes to them. The promoters and builders of the brick home, the Panama-Pacific Clay Products Association, of Chicago, now have blue prints and specifications for the brick home, which they offer at $5.00.

A number of interesting addresses were delivered during the week, among them being one of particular interest to our readers; so we print it in full.

## CLAY PRODUCTS AND THEIR MODERN APPLICATION.

### By W. E. Dennison, Vice-Pres. National Terra Cotta Society.

Addresses upon occasions of this kind are not always what they promise to be, but this paper will not be long, statistically or technically.

It may be excusable to first take a few backward glances.

The ancients seem not to have known uses for clay beyond the making of bricks in the sun of Egypt, Assyria and Babylon; the turning of pots on the wheels of the Etrurians, Greeks and Romans; the pressing of water pipes in Rome, and the art of molding ornaments in bas-relief, which the Romans probably borrowed from the Tuscans. These ornaments were of great beauty of design. After being burned they were fastened with leaden nails to the frieze of the entablature of Roman edifices. A collection of these imperishable terra cottas belongs to the British Museum.

As the human stream pushed its westward flood toward the modern civilization the art of clayworking found lodgement wherever nature had deposited the finest grindings of her mills. Traces may still be found in Staffordshire, England, of potteries built by the Romans at the time of their invasion. The wheels on which first spun the clay of Albion were probably made from memory by conscript potters of the Roman legions. Invaders never carry into lands of conquest more than arms and a conquering spirit. With occupation comes peace and reversion of soul from things militant to things provident. 'Tis then we see the arts of peace lay gentle hands upon the spirit of man, and small beginnings beguile the warrior from paths of destruction back into the fields of reproduction and the plants of preservation. Thus started and grew in England the greatest potteries the world had seen.

Side Entrance to the Model Brick Home.

The art of clayworking in America, while it may have flourished in the days of Atlantis, as indicated by vases found in prehistoric mounds of the Mississippi Valley, seems to have had its beginnings on the wheels of English potters, who followed the Mayflower in other ships and soon found it necessary to supplement the gourds of their first gardens with crock and jug for household use.

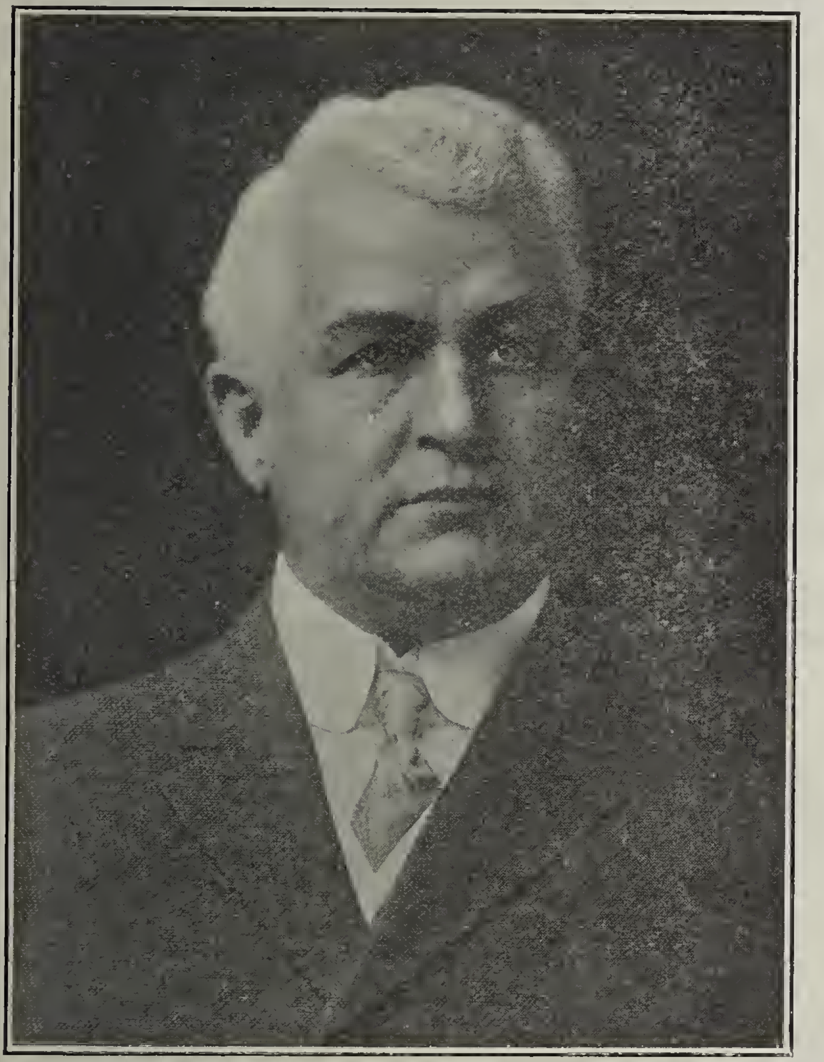
The primitive architectural use of clay in America, so far as our present civilization is concerned, was to chink the cracks between the logs and to "mud up" the chimneys of the first cabins. As success attended the ventures of the pioneers and ambition could command wealth, bricks from

Holland were imported and laid in Knickerbocker homes, until kilns could be built for their domestic manufacture.

Wealth may be either inherited or acquired. The man who inherits wealth generally knows nothing, has many ideas and eventually learns much. The man who acquires wealth has but one idea, knows it all and seldom gets beyond that stage.

While wealth was in the process of acquisition this country saw great individual achievements principally. But as soon as wealth became a matter of inheritance there entered the necessity for its protection in inexperienced hands. Then grew combinations of capital, belonging to many in the hands of a few, which became great engines of production. No individual could compete with corporate control. Every great individual was forced to become a corporation. In no other way could he lay the ways upon which to build and launch his enterprises.

If you will take the foregoing paragraph and substitute the word pottery wherever the word wealth occurs, you will have a fair picture of what has occurred to some branches of the clayworking industry.



Walter E. Dennison, San Francisco, Cal.

In modern uses are to be found all of the applications of clay products known to peoples of ancient times. We can find no record of ancient knowledge and practice of propulsion by steam or electricity. These two agencies alone have furnished modern application of clay products to the problems of insulation and fire resistance in probably greater tonnage than all the recorded uses of clay products in ancient times.

The clay products of the United States have now reached an annual value of $200,000,000 and are increasing yearly at the rate of 5 per cent. From the history of the industry, one is justified in believing that much before the expiration of twenty, probably in twelve, years the value will be doubled.

In the later seventies or early eighties, some red terra cotta trimmings were made for a church in a New Jersey town by some Danish clayworkers who had a small kiln near Perth Amboy. This, I believe, was the first instance of the manufacture of architectural terra cotta in America. It now represents one-tenth in value of the total clay products of this country. When one recalls the erection of the first skyscraper in the nineties and considers the adaptability of terra cotta to the steel frame buildings of today, it violates no conservatism to predict for architectural terra cotta not only full retention of its unique place in architecture, but a very largely increased use.

About three years ago it occurred to a prominent eastern manufacturer of architectural terra cotta to send a circular letter to every similar manufacturer in this country, setting forth some of the reasons why these interests should meet and organize for promotion of their art. It resulted soon in the formation of the National Terra Cotta Society, which immediately set to work on a book since published and entitled "Standard Construction." It contains every known form of standard architectural design adaptable to terra cotta and shows the latest approved methods of applying these forms to modern building construction. It is the first complete work on this new art, and should be in the working library of every architect and engineer.

One of the highest aims of architecture after attaining the perfect shelter is to adapt to visible parts of the structure such lines, carvings, configuration and colors as will not only delight the true artist, but will catch, hold and unconsciously direct some impulse toward better things, which every soul feels when brought into the presence of purity. When the architect has succeeded in doing this with perishable materials, it must give him much keener anguish than can come to the soul of him who admires but does not know that the elements will soon deface and destroy the beautiful picture; and even before that can take place utilitarian man, unworthy cumberer of the ground, brings home his drunken friend, Demolition, accompanied by that questionable character, Salvage. But what ecstasy must the artist feel when to his creation of form and color is given the quality of imperishability.

We have in our city numerous and notable instances of the enduring nature of clay products, both in brick and terra cotta. Matured and vitrified in the fires of the kiln, they easily defied the fury of the holocaust that swept this city in 1906. They stand today mute but impeachable witnesses to the fact that but for clay products in their modern application architecture would be a dismal and sluggish science, wholly unequal to meet or interpret the aspirations of the modern world.

## IMPROVED METHOD OF HANDLING EXPLOSIVES.

The following method of lighting a single black powder time fuse is suggested by the United States Bureau of Mines as being more efficient than the old method of splitting the end of the fuse. The method is adapted to use when only one piece is to be lighted; it is not applicable when several pieces are to be lighted, as the time interval between ignitions would be too long.

A safety match is held against the powder core at the end of the fuse and the matchbox drawn across the match, causing the match and powder core to inflame immediately. It will be noted that this is just the reverse of the usual way of lighting a match—drawng the match across the box.

In case safety matches are not at hand, the ordinary household match can be used by placing one match against the powder core and then lighting another and quickly touching it to the first one.

It is believed that the method outlined, which originated with W. C. Cope, of the explosives chemical laboratory of the bureau in Pittsburgh, as the result of experience obtained in the igniting of hundreds of pieces of black-powder fuse, will be helpful in quarrying and other outside work. It has the advantage of cheapness, as no fuse lighters are required.

# DRYING OF CLAY WARES.

## By Ellis Lovejoy.

### PART XX—MOELLER AND PFEIFER DRYER.

IN THE development of progressive dryers the Germans first advanced the principle that the air should enter with the ware and that the temperature should advance as moisture was taken up. It is evident the exhaust air leaving the dryer at the hot end would carry a large weight of moisture—pound for pound, or even more—and in consequence a much smaller volume of air would be required than in our progressive dryers.

A number of German dryers, using this principle, have been developed, the most interesting of which is that of Moeller and Pfeifer. It also illustrates the recuperation of heat values characteristic of German industrial operations.

Figs. 84, 85 and 86 show this dryer in plan, longitudinal section and cross-section.

In the plan I is the direct coal-fired furnace at the hot end of the dryer G. The dryer is only partially waste heat, since German operators largely use continuous kilns, in which heat from cooling ware is not available for drying.

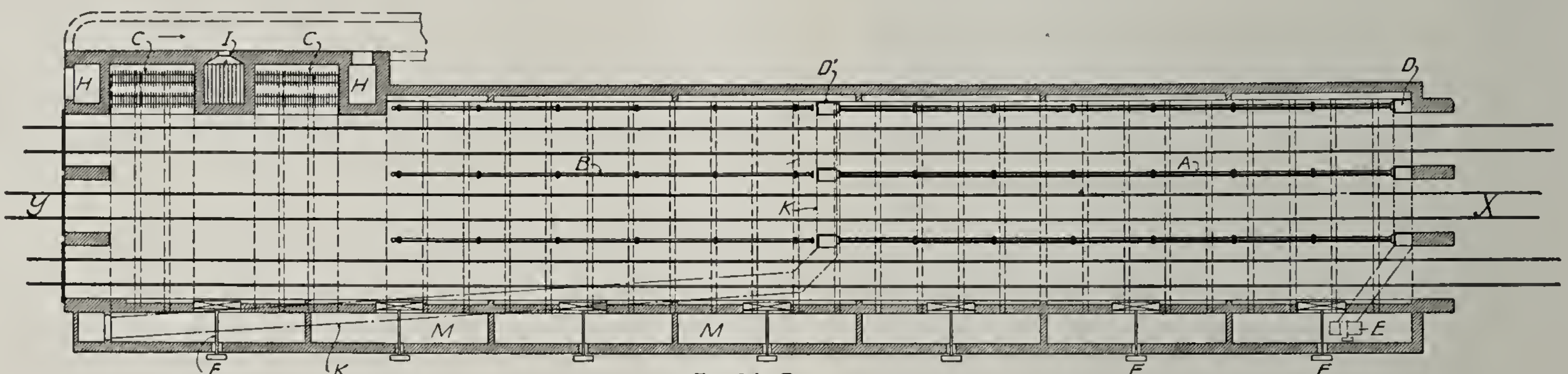


Fig.84 Plan

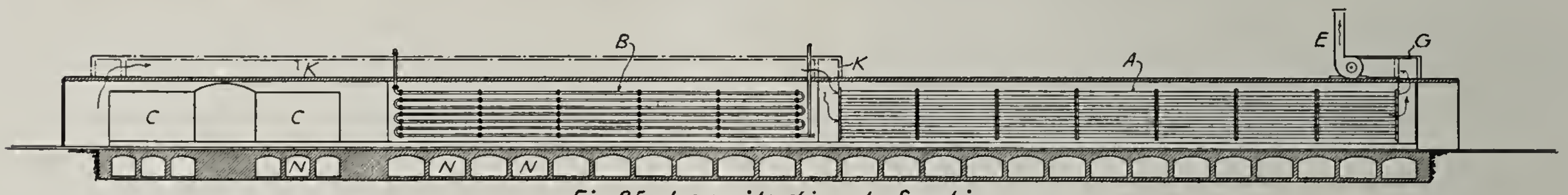


Fig.85 Longitudinal Section

The combustion gases from the furnace pass horizontally through ribbed radiating tubes or flues C, thence into flues H connecting with stack or fan.

Opposite the furnace is a circulating fan F, in fact, there are a number of these circulating fans, as seen in the plan.

The fan F draws the air through the ware, forces it back under the dryer floor through the ducts N, up through the radiating pipes C, and thence through the ware, a continuous rapid transverse circulation of the air through the ware, with no tendency to a forward movement by the circulating fans.

In the plan and longitudinal section we have on the dryer roof at the cold end (X) of the dryer a fan E connecting with a cross duct G, and in turn with down comer ducts D. The ducts D connect with heating pipes A, which parallel the cars of ware from near the longitudinal center of the dryer to the cold end. The ends of these pipes at the center of the dryer enter vertical ducts D' which connect with a cross and longitudinal duct K to the hot end over the dryer roof. The duct K enters the vertical duct O at the hot end and this duct O at the bottom opens into the end chamber M into which the under ducts N discharge. Thus the circuit with the drying chamber is complete.

There are no doors at the cold end X and the air here enters freely. It is immediately taken up by the first fan F and the rotary circulation through the heating pipes and ware started. The suction of the fan E acting through the hot end of the dryer slowly advances the air from fan F to fan F until the hot end is reached, and the saturated (or nearly) air is drawn into the duct O and started back toward E.

The movement of the air in the dryer is that of a spiral with a rapid lateral motion and a slow forward movement. The air, as it advances through the drying room, is being used to take up moisture and thus dry the ware. When it reaches the hot end Y its usefulness as a drying medium is finished, and upon its return through the ducts and pipes its heat is given up to the incoming air.

Not only is the sensible heat of the air and vapor given up but in cooling there must be a large condensation of water vapor from the highly saturated hot air which returns to the dryer the latent heat required in the evaporation.

The dryer losses are the heat taken out by the cars and the ware; the heat in the low temperature saturated exhaust air the volume of which is very small; the radiation losses. These losses are supplied by furnace I.

If there is available exhaust steam from the factory engine it is utilized in radiation pipes B between the furnace I and the exhaust air heating pipes A.

In connection with a car tunnel kiln the furnace may be dispensed with. The process in the kiln will be extended to the extent of heating up and watersmoking, and the waste gases from the kiln will have a temperature of 500 degrees to 800 degrees F. These gases will be drawn through the radiators at the hot end of the dryer, and will supply the heat normally supplied by the auxiliary furnace.

### Car Tunnel Kilns.

A car tunnel kiln combines the processes of drying and burning in one operation.

The car tunnel kiln dates back more than one hundred and sixty years. The first patent is seventy-five years old, while the more or less successful modern kiln was patented more than forty years ago.

Several attempts have been made to introduce the kiln in this country with very meagre results.

The principle of the operation is that the green ware on cars from the machine enters the tunnel at one end and passes successively through drying, watersmoking, heating up, burning and cooling zones, and arrives at the exit end finished and ready for shipment.

It has been found impractical in general to adjust the operation of the kiln to suitable drying conditions, and the general opinion in countries where the kiln has reached its highest development is that the drying must be carried on in a separate compartment. Undoubtedly, some shales and clays in this country will stand the severe drying condition necessarily developed in the tunnel kiln in order to keep pace with the rapid burning, but for general application the combined operation in a unit tunnel is not practical in the present commercial development of the kiln.

The practicability of the single tunnel may be questioned for any clay, or at least except in rare instances, aside from the ability of the clay to stand severe drying treatment.

There are many clays that will stand any kind of abuse in drying, but there is the question of heat and moisture to be considered. Clays contain combined water up to 14 per cent. of their weight, and in the tunnel kiln we have the vapor of this combined water to contend with as well as the moisture vapor which is removed in a dryer.

In the car tunnel kiln then we must provide heat and air to carry the heat, not only to remove the moisture from the ware, but to carry the additional burden of combined water. Even with air dried ware entering the kiln it was found impractical to maintain sufficient temperature to prevent condensation before the combustion gases and hot air reaches the end of the drying tunnel. Otto Bock, a German engineer, overcame the condensation difficulty by widening the tunnel at the cold end, and introducing iron partitions between the kiln walls and cars of ware. In other words, he built iron ducts in the sides of the tunnel into which the saturated gases were drawn and the ware within the tunnel was heated by radiation from the ducts.

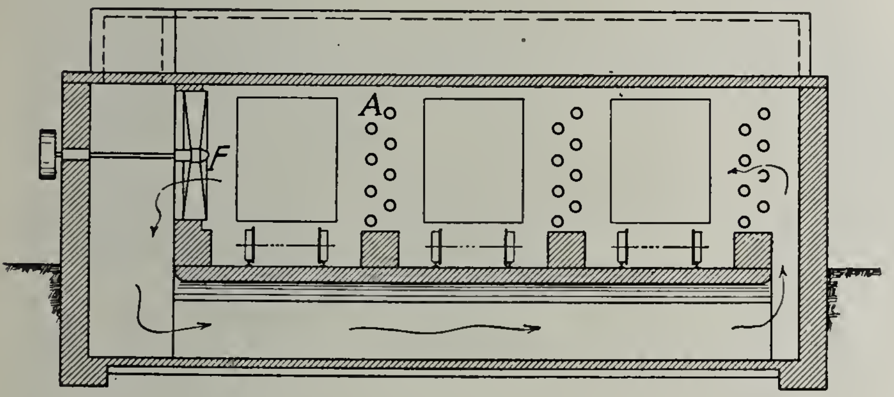


Fig. 86 Cross Section

It will readily be seen that the development of the car tunnel kiln has many difficulties to overcome.

The use of separate drying tunnels of any type in which to dry the ware and to serve as a storage room to keep the kiln in operation when the machines are not in operation is the method in successful commercial use.

The heat from a tunnel kiln, because of the burden of water vapor which it carries, is not valuable for direct drying, but in indirect drying we not only realize the sensible heat in the gases but may also realize the latent heat from any condensed vapor.

The combination of a tunnel kiln with a radiated heat dryer of the Moeller and Pfeifer type, or perhaps any type, will result in a maximum economy and this is the present commercial development of the car tunnel kiln.

It is not the province of this discussion to consider recent patents, but we will digress to mention two which give promise to overcome the drying difficulties of the car tunnel kiln.

The Drayton kiln introduces diaphragms on short cars at regular intervals, which partition the tunnel into separate compartments, or, in other words, in a measure convert the tunnel into a chambered kiln. The firing is down draft, either producer gas, or direct coal fired, but with this we are not here concerned. The movement of the combustion of gases is down through the burning compartment, up through the heating up and watersmoking compartment, down through the hygroscopic compartment, and thus up and down until the gases are drawn off by a fan. We do not wish our readers to accept the above statement literally. One compartment is exclusively for the burning, but ahead of that the compartments are not reserved exclusively for any particular stage of the process, heating up, watersmoking and drying. As in a chambered kiln the gases are drawn ahead through several compartments until the temperature and water vapor burden have reached a minimum and maximum respectively—in a word, until the dew point is reached—when they are removed from the kiln.

A preheating flue extends from the cooling compartments behind the fires to the drying compartments ahead of the dew point compartment and the initiated drying is done with air of any desired temperature and uncontaminated with combustion gas and also free from water vapor, except that originally in the entering air.

Another kiln now in the experimental stage covers each car with a muffle and when the cars are connected in the tunnel the muffles form a series of compartment kilns. The firing is done inside the muffles and the air and combustion gases pass from muffle to muffle as the cars advance through the tunnel. The tunnel is a casing for the moving compartment kilns on cars and a drying tunnel. Each muffle-covered car is loaded mechanically inside the muffle with dried bricks and on top of the moffle is placed a load of green bricks. After the car has passed the firing zone and entered the cooling zone, an aperture in the top of each or any muffle may be opened, thus permitting the hot air from the cooling bricks to rise into the drying tunnel and by suction pass longitudinally to the end of the tunnel similar to a progressive waste heat dryer.

The muffles in conjunction form the kiln proper, in which the burning is done. The muffle roofs are the floor of practically a waste heat progressive dryer. The movement of the muffles carries the drying bricks forward and thus the muffle roofs combine the dryer floor and brick carriers. The tunnel enclosing the muffled cars has sufficient head room to include the drying bricks and is at the same time the drying and kiln tunnel.

As each car leaves the tunnel the burned bricks are removed from the inside of the muffle, and the dried bricks on top of the muffle are placed inside, after which the car is run back to the tunnel receiving entrance and again started on its course through the tunnel after receiving a new load of green bricks on its roof.

The kiln is still in the experimental stage but the experiments have advanced to the extent of trying out the burning features commercially, and, it is reported, successfully. The drying features remain to be proven but it is believed that, with the elimination of the combustion gases and the water vapor which the combustion gases carry, there will be no greater difficulty in the drying than there would be in any waste heat progressive dryer. The bricks will enter a warm moist atmosphere and as they advance the temperature will increase, while the degree of saturation will decrease. Finally they will be subjected to the radiation and convection from a hot radiating floor which should remove the hygroscopic water.

(Finis)

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## AUTOMOBILE EVERY FIVE MINUTES ON LINCOLN HIGHWAY.

Mr. C. A. McGee, of San Francisco, recently made the trip by motor to Lake Tahoe and return, and in commenting upon it, said: "Never have I seen so many machines on the main highways as on this trip. License tags show that they are from every state in the Union and a few from Canada. I think it is safe to say that at least one automobile party is entering California every five minutes, over the Lincoln Highway. Every known make and style of automobile is encountered, and best of all is the fact that they are most always going along in good shape."

# A DRAIN=YOUR=FARM BOOSTING TRIP.

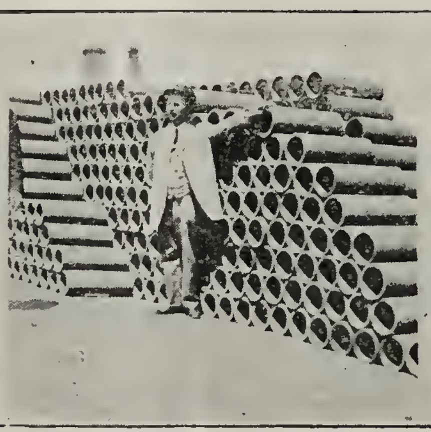
## Metal Signs Hung Along the Country Roads, Farmers Interviewed, A Model Farm Inspected.

A BRIGHTER, more pleasant autumn day never dawned than the one a few weeks ago, when four of us made an auto trip from Connersville, Ind., through a wonderful stretch of country to and beyond the Ohio line.

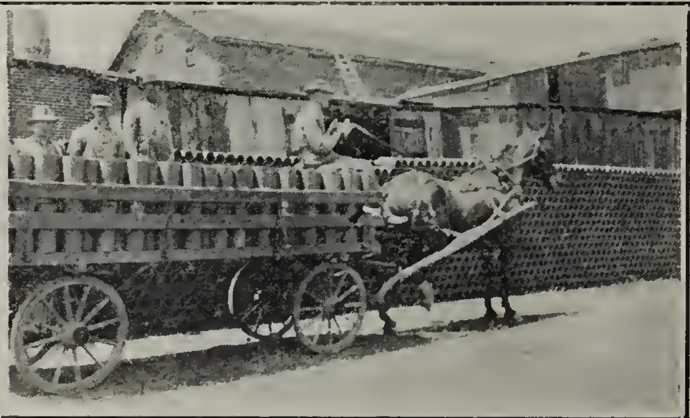
It proved to be a delightful trip, full to the brim of pleasant happenings and surprises, but our chief aim was the spreading of the truth concerning tile underdrainage. In the party were Mr. George Fries, of the A. Fries and Sons Co., tile manufacturers; Mr. W. W. Wainwright, the head of the W. W. Wainwright and Son Co., mechanical engineers and machinery contractors, with a splendid plant at Connersville; the editor of The Clay-Worker, and the writer.

Before leaving Connersville, we visited Mr. Fries' tile factory, where a good grade of clay tile are manufactured, ranging from four-inch to several of the larger sizes. The firm was organized in 1892 by Anthony Fries, taking into the company his two sons, John A. and George M. Fries. They manufactured both brick and tile for some years. At the death of the father, the sons continued the business until the death of John A. Fries, when George M. Fries bought the stock previously held by the brother, and continued the business under the old firm name. Brick manufacturing was discontinued in 1910, the entire output of the plant being for the most part on the smaller sizes of drain tile.

A View of the Dryer.



George M. Fries, Connersville, Ind.



A Wagon Load Sold at the Plant.

The clay lands consist of a splendid eight-foot bank of surface clay, free from lime and foreign matter, being well suited for the manufacture of good clay tile. An Arbuckle machine is used. The ware is dried in a steam hot floor drier containing approximately 39,000 square feet of floor space. The ware is burned in three 40 and one 30-foot round downdraft kilns. Two side tracks from the C., H. & D. railroad extend into the plant, affording excellent railroad facilities. Some tile are sold by wagon load, as shown in one of the illustrations.

We did not spend much time at the plant, for we had a busy day ahead of us. We traveled over hills and through valleys, magnificent in their scenic beauty. Along the way, at the crossroads, we stopped to hang upon the fences, DRAIN YOUR FARM metal signs, which have been a great boom to the tilemakers in boosting the sales of their product. We stopped at Liberty, tacked a sign on the office building of W. H. H. Clark, who handles a quantity of Mr. Fries' tile, had a brief chat and were soon on our way again.

Towards noon we pulled up by the side of the road near a large woods. We spread a cover over the autumn leaves underneath two large beech trees and, amid a scene of wondrous coloring, we partook of a delicious fried chicken picnic dinner, especially prepared for the occasion by Mrs. Fries. There wasn't a scrap left when we finished our bounteous repast. Some paw-paw trees lured us into the woods and we walked several miles through a wild stretch before we were rewarded for our perseverance. We gathered a large quantity of mellow paw-paws and carried them back to the machine. We walked over carpets of walnuts, but did not have the facilities for taking any back with us.

Shortly after one o'clock we were on our way again, continuing to post the metal signs until we crossed the Ohio line, after which we were soon at our destination,

### The Model Reid Farm.

This is an up-to-the-minute farm of today, consisting of 400 acres, ten and one-half miles southeast of Richmond, Ind. Electricity plays an important part here for the lighting and power for driving the machines and equipment of recent invention.

Mr. Reid has become famous through the Royal fence he manufactures in his large factory at Richmond, Ind. His greatest ambition has always been to own a splendid farm. He loves farm life and is therefore devoted to this new work as a side issue from his business cares. The superintendent of this farm is his son-in-law, Mr. W. B. Simmons. The farm was previously owned by Mr. James Kelly, the father-in-law of Mr. Reid. Mr. Kelly had lived on this farm for eighty years, until he died, twenty odd years ago. Mr. Kelly was known as the most progressive farmer in Preble county, Ohio. He was the first to take up new conveniences. He purchased the first binder in that section. He was also among the first in his county to tile drain his farm and so systematically did he lay it that the clay tile are doing excellent service now, even after over thirty years of service. He had his drainage system put in by an engineer and it proved well worth the small expense. When Mr. Kelly died, the farm was rented out by the heirs until about five years ago, at which time Mr. Reid purchased it from them.

At that time there was the old brick home of the Kelly's, a barn and corn crib. The old residence was remodeled and an addition built to suit the desires of Mr. Simmons and his family. It is an ideal home, with many modern conveniences. There is a handsome, most inviting brick fireplace in a large living room. The dining room, kitchen and bedrooms are roomy and well lighted. A billiard and pool room, with separate lavatory, surprises the visitor and would perhaps shock the average farmer. This feature, however, does not cause any neglect to Mr. Simmons' farm duties, but is a needed recreation in which he spends a small part of his time.

The barn was moved around and enlarged and is now known as the horse barn. This is 30x200 feet, with concrete floors and boarded horse stalls. This barn accommodates twenty head of horses, including a number of imported Belgians and Percherons. Each stall is equipped with an automatic hay feed which is very economical. These feeds, or rather wire racks, are loaded by hand and pushed up in place in the same manner as a folding bed. The horse then can pull out the hay just as needed without waste. There is a hay-mow above. The building is lighted with electricity. There are numerous hydrants for the water supply for the horses and for scrubbing. There are twenty-two hydrants all told in the farm buildings. A litter carrier runs overhead down the center of the barn, proving most convenient in removing the manure.

A Conspicuous Place for a "Drain Your Farm" Sign.

WHHCLARK AND SON.
Fairbanks Scales
The Clay-Worker.

Boosting Tile Underdrainage at Liberty, Ind.

Running parallel to this barn, across a wide court, is the cow barn, which is 40 feet wide, 225 feet long and 44 feet high. In this barn, extending over the entire upper floor, is a hay-mow which has a capacity of 500 tons. There is not a post in it, the roof being supported by heavy timbered arches. There are 100,000 feet of lumber in this structure. An electrically-driven hay fork does excellent work here, delivering the hay to any point along the center of the entire length of the mow. The hay fork is operated by an electric motor in one corner of the building. This is a labor and time saving device and therefore economical, since electricity is used elsewhere.

The cow barn proper is unusually interesting. This accommodates one hundred imported and registered Jersey cattle. The floor is of concrete, while stanchions and iron piping form the stalls. The entire inside is white enamelled. Rows of windows line either side, giving splendid ventilation and light. A center pathway runs between two rows of fifty stalls, each with a feed room at the extreme end, from which the feed is pushed on roller trucks to any point desired.

Rows of electric light bulbs dangle on their cords down the passage ways on either side of this building. Each row of stalls is provided with its piping for the vacuum system used in the mechanical milking apparatus. B. L. K. milkers are used. These are placed between the cows and two are milked with one machine, two milking machines are used and overseen by one man.

The litter is disposed of by being dropped into a tunnel underneath the floor with a spreader beneath, which, when loaded, is taken to the field and automatically emptied.

Cisterns built below catch the liquid manure, which is absorbed by a phosphate. Water from numerous hydrants is used in scrubbing the floor daily. The cows are curried and cleansed every day. In one end of the building is a bath room equipped with steam heat, hot and cold water and bath tub, wash basin and lavatory.

The Clay-Worker.

A Sign on the Auto Gives Good Publicity.

A milk house is located in front of the cow barn, a wide driveway intervening. Here is located a 90-foot well, or rather spring, which flows eight gallons per minute. Two large tanks, holding 7,000 gallons, are filled by this flowing well, the needed pressure being made by pumping air into the tanks by means of an air compressor. There is a boiler in the milk house which is used for heating the water for sterilizing all milking equipment, etc., and hot water supply for washing.

The milk passes through a separator which separates the milk and cream. The cream is shipped to Cincinnati, where it is sold, while the milk is fed to 250 head of full-blooded Duroc hogs. Milking is done twice daily.

A large paved court, 225 feet long and 80 feet wide, extends between the cow and horse barns, at the rear of which is the wagon barn, 85 feet long, 65 feet wide and 18 feet high. In this barn, along the entire side next to the court, is a rat-proof corn crib, 8 feet wide. The crib is covered with a quarter-inch mesh wire.

To one side of the center of the court stand two large hollow clay silos, 40x18, which hold forty-two tons of ensilage. These prove most satisfactory; in fact, as Mr. Simmons told the writer, he could not very well get along without them. Fifty acres of corn are required to fill these, it taking forty men five and one-half days to do the work.

In the front of the court between two large gates is located the power house, in which are the power plant and grinding room. A coal oil engine and motor generate the electricity for grinding, lighting and power for hay carrier and fork, mechanical milking system, milk separator and air compressor.

During the cold weather the cattle and horses are permitted to exercise in the large court, which is well sheltered by the buildings—this the prime purpose of same.

Close to the horse barn are located a garage and tool house.

There are thirty-eight buildings on this farm, including six houses for the farm hands and their families, a general store and an ice house. Ice is taken off a large pond and creek running past the farm.

The land consists of a clay sub-soil, underlaid with gravel and sand, five feet below.

The Farmers Driving to Town Will Read This Sign and it Will Set Them to Thinking.

This land, while well tiled, is not thoroughly tiled—a carload of tile were laid this year and a carload will be used each year until all necessary drains are completed.

They use a carload of lime annually to swelter the soil. Two cars of phosphate are also used.

They put alfalfa with clover to inoculate the soil for future alfalfa growth. One bushel and a half of alfalfa is used to eight bushels of clover. The farm has seventy-five acres of alfalfa at this time, the rest of the 400 acres is planted in three years rotation, corn, wheat and clover.

We asked Mr. Simmons what he thought of tile underdrainage, and we received the following reply: "Why, it is the all-important thing about this farm; of course, our labor and time saving equipment saves money, but we have to have the crop production as the real basis. Tile underdrainage is the only thing. We believe thoroughly in it, and know we can't tile too much. Mr. Kelly proved it to us, for the land he tiled thirty years ago is our best producing acreage. It gets better as the years go by. We have one field that isn't tiled, simply because we haven't got to it as yet. It produces a fair yield because it has been highly prepared, but it cannot begin to bring the returns our tiled fields do. You can notice a big difference in tiled and untiled land. You can see the damp spots by glancing over the growing field. Where the excess moisture is the greatest the growth will be the poorest. Tile underdrainage gets rid of the excess water, drys the land quicker, but strange to say, makes it drouth resisting because it retains, through the capillary action sufficient moisture for the needs of the plant in times of drouths. It wouldn't if it were not tile drained, because otherwise the ground would be compact and hardened and not porous, as is necessary. Tile drainage opens up and ventilates the soil, allowing the air circulation to the plant roots. The more open structure naturally permits the plant roots to penetrate deeper and allows it a greater area for securing plant food. I can prepare the tiled land much earlier and easier in the spring than I can the untiled land. It gives me nearly a month longer season. The frost gets out of the tiled ground sooner and my crop is well in hand before the crops on the untiled land.

"We raised over seventy-five bushels of corn this year on our tiled land. We get three good cuttings of alfalfa—that is the best of feed. Every farmer in the land should raise alfalfa. Just think, it grows year in and year out, with three good cuttings and no care to speak of, except to run over it with a fine-toothed harrow after each cutting. You can't raise a good crop of alfalfa, however, unless you prepare your soil for it, and tile underdrainage is the chief essential."

JAMES E. RANDALL.

## MARK TWAIN ON ADVERTISING.

Mark Twain once said: "When I was editing the Virginia City Enterprise, writing copy one day and mining the next, a superstitious subscriber once wrote and said he had found a spider in his paper. Was this good or bad luck? I replied to him in our 'Answers to Correspondents' column as follows:

"'Old Subscriber—The finding of a spider in your copy of the Enterprise was neither good luck nor bad. The spider was merely looking over our pages to find out what merchant was not advertising, so that it could spin its web across his door, and lead a free and undisturbed existence forever after.'"

Written for The Clay-Worker.

## WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.

In and around Pittsburgh, the brick trade and allied industries continue to report optimistically upon the improvement made in their respective businesses, and this is indeed very encouraging, and the officials of the numerous plants in the connecting towns of Pittsburgh are unanimously enthusiastic about the way the situation has improved within the last few weeks. Pittsburgh has enjoyed unusually warm weather so far this year and this has caused building operations to hold up to a remarkable degree, which can be easily seen from the following figures, compiled by the bureau of building inspection of Pittsburgh for the month of October:

During last month, permits issued totaled 337, for work to cost $1,274,960. Permits were granted for 139 new buildings, to cost $1,212,915, while permits for additions numbered 36, to cost $85,692, and 162 permits were taken out for alterations and repairs, to cost $76,354. The totals for October of last year were 353 permits and $1,085,348. In September of this year, permits totaled only 243, the cost item being $2,260,939, but it included the permit for the William Penn Hotel, a matter of considerably over $1,000,000. Of new buildings authorized last month, eighty-one were brick, forty-seven veneered, seven frame, two stone and two ironclad. The William Penn Hotel is built entirely of brick.

The American Tile Company, which has been located here for about ten years, is also working full time at present, employing about sixty men. The Johnson limestone quarries provide work for sixty-five men, and the Cambria limestone works a similar number. The latter company recently erected a large crusher.

It is not generally known that the Fallston, Pa., vicinity will soon have the second largest face brick works in the world. The Fallston Fire Clay Company, whose plant is located on Brady's run, back of Fallston, is doubling its capacity, and when this is done the plant will be next to the largest concern in the world making this line of brick. Thirteen new kilns are to be added to the battery of thirteen. This company makes a face brick that is acknowledged from coast to coast as second to none in beauty and durability, and it is a credit to the country to have such a widely known concern of this kind. A. L. Humphrey, of Pittsburgh, Pa., is president; R. L. Wilson, of Pittsburgh, is treasurer; T. P. Cuthbert, of Pittsburgh, is general manager, and D. F. Knisely, of Fallston, is superintendent.

Edward E. Meyers, of Pittsburgh, Pa., has leased the $200,000 pottery plant of the Consolidated Manufacturing Company, in Grafton, W. Va., for a period of three years with the privilege of renewal, for a yearly sum of $21,200.

The new kiln which was recently installed in the plant of the Universal Sanitary Company, near New Castle Junction, Pa., is proving a large factor in the success of that company. The new apparatus is known as the Dressler kiln, and is the invention of Conrad Dressler, an Englishman, who is at present in this city, and who, in connection with the other officials of the company, expects to install apparatus of a similar nature to that in use here in all of the potteries of the company in the United States and in Canada.

So marked has been the success of the new system that it has attracted the attention of potters as far distant as Japan, and representatives from Japanese companies have been out lately in the United States concerning the matter of securing the right to the system in their country.

The Wayne Pottery Company, of Steubenville, O., incorporated at $200,000, has recently acquired the American China Company's plant at Toronto, O. This pottery has been idle for about six years. The Wayne company plans to spend $20,000 in repairs and equipment, making the plant one of the most complete and up-to-date in that section. About three hundred persons will be employed.

A brick manufacturing plant is to be erected by the state in the near future at the Western Penitentiary at Pittsburgh, Pa. Governor Brambaugh has appointed C. A. Rook, of this city, on the commission that is to carry out the work. Plans are being formulated, and proposals for the construction and equipment of the plant will be called for soon.

A. SMOKER.

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Written for The Clay-Worker.

## THE CHICAGO SITUATION.

NEW RECORDS in building operations have been making in Chicago this month, and the gloom of the early part of the year has given place to much joy on that account.

The banner week thus far in November shows a total of 284 permits, as contrasted with 151 for the corresponding week of 1914, and an estimated cost involved of $2,891,400, as compared with $1,894,510 a year ago. The present volume of business is declared by the building commissioner to be the largest in the history of the city for this time of year. While the banner week is notable, it is by no means lonesome, as weeks go this year, for nearly every week now shows an increase in number of permits of over 100 and in cost of $1,000,000, taking the reports week for week with those of last year.

A million-dollar hotel and motion-picture theater, one of a chain of "$2 movie" houses across the continent, is to be completed in the loop by September 1, 1915. The theater will be leased to David W. Griffith, of the Epoch Producing Company, which staged the "Birth of a Nation." Plans for a sixteen-story structure have been approved, although the exact location has not yet been announced. Central locations for similar structures are to be obtained and theaters built in New York, Boston and Philadelphia.

Activity in erection of theaters in the outlying business districts continues, and one of the interesting developments of the month is the proposal to erect a moving picture, 1,000 seat theater, to cost $75,000, at the southwest corner of North Clark street and North avenue.

Another indication of prosperity in the outlying business centers is seen in the practical completion of one of the largest department stores outside of the loop district. This is the new $200,000 store of Julius Oppenheimer, at the southwest corner of Ashland avenue and West Forty-seventh street. The exterior has an unusually attractive design, light cream enamel terra cotta, and with a large amount of plate glass windows with special arrangements for exterior illumination.

"The last word in building intended to house a mail-order house, combined with manufacturing equipment," is claimed for the new home of the International Tailoring Company, at West Jackson boulevard and Peoria street. It is ten stories high, of steel construction with an exterior finish in granite and terra cotta.

Brick and terra cotta will play a prominent part in rendering attractive the exterior of an up-to-date parish house just erected for the Buena Memorial Presbyterian Church, at Sheridan road and Broadway, for the accommodation primarily of the Sunday School work which this congregation is carrying on. The building will be of fireproof construction. It will cost about $65,000. The exterior will be English Gothic in style. The interior arrangements are pronounced ideal for the purposes of the building, and its erection is hailed as an artistic addition to the neighborhood.

The best part of the present situation is felt to be the fact that comparatively few large enterprises are entering into the new record that is being made. Most of the structures planned are of the average size and general character, and this gives to the movement a substantial character that makes the term "boom" seem a good deal of a misnomer. Rather, there is suggested a wholesome and normal, if decidedly vigorous, growth.

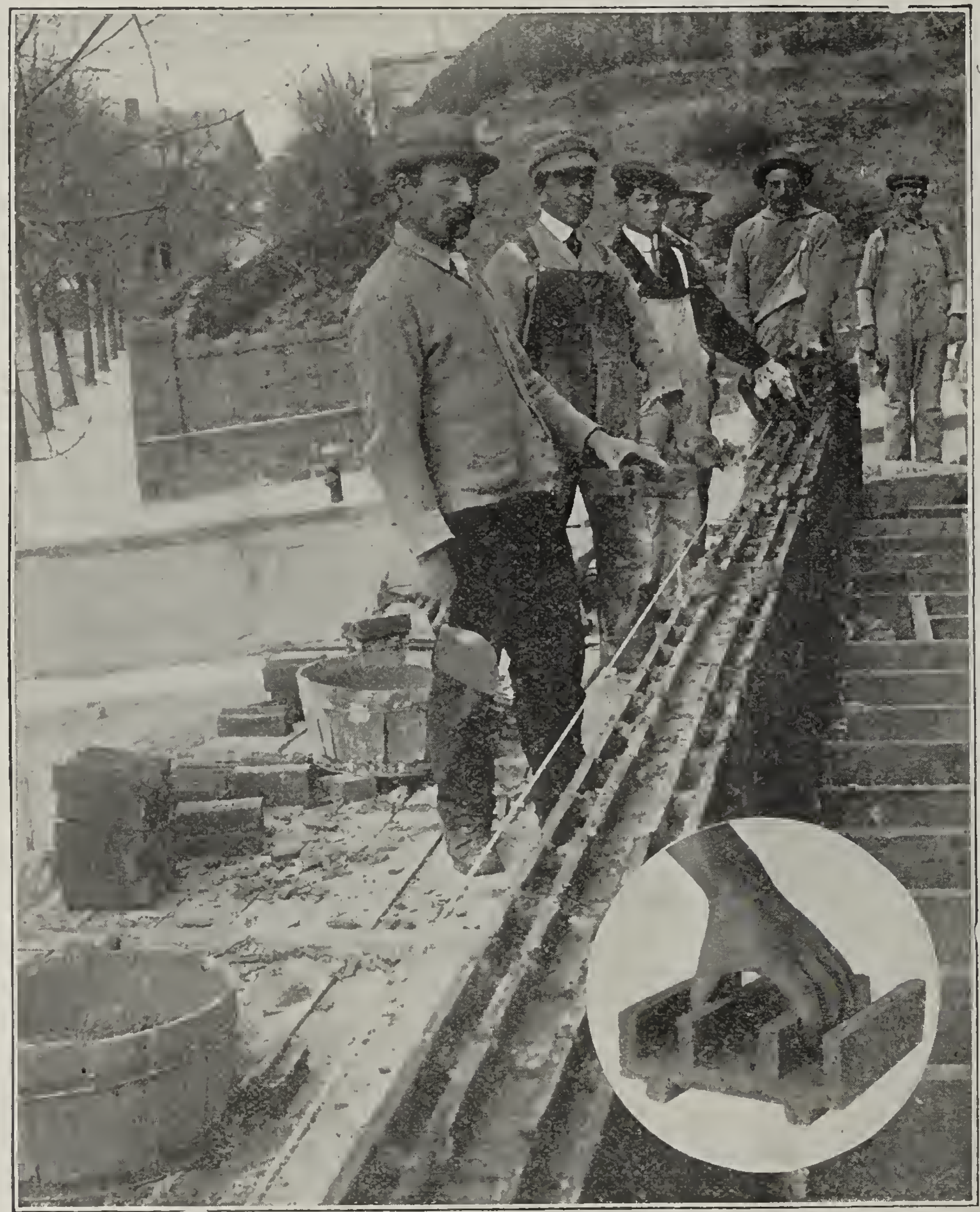
SCRIP.

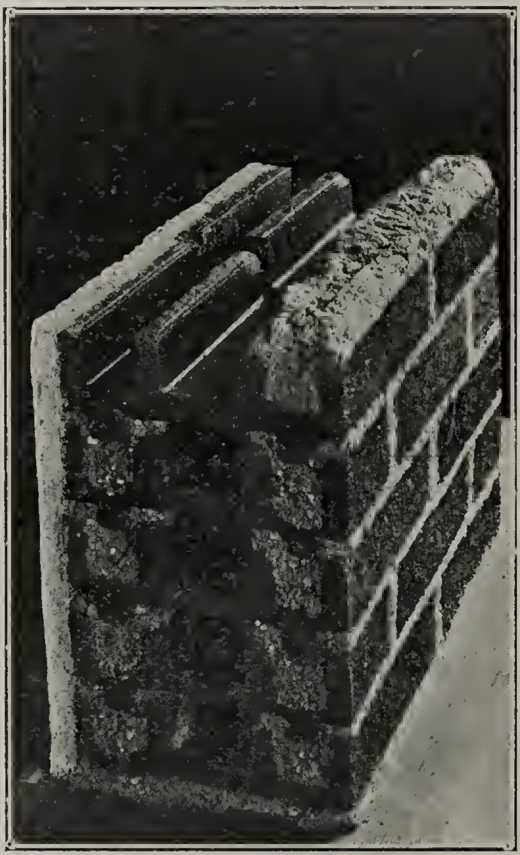
Written for The Clay-Worker.

# "FISKLOCK"-"TAPESTRY" BRICK.

### An Improved Form of Building Brick That Offers in Combination the Merits of Brick and Hollow Block.

THE TRITE SAYING that "there is nothing new under the sun" is disproved quite frequently, especially in industrial affairs, in which the inventive genius of the Yankees seems to excel. It hardly seems conceivable that a plain, useful commodity like building brick, which has been in use ever since the dawn of civilization, could now, after all these thousands of years, be improved upon; but it is the unexpected which happens, and it has happened to the building brick, and a certain original-minded Yankee, J. Parker B. Fiske, of Fiske & Co., New York City, presents to the brick industry a new and novel form of building brick. This new form of brick christened "Fisklock"-"Tapestry" Brick now takes its place in the building world, along side the brick of Babylonia, Egypt and China, and those with which the castles of Nero and Nebuchadnezzar and the walls of the Celestial Empire were built and faced, and the brick of the moderns during all the intervening years, none of which have ever been tried and found wanting.





*The large illustration is of the laying up of the "Fisklock" - "Tapestry" Brick Wall. The upper picture shows a section of the wall, while the insert gives an idea of the manner of handling this new product.*

This new form of building brick, which we are pleased to illustrate, combines the invention of Arthur Hardoncourt, Jr., and J. Parker Fiske, and is thoroughly covered by the patents of these parties. The accompanying cuts give a clearer idea of the form of the brick and the manner of their use than would many words. However, the inventor's description is interesting reading, so we reprint it as given in a catalogue, copy of which may be had for the asking. It illustrates the method of using these brick in the various forms of construction.

**Chief Features of the "Fisklock"-"Tapestry" Brick.**

Brick has always been the ideal building material. It is the most durable of all building materials, and the modern brick make it the most artistic structural material; "Fisklock"-"Tapestry" Brick adds the one necessary element of perfection, affording, as it does, better insulation and eliminating the usual moisture-transmitting mortar joint.

Character—"Fisklock"-"Tapestry" Brick is not a hollow tile—it is an interlocking channel brick.

Mechanical Features—It provides a double, hollow wall with a face brick exterior surface. It consists of two solid masonry walls, each three inches thick; not thin, fragile shells easily punctured by a blow or shattered by fire and water. The double walls are separated by a two-inch air space, yet are bound inseparably together by webs made integral with the brick itself. There are no metal ties to corrode, break or pull out. Every brick is both a "header" and a "stretcher."

Strength—"Fisklock" wall has nearly double the strength of a solid wall made of ordinary common brick, and is over 25 per cent. stronger than a hollow tile wall.

Dampproofness—It is a well-known fact that dampness traverses a brick wall through the mortar joints, which are much more porous than hard-burned clay. "Fisklock" itself has no continuous mortar joints through the walls, either horizontally or vertically. There is no possibility of moisture "striking through." Where solid "Tapestry" Brick is used around windows, a small amount of waterproofing on the inside of the solid brickworks is desirable because of the "through mortar" joints at these points.

Resistance to Heat and Cold—The solid double walls, separated by closed air cells, provide maximum heat and cold insulation. The air cells in "Fisklock" construction are horizontal, thereby eliminating internal air circulation caused by the up and down drafts which are common within most hollow walls. Even hollow tile or solid brick construction saves 15 per cent. to 25 per cent. of the heating expense necessary for a frame house. Tests by the engineers of Columbia University indicate that the heat transmission through "Fisklock" walls is considerably less than that through walls of hollow tile or solid brick, and the saving in heating bills is therefore even greater.

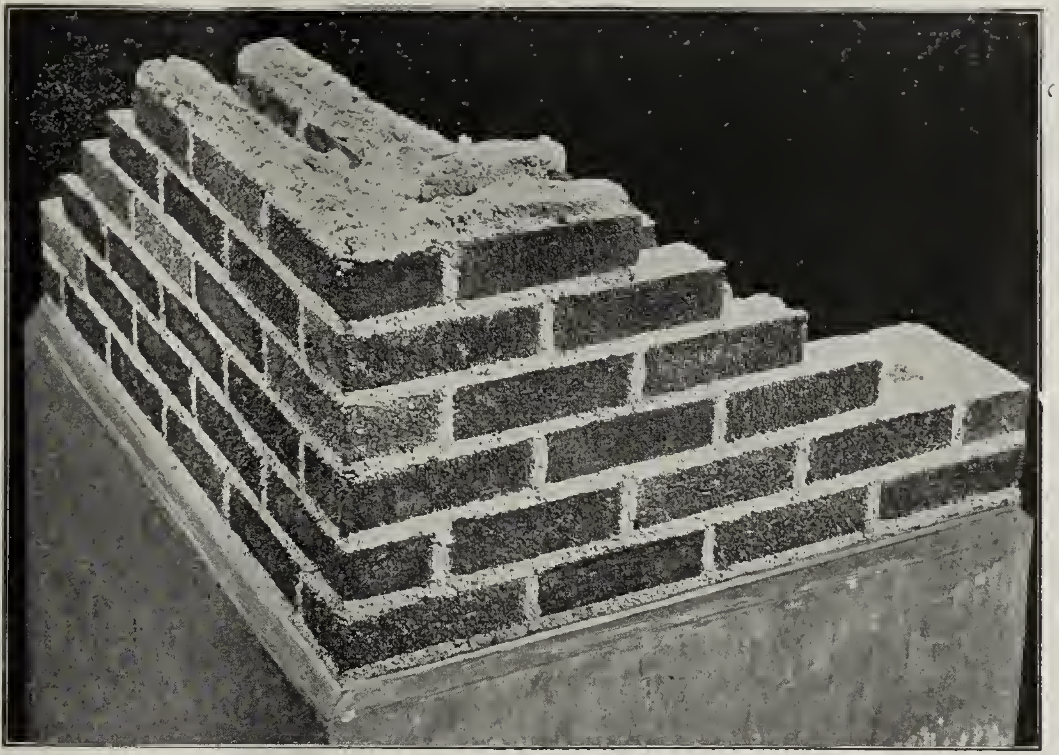
Sanitary—A "Fisklock" house is sanitary to the highest possible degree, because it is dampproof and verminproof.

Painting—With "Fisklock" the expense of painting the exterior walls is forever eliminated.

Repairs—"Fisklock" walls are indestructible. They never rot, disintegrate, settle, or in any other ways give out—there is absolutely nothing to repair.

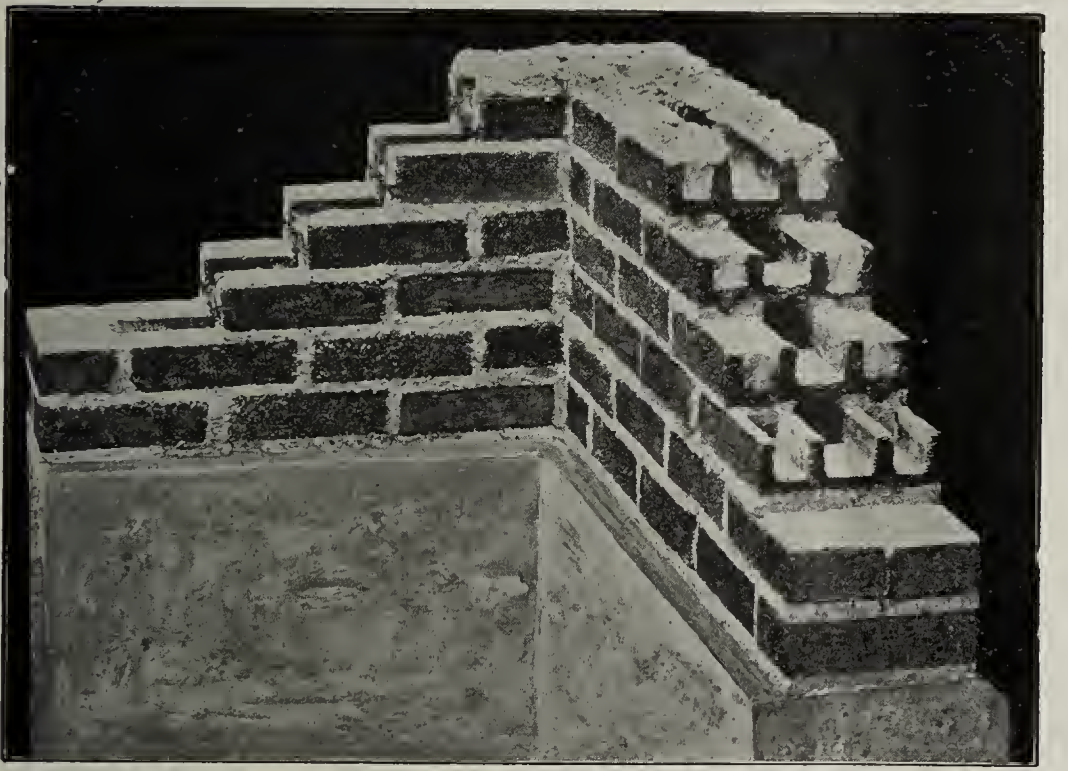
Maintenance—Because of the above facts, maintenance and depreciation (so great in a frame house) are reduced to an absolute minimum.

Beauty—A brick house is beautiful. It is dignified in appearance, restful to look upon and is clothed in soft, rich, unfading colors. Brick is the aristocrat of building materials. "Fisklock" possesses the artistic characteristics of the highest grade modern face brick—shape, size, texture and color—and it employs the same interesting texture and color of mortar joint.



*EXTERNAL ANGLE.*

*This picture shows how it is possible to turn a corner, or build a joint of "Fisklock" combined with solid "Tapestry" Brick.*



*INTERNAL ANGLE.*

*Particular attention is called to the 2-inch air space in the center of the wall. Also the method of building a termination of the wall with solid "Tapestry."*

Comfort—Because of its remarkable heat-insulating qualities, a "Fisklock" house is much warmer in winter and cooler in summer than a house of any other construction.

Fire Risk—"Fisklock" construction has the lowest possible fire risk of any known building system. There is absolutely nothing that can burn—no frame, boarding, furring of paper—not even a lathe. "Fisklock" is made of hard-burned clay, which in the brick kiln has already been subjected to a greater heat than is possible in any ordinary conflagration. Burned clay is the only finished building material of which this is true.

Insurance—The insurance on a "Fisklock" house is only two-thirds that of a corresponding frame house.

Cost—A "Fisklock" wall costs much less than any other face brick wall, whether solid or brick veneer; it costs less than terra cotta hollow tile covered with stucco, and about the same as stucco-on-frame. As compared with frame-clapboard construction, a "Fisklock" house of moderate size costs 3½ per cent. to 5 per cent. more. Its ultimate cost is far less because of its low upkeep.

Stability—A good brick house will always sell for its first cost, and usually for more. This is because, unlike other materials, brick does not depreciate, but grows richer, more beautiful and more charming in appearance as it grows old.

As An Investment—Brick is the most permanent of all building materials, therefore it is the best investment. If you do not believe this, ask your banker. "Fisklock," costing less than solid brick, is the best investment of all.

# CERAMIC RESOURCES OF ALBERTA.

(Consul Samuel C. Reat, Calgary, Alberta, Canada, in "Commerce Reports.")

ONE of the mineral assets of Alberta Province which for the most part is passed over quite unnoticed is clay, although its importance and value to the province must eventually be recognized.

The clays of Alberta may be divided into two general classes: (1) The soft clays which can be easily dug by hand; (2) those which have become so indurated or hardened as to partake much of their original or rocky nature. These can only be worked by the use of explosives. They are known as shales, though sometimes erroneously spoken of as soapstone or slate.

Up to the present the manufacture of clay products has been quite limited, but the industry should be profitable for two reasons: (1) The distribution of the clays over the province is very extensive, and (2) the ease with which they can be won and manufactured into ware.

The chief output of clay products at present in the province is confined to building brick, of which two-thirds are common brick and the balance face brick. The majority of the brick produced is either by the dry-press or soft-mud process, there being but three plants manufacturing by the stiff-mud process. The principal points of manufacture are at Calgary, Medicine Hat, Edmonton, Sandstone, Redcliff, Red Deer, Cochrane, Lethbridge, Vermillion and Innisfail.

There is only one plant manufacturing sewer pipe and fireproofing. This plant derives part of its raw material from an adjoining province. During 1914 about 300,000 paving brick were made at one plant in Calgary.

There is one small pottery at Medicine Hat producing low-grade ware, like flowerpots, jardinieres, crocks, etc. There are no firebrick, terra cotta or roofing tile plants in the province.

During 1912, the last year on which figures are obtainable, there were in Alberta thirty-three active plants producing during that year approximately 70,000,000 common brick and 24,000,000 face brick. The former averaged $10.69 per thousand and the latter $14.77. This latter figure seems, however, too low and must have included No. 2 and low-grade face brick. The average price for No. 1 face brick would be nearer $20 per thousand.

Upon the return of proper business conditions there will be excellent openings for the manufacture of first-class paving and sewer brick, terra cotta, roofing tile, a pottery which would produce a better grade of ware than is now made, and a fire-brick plant, provided the proper clay can be found.

The building brick branch is quite well provided for; in fact, many of the plants have found it necessary to reduce outputs.

As to what the great north country, known as the Peace River district, holds in store for the clayworker little is known outside of the reports by the prospectors. These all point to one thing—that much valuable material is confined within its bounds, especially clays of a higher grade than those of central and southern Alberta.

During the year of 1912 alone Canada used approximately $17,500,000 worth of clay wares. Of this Alberta produced but 12½ per cent., while 38 per cent. of the consumption was imported.

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Written for THE CLAY-WORKER.

## LABOR COSTS IN THE HUDSON RIVER REGION.

By Robert W. Jones.

The following figures may be of interest as showing the comparative costs, for labor, in the manufacture of soft-mud common building brick along the upper Hudson river. Of course, these figures are not absolutely but they are as correct as it is possible to secure with the present systems of cost records employed in this section. The figures include the labor costs from the bank through the entire process of manufacture until the finished product is loaded upon the cars, boat or wagon.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Mining | $0.434 | $0.170 | $0.145 | $0.204 | $0.224 |
| Tempering | .051 | .100 | .167 | .049 | .030 |
| Molding | .434 | .689 | .368 | .454 | .420 |
| Drying | .200 | .243 | .264 | .181 | .050 |
| Setting | .420 | .350 | .336 | .360 | .196 |
| Burning | .250 | .260 | .264 | .260 | .320 |
| Loading | .060 | .040 | .192 | .054 | .150 |
| Miscellaneous | .040 | .175 | .184 | .160 | .154 |
| General | .240 | .110 | .200 | .250 | .198 |
| Total | $2.129 | $2.137 | $2.120 | $1.972 | $1.742 |

Under mining is included both the mining and teaming of sand and clay; tempering includes leveling pits, tending pug-mill, disintegrator, etc.; molding includes molding, pit shoveling, sanding, trucking (from the machine), dumping, racking and landing; drying includes hacking, luting and general care of yard; setting includes trucking (from the drying yard or dryers) and setting; burning includes teaming of fuel and tending fire, including head burner; loading includes trucking from kilns, loading on cars, teaming to local markets, but not loading on boats.

**Number 1.** This yard is equipped with one machine of 43,000 daily capacity. Drying is carried on in a pallet yard. The crude materials are prepared in a pug-mill. Coal is used for fuel and the green brick are burned in a scove kiln usually of twenty arches, each arch having a capacity of 47,000. The clay is transported by wagons a distance of about two hundred feet. All of the output is disposed of in the local markets.

**Number 2.** This yard is equipped with four rectangular soak pits and two machines of 22,500 daily capacity each. The clay and sand are teamed about three hundred feet. The brick are dried in an open yard and burned in scove kilns of 37,500 green brick per arch, using wood for fuel. The product is disposed of in the local markets.

**Number 3.** This property is worked as an open yard and is equipped with three machines of 25,000 daily capacity each. During the last season only one machine has been in use. Each machine is equipped with one rectangular soak pit holding a charge which usually consists of forty-seven cartloads of clay and twenty-one of sand. The crude materials are teamed about eight hundred feet. The machine is only worked during the morning. During the afternoon the crew is transferred to other work. Transportation is entirely by water, with the cost of stacking and unloading paid from the towing charges.

**Number 4.** This yard is equipped with one self-striking machine of 48,000 daily capacity. The clay and sand is teamed about six hundred feet and passed through a set fo rolls, a granulator and pug-mill. The usual mixture consists of one cartload of clay to twenty shovels of sand. The brick are dried in an open yard and burned in scove kilns with a capacity of 40,000 per arch. The output is disposed of in the local markets.

**Number 5.** This yard is equipped with a granulator, disintegrator and pug-mill, using a mixture consisting of one cartload of clay to twenty shovels of sand. The granulator is stopped while the charge is being added. There is one machine with a daily capacity of 22,500. The molded brick are transferred to a steam dryer on cars holding approximately four hundred and thirty brick. The brick are burned in scove kilns having a capacity of 44,000 per arch, using wood for fuel. The output is disposed of in foreign markets, the transportation being entirely by rail.

Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

THE FALL IS DRAWING to a close and winter is at hand, with the usual shutting off from the active demand for common brick. At this time, the outlook for construction work in all lines is always contingent upon the way the weather turns. A severe winter will cut off building sharply, while a mild one will allow a great deal of work to be done. During the past month there has been a little more activity than during the preceding month, when prolonged rains held back a great deal of work. As a result, since the weather cleared, there has been a great deal of belated work undertaken. The outcome of the crops, with the good yields, means the development of a great deal of building work, both for homes and for commercial purposes, which has been held back. As a result, the farmers of the Northwest are turning their attention to the erection of new buildings, more this fall than common. Owing to delays in marketing grain, as well as threshing, some of the work will go into the winter or spring. But there is a distinct tendency to erect a great many new buildings in the interior. Brick and tile structures on farms, tile silos and barns, as well as brick stores, are developing right along. And after the crop has been marketed, there will be more work develop, for the crop has been large and it is bringing a fair price—although something of a disappointment, for more was expected on account of the war.

The brickyards of the Northwest will not carry into the winter more than an average amount of brick for the winter and spring demand. In fact, if the demand shall be a little better than common, it will leave a number of yards entirely cleaned up before spring arrives to allow the new season's work to be started. Prices have been low, but if the winter has anything like a fair demand, there should be a distinct improvement in costs. Efforts have been made to reach a better basis of profit for the benefit of the trade, but it has been found that competition has often resulted in too vigorous an effort to make sales, regardless of the figure obtained.

There is considerable criticism in building circles in these cities over the fact that fire insurance rates on strictly fireproof buildings do not afford enough inducement, over the semi-fireproof and near fireproof construction, to make it an object for owners to practice safety first. The insurance men insist that they do make it an object to building absolutely fireproof, but there is room for a great deal of doubt about it.

A number of jobs have been awarded in the last few weeks for terra cotta work on the better buildings for construction in these cities. Among them may be mentioned the three-story brick and terra cotta block, at Lake street and Hennepin avenue, Minneapolis, for Geankopolous Bros., Johnson, Jackson & Corning Company, of Minneapolis, having the contract to furnish the terra cotta. The same firm will furnish terra cotta for the Lagoon theater, to be erected at Hennepin avenue and Lagoon, half a block from the former. M. L. Cohen, of Minneapolis, owner. The former building will cost about $50,000 and the latter $75,000. A number of other prominent buildings recently awarded, will include a liberal amount of terra cotta and fancy face brick.

Janney, Semple, Hill & Company, wholesale hardware, of Minneapolis, have let the contract to the H. N. Leighton Company for the erection of a wholesale house adjoining their present structure at Third avenue, South and First streets. The curtain walls will be of common brick. The building will cost $15,000. It will be six stories.

The Minneapolis Iron Store Company, heavy hardware, will erect a large wholesale warehouse at Sixth avenue, North and Washington avenues, to cost about $200,000. Plans will be out during the winter.

The Western States Coke Company has been formed to establish a $300,000 coking plant in Northeast Minneapolis, where a tract of eighteen acres has been secured. The company will sell its gas product to the St. Paul Gas Light Company, and will erect a set of fireproof coking buildings.

Robert G. Hopwood, of the Hopwood Investment Company, Minneapolis, has awarded the contract for a brick and tile residence, to cost $12,000, to the Albinson Construction Company. It will be built at 2301 Newton avenue, in the Lake of the Isles district.

The Minnesota Motor Car Company, of Minneapolis, will erect a two-story brick automobile salesroom and garage at Sixteenth street and Nicollet avenue, to cost $50,000.

The J. L. Robinson Company, of Minneapolis, has the general contract to erect a brick and terra cotta garage building for Bohn E. Fawkes, at the junction of Hennepin avenue and Harmon place, Minneapolis, where a two-story building, about 60x80 feet in size, will be erected. Excavation has been completed.

H. L. Simons, a banker at Glencoe, Minn., will erect a handsome brick and tile bungalow there during the spring, to cost about $12,000. Plans for the building are being prepared by Purcell & Elmslie, architects, of Minneapolis.

W. D. MacLeith, architect, of St. Paul, has plans in preparation for a $500,000 apartment building, to be erected at Summit avenue and Wabash street, St. Paul, for the Sperry Realty Company, of St. Paul. The building will be nine stories high, with stores on the ground floor and small suite apartments above, steel frame construction, hollow tile fireproofing. This will be one of the most conspicuous buildings erected in St. Paul for some time.

The Hotel Saint Paul, which is constructed of the Twin City interlocking tile exterior walls, is to have a twelve-story addition built, following the original design. Cost, $250,000. A. H. Stem, architect, St. Paul.

The Northwestern Bible Training School, of Minneapolis, is conducting a campaign for raising $250,000, to erect a twelve-story auditorium and office building at Eleventh street and Harmon place. James A. Burner, of Minneapolis, is the architect.

## THE PLASTICITY OF CLAYS.

The Bureau of Standards, of the Department of Commerce, recently issued a publication of interest to the clay industries, entitled "A Study of the Atterberg Plasticity Method." It is well known that for some clays there is a very narrow range of water content, in which they have a plasticity suitable for working, while other clays have a satisfactory plasticity for quite a wide range of water content. The Atterberg method of measuring the plasticity of clays, used to a considerable extent abroad for the rating of clays, and several other methods of estimating the plasticity, have been applied to about twenty different clays, and the results obtained by the bureau are carefully compared and discussed. A revised adaptation of the Atterberg method is suggested, in which the plasticity number is co-ordinated with the amount of water required to develop the best working properties of the clays. This scheme grouped the clays satisfactorily into those varieties which are sticky and would give trouble in working in a stiff-mud machine, and those which are non-sticky and admit of ready working. Copies of this publication, which is for free distribution, may be obtained by interested parties upon application to the Bureau of Standards, Department of Commerce, Washington, D. C.

# ATTRACTIVE FIREPLACE IN NEW CLUB HOME.

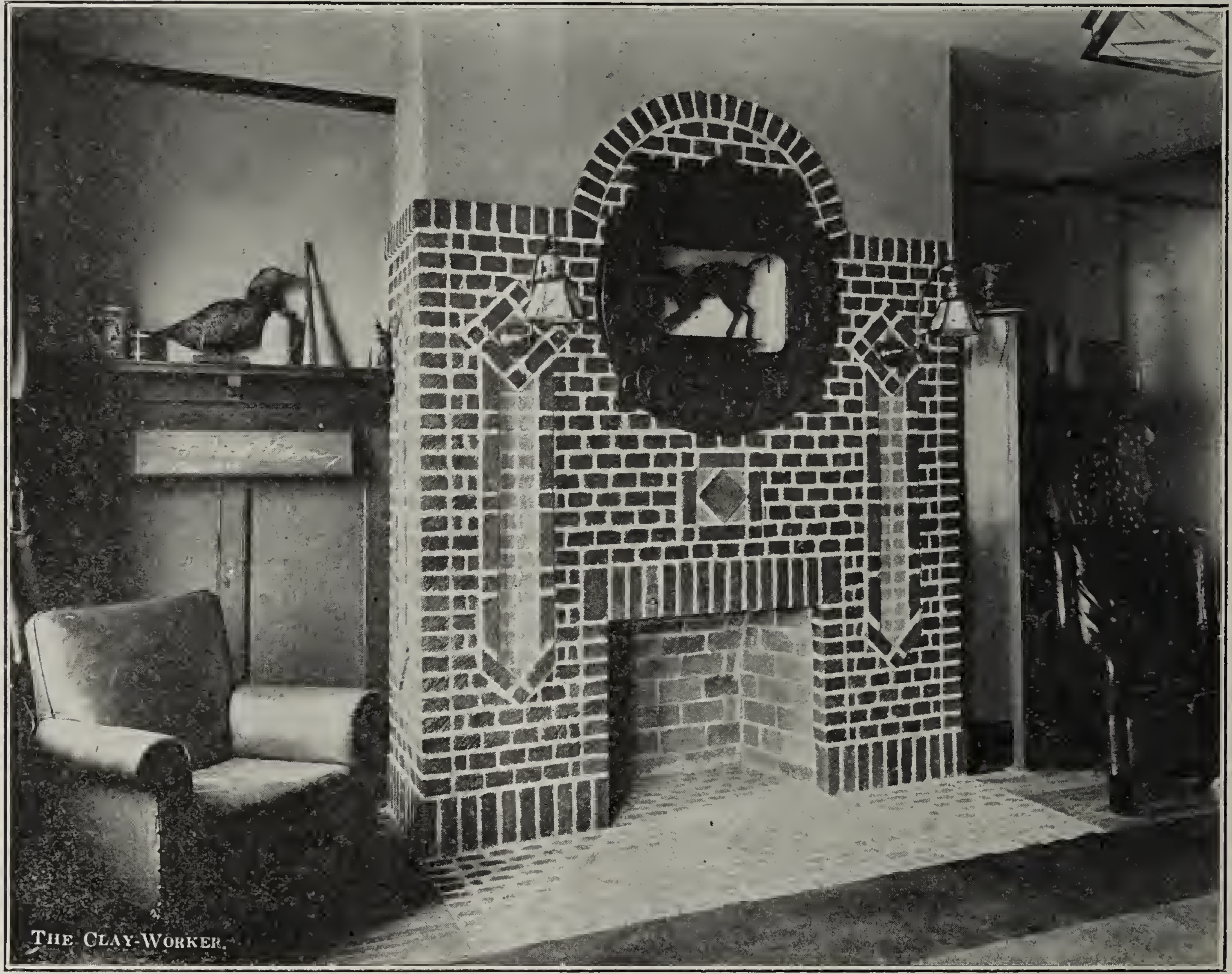
The fireplace in the new club house of the Milwaukee Press Club, the famous organization of active newspaper men, host of princes, presidents and other of the world's notables, is considered one of the most artistic that has ever been designed and erected in Milwaukee, and one of the best examples of that which may be accomplished in the use of matt-faced brick.

The accompanying photograph of a corner of the lounging room of the Press Club gives an excellent idea of the striking beauty of the design and its enactment, but unfortunately the camera lens does not bring out the many beauties of color and shade which make the structure so remarkably attractive. The new club quarters, including the fireplace, have just been dedicated and for a few weeks the usual restrictions as to visitors have been modified so that the requests of the many who wish to inspect the mantelpiece for ideas or satisfaction of artistic taste may be granted.

Since the club was organized, more than twenty-five years ago, it has had as a fetish a "sacred cat," consisting of a very much dried-up carcass of a regulation house cat. Found between the walls of a building that was being razed to make room for a modern structure, the carcass, because of its unique position and the peculiar state of preservation, was given to the Press Club to form part of its notable collection of relics of more or less value. Enterprising members rescued it from the gallery and made it the club mascot, built a costly shrine for it and gave it a place of honor in a niche built in the fireplace of the old quarters.

When the club decided to move into new and larger quarters this year, among the first thoughts were those concerning the welfare and future resting place of the Sacred Cat, Anubis. The club leased the bare eighth floor of the new Jung building, 457-459 East Water street, which afforded many opportunities for carrying out its own ideas as to what a real press club should contain. The club has a number of very good friends and it was not long before they heard of the move and offered their assistance in finishing and equipping the new quarters. Among these friends is "Tom" E. Dever, the portly, but affable sales manager for Ricketson & Schwarz, of "Who Furnished the Brick" fame.

"Tom" went into executive session with "Len" Meyer, secretary of the Press Club, and then called in "Ed" Kuenzli, the well-known Milwaukee architect and a member of Charlton & Kuenzli, Marquette, Mich., and Milwaukee, Wis., to make a design for a brick fireplace that would be the most advanced idea in this construction ever known. With the plans in hand, Dever, Kuenzli and Meyer pounced upon "Art" Riesen, than whom there is no better known contractor in Milwaukee, and within a week's time the Milwaukee Press Club rooms were equipped with a fireplace that is the envy of many a wealthy home-owner in Milwaukee and every club in the city.



The Artistic Brick Mantel in the Milwaukee Press Club.

Is it small wonder that Milwaukee newspaper men are today truly devoted to the "Build With Brick" campaign and the creators of the devotion, to-wit: Dever-Kuenzli-Riesen?

The fireplace shows a full range of color of matt-faced vitrified brick, the body of red in variations, and panels in salmon. The joints are of salmon-colored mortar. In it either logs, wood, coal or gas may be burned. The hearth follows the general design of the mantel. At the top is the niche for the Sacred Cat and the beautiful, carved shrine-piece of hardwood.

So much do the Press Club boys think of their new fireplace that they have hung the chalk signature of Woodrow Wilson, President of the United States, in the place of honor at the left of the mantel. The club has the chalk signatures of nearly every notable in the world, from Japan to Russia and from the North Pole to Patagonia. No person of consequence who comes to Milwaukee misses a visit to the Press Club and each leaves his signature in chalk on the paneled walls. When the club moved recently, the panels were removed from the walls of the old rooms and framed to be hung on the walls of the new. Among these panels are those inscribed by President Wilson, Theodore Roosevelt, William H. Taft, William Jennings Bryan, Count J. von Bernstorff, Commodore Robert E. Peary, Dr. Frederick A. Cook, Cardinal Gibbons, three commanders of the Japanase army and navy, James Bryce, John L. Sullivan, Robert Ingersoll, Benjamin R. Tillman, Edward Payson Weston, James J. Corbett, Trilby Moritz Rosenthal, Lieut. Gen. Arthur MacArthur, Gen. Leonard Wood, Admiral Robley D. Evans, Minnie Maddern Fiske, Robert Mantell, and even Joe Gans, as well as a score more.

## UNUSUAL BUILDING SHOW FEATURES

### A Model Home to be the Chief Prize and to be Alloted in an Original and Interesting Manner.

GROUND HAS been broken for the Prize House to be given away at the Complete Building Show in Cleveland during February. A picture of this prize house is shown on the front cover page of this issue.

This model house, which is located on Lake Shore boulevard, one of the Sixth City's finest thoroughfares, will be a demonstration of an exceptionally great number of approved materials for residence construction. It will employ brick, tile, lumber, stone, concrete, gypsum, asbestos and expanded metal.

In addition, the house will incorporate many new safety and labor-saving devices, which will aid in making it a truly "model" home.

The contest, under which this house will be given away, will be entirely original and will be placed outside the usual guessing or drawing plan. This contest will be linked directly with the exhibits, thus compelling a study of the show on the part of the contestants.

The Complete Building Show is backed by sixty active manufacturers and dealers in Cleveland, as an educational propaganda. It is not being run for profit; it has not even a paid manager. All benefits will accrue to the exhibitor—and to attract attendance, the company plans many drawing cards, of which the Prize House is but one.

### WHAT ARE YOU GOING TO DO?

In Bulletin No. 7 of the National Lumber Manufacturers' Association, issued under date of October 29, 1915, there appears in blackfaced type the following paragraph:

> "Within the last twelve months the lumber industry of the United States has raised more than $400,000 per year for the organized promotion of the sale of its products. Large as this amount seems, it is by no means as much as can profitably be invested by lumber manufacturers for the expansion of their markets. Proper promotion is the best form of business insurance. Let the good work go on."

What are you going to do? Put this question to yourself, think over it carefully and then send the answer to Secretary Randall, of the Building Brick Bureau at Indianapolis.

Profits and promptness in collections are essential factors in business life.

### A MERGER WHICH ADDS STRENGTH TO THE S. A. F. E. MOVEMENT.

ADDED IMPETUS is given the national movement for safe building inaugurated a little more than a year ago by the Society Advocating Fire Elimination through a recent merger of that organization with the Standard Building Material Manufacturers' Association, of New York. The combined associations continue under the name of The Safe, as the Society Advocating Fire Elimination is popularly known throughout the country. The merger carries with it the adoption of the national monthly magazine, Construction, as the official journal of the movement.

The Safe, which had its birth in Cleveland, has drawn into its cause more than one hundred of the most influential and enterprising manufacturers and dealers of the country. This membership is thoroughly representative of the great middle western clay and steel producing states, with scattered members at greater distances from its national headquarters in Cleveland. At the same time, the Standard Building Material Manufacturers' Association, with New York headquarters, has attracted many eastern concerns. The combining of the two organizations brings into one movement the strongest group of interests that ever has put its shoulder to the cause of education in the interest of consistent fireproof building construction and elimination of the fire waste.

The national magazine promoting the cause is as important to the success of The Safe idea as is the merger of the two associations. Construction is the only journal in America devoted exclusively to promoting consistent fireproofing, without favor to any particular material. Its editorial policy exactly corresponds with The Safe's avowed principle that there is a place for each of the many accepted materials and that there should be no unbusinesslike rivalry or competition between them. Both the magazine and the organization whose mouthpiece it is, hold that a marked increase in safe building will come only by the united effort of those interests which individually foster this cause.

The Safe has from its beginning put emphasis upon the need of particular effort in the field of home building, while the parallel New York organization worked principally for consistent fireproofing in larger structures and the use of approved safety devices and equipment. By the combination, the entire field of building operations is covered and the talent that has specialized upon these two branches are brought together.

An important feature of Construction magazine each month will be its Safe Homes department, in which will appear from six to eight new house designs, with floor plans and complete information. Every house illustrated there will be of a fire-resistive nature, as far as its exterior is concerned, at least, and will embrace all the materials commonly used in such construction. There will be shown brick, tile and stucco, steel and metal lath, monolithic concrete and concrete block types. The use of stone, gypsum, plate-board, metal lumber and all other materials that have a place in the fire-resistive building, will be demonstrated. The house plans are supplied by architects and an estimate of the costs given in every case.

The publishers of Construction believe that this Safe Homes information fills a want known to every manufacturer and dealer, while its other pages are used to bring together the latest information and the best suggestions of experts upon consistent fireproofing and fire safety. Reports of fires and new construction will form a valuable department for manufacturers and dealers, while the magazine aims principally to put in the hands of prospective builders, architects, engineers and contractors, throughout the country, authentic reports of the best practice in the field.

The new connection gives The Safe an eastern office in The Times building, New York, and the national headquarters of The Safe, Leader-News building, Cleveland, becomes the western office of the magazine, Construction.

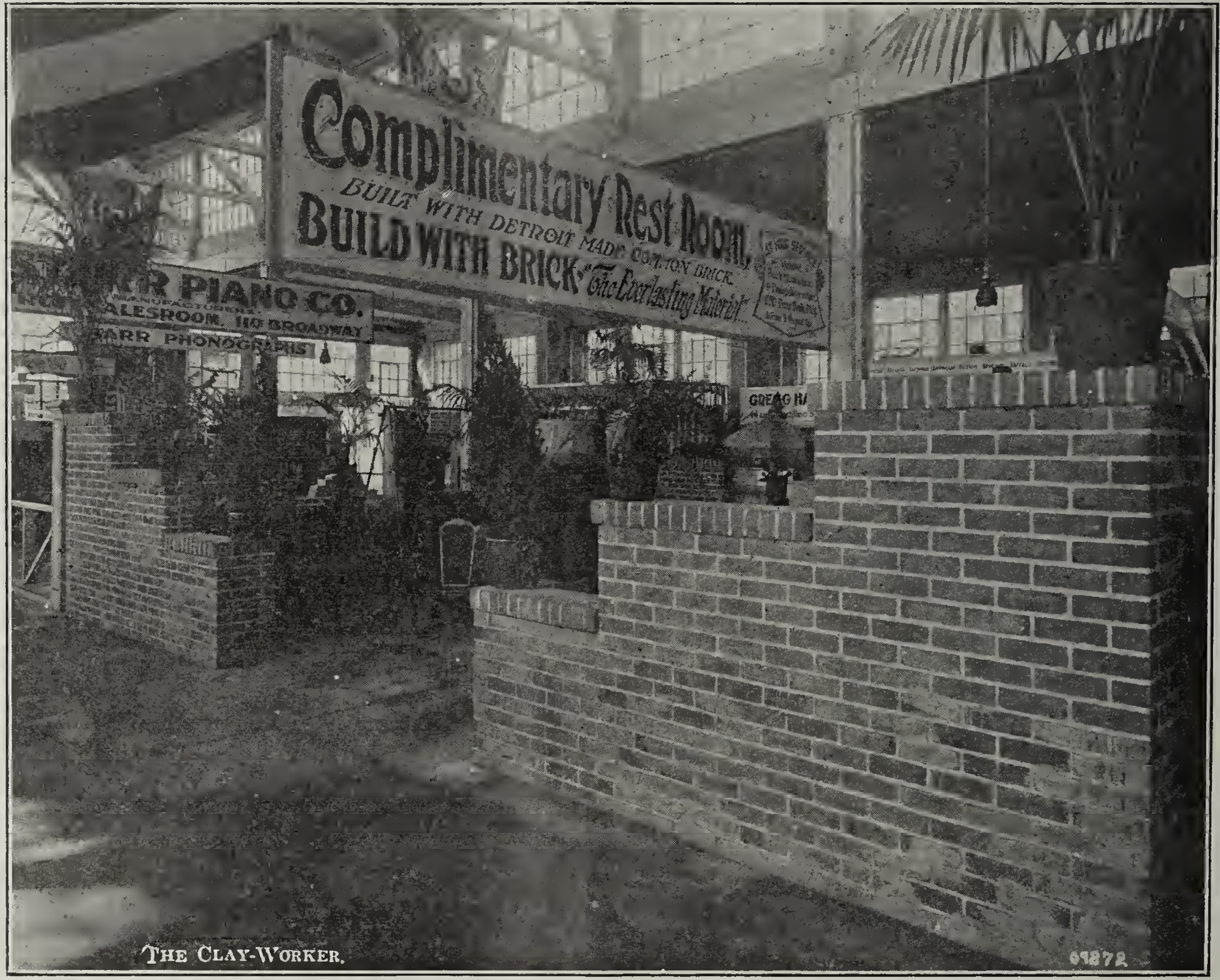
## A SUGGESTION FOR THE COMPLETE BUILDING SHOW.

THE ACCOMPANYING illustration of an interesting building brick display demonstrates how readily brick lends itself to every need of the builder, whether for domestic, commercial or mere ornamental purposes. Our "Build With Brick" slogan has a universal application. That is one reason why it has taken such a strong and permanent hold upon the trade. It plays a conspicuous part in this particular exhibit, as it should in every similar display, for it is at once an impressive injunction and an appeal to the reasoning sense of every builder.

This particular display was erected by the Detroit Brick Manufacturers' and Dealers' Association at the Michigan State Fair. A similar display, with easy chairs or comfortable seating arrangement, offering a temporary place of rest for the visitors, would be an excellent booth for the brick division of the Complete Building Show at Cleveland, February 16 to 26. Several such comfort booths scattered through the great exposition will prove attractive and be much appreciated by the thousands who will congregate at the Complete Building Show, convention week.

By such displays, as well as the more pretentious exhibits of building materials of all sorts, each and every visitor will be so impressed that he will carry home with him the firm conviction that to build wisely means to "Build With Brick."

The southland has no "Buy a Bale of Cotton" foolishness this winter but is getting a fair price for its staple and is prospering proportionately.



Build With Brick Display at the Michigan State Fair, Erected by the Detroit Brick Manufacturers and Dealers' Association.

Written for THE CLAY-WORKER.

## PACIFIC COAST NEWS.

THE DEMAND for building materials is picking up a little in California, and San Francisco clay products concerns are inclined to feel rather more optimistic than usual. While building this season is said to be about 30 per cent less than last year, the situation has been eased by a corresponding increase in common and fire brick. Common brick since the middle of July has been selling at $9.00 f. o. b. in San Francisco and at $7.50 per thousand at the yards. Business is on a more healthy basis than formerly and there is reason to expect a considerable building revival next spring, especially if the European war ends and inspires a more general confidence in international commercial affairs. The local terra cotta situation is still very tight and not a great deal doing. Several rather important jobs are on or about to commence, yet the immediate outlook is not encouraging. School work is holding up fairly well, and there is perhaps a little more than the average of bank work. There is no reason to think that terra cotta products are being replaced by other materials in the classes of buildings for which terra cotta has been demonstrated to be the most suitable material. Lack of new building projects alone is the main cause of the dull terra cotta business.

Municipal sanitary improvements have not been many in the state this year, though at present there are a few cities that are making important sewer extensions. The chief activity is at Stockton, San Bruno and Visalia. The demand for vitrified sewer pipe accordingly is at present a little heavier than a month or so ago. The paving brick situation remains about the same in California. Vitrified brick is too expensive for general use. In this connection, it may be mentioned that an estimated reduction of $6,000 to $8,000 per mile has been made in cost of brick highways in Kings county. This is due to the fact that the commissioners have adopted a new specification for brick and have instructed the county engineer to include in all future specifications for such paving vertical fibre, wire-cut, non-pressed brick block.

Eugene Corrigan, San Francisco agent for the Stockton Fire & Enamel Brick Co., states that the plant at Stockton is putting in a new drier with a capacity of three or four hundred thousand a month. This will greatly add to their efficiency, especially during the winter.

C. F. Pratt, president and manager of the Pratt Building Material Co., was vice president of the parade committee for Builders' Week, and was one of the most active enthusiasts who helped to make the week a grand success.

The Steiger Terra Cotta & Pottery Works are about to commence deliveries of white glaze terra cotta for the six-story building of the Capitol National Bank of Sacramento. The same company has the contract for terra cotta and tile wall partitions on the large new plant of the Pacific Coast Shredded Wheat Co. in Oakland.

Plans have been prepared by Architect Willis Polk for the new Western Union building to be erected at Montgomery and Pine streets. This building will be twelve stories in height and be faced with pressed brick and terra cotta. No contracts awarded as yet.

The new hospital for the Affiliated Colleges in San Francisco will require 1,500,000 common brick and 300,000 face brick. The job will be out for figure by November 15.

N. Clark &. Son had a handsomely decorated automobile in the monster Builders' Week parade. This concern has just closed for the Moffatt State Theater building in Oakland. The exterior will be finished in architectural terra cotta in polychrome. Mr. Gwynn, the manager, states that the demand for architectural terra cotta is somewhat livelier now and that polychrome effects are taking well with builders. The Clark company is supplying vitrified sewer pipe for the new sewer extensions at Stockton and Visalia.

W. W. Dennis, of the McNear brick agency, reports landing a few new jobs of importance, among them being the public library, which will require two million common brick; the new building of the American Can factory at Twenty-third and Kentucky streets, which calls for half a million common brick, and a 300,000-brick order for a new warehouse at Fourth and Townsend streets. Mr. Dennis is pleased with the way brick business has picked up, and looks for a more decided improvement before spring. This company had eight work wagons in the parade last week, the idea of the feature being to show the amount of brick supplied on big jobs recently. One announcement proclaimed that 5,000,000 brick were furnished for the new city hall.

A deal has just been closed whereby the Independent Brick Co., one of the largest brick manufacturers in America, purchases the plant of the Sacramento Brick Co. Other plants on the coast are to be taken over also, it is reported. Because the American river bed contains the sharpest sand they have found in the United States, the company has decided to make Sacramento their chief distributing and manufacturing point on the coast.

The steamer Champigny arrived in San Francisco on October 8 with 195,000 fire brick from New Castle, England.

A plant for the manufacture of brick and tile is being erected on Twenty-second street, Douglas, Ariz., by T. T. Hines.

The Denny-Renton Clay & Coal Co., of Seattle, has completed the delivery of architectural terra cotta for the new King county court house. The same company is also delivering paving blocks for extensive street improvements in Astoria, Ore.

SUNSET.

San Francisco, Nov. 3, 1915.

# QUESTIONS OF INTEREST TO CLAYWORKERS.

Answered by J. J. Koch.

Question: Can you give us any information in regard to graphite clay products—their use, value in market, grades as regards the percentage of graphite, detrimentals, etc.?

Answer: Graphite is a mineral which is obtained generally from either drift or shaft mines. In nature it exists in varying degrees of purity, which is, however, brought up to almost absolute purity by submitting the crude plumbago or graphite to various cleaning or purifying processes, such as washing with water, boiling with water, treatment with alkalies, calcining with alkalies, subsequent treatment with diluted acids—the simple water washing process being preferred. The best grade for heat resisting purposes is the large, flaky kind, and should run from 99 to 99.96 per cent. carbon.

The pyrometric value of graphite is best determined by the remaining ashes after being burnt in a covered platinum crucible.

Graphite is used for various reasons in clay products, principally because its presence retards the fusion of the burnt clay, also to a large extent prevents the oxidation of the hot metal, thus, in turn, preventing combination of the metal with the adjacent clay walls. Owing to its greater heat conductivity, it causes the burnt clay products of metal to stand a rapid change of temperature, a more rapid fusion of metal and less adhesion to the clay container, owing to the smoothness of the walls.

The large flaky kind is the best for fusion purposes, in that the large flakes can move upon themselves, without destroying the bond. The combustibility of graphite and the possible speed of same has an effect upon the fire resistance, but no exact method exists whereby such detrimental can be laid down in cold figures. As the large flaky kind of graphite is very expensive, it is oftentimes adulterated, which can readily be determined by chemical analysis.

In making graphite clay ware it is more essential to have the best grade of graphite rather than the best grade of fire clay. The best graphite is thus the kind which is the most difficult to burn (vide graphitic carbon in iron) with the minimum amount of ash, as high ash contents reduces the fire resisting quality of the clay, also should have a flaky or flat, leafy structure, so as to produce a lamellar texture in the clay body.

Various clay mixtures are used and no standard proportions exist, but must be ascertained by practical fusion tests and observed results, but as far as known the minimum proportion of graphite used is 25 per cent. of the whole, but it is very doubtful if any good results are obtained with such a weak mixture. Sand and grog are also used in some of these mixes for the same purposes as in other lines of clayworking, but their use should be dispensed with if only to prevent the changes in the graphite proportions which run from 25 to 50 per cent.

The following mixes are in use by responsible firms:

For hard steel, 54 graphite, 36 clay, 10 grog.

For soft steel, 40 graphite, 38 clay, 22 grog.

Other masses, 50 graphite, 45 fire clay, 5 sand.

One of the best mixes is 7 parts of a close burning body clay standing s c 30, 4 parts of large flake graphite and 1 part of grog, poppy seed size.

A peculiar use of graphite consists in applying a slip of graphite and fire clay to that face of the brick (the side coming in contact with the fire) so as to increase the fire resistance of the brick. Cognizance must be taken, however, of this fact, that an increase of graphite decreases the adhesiveness of the slip clay. The cost of graphite clay products is only a personal factor with the manufacturers, and presumably they try to get all they can for their ware, and possibly the man who has the best convincing arguments gets the best prices, although the product may not be any better than any other product.

# MARTINSVILLE LAUNCHES DIXIE HIGHWAY.

## Governor Ralston Lays the First Brick—A Contest Conducted in Which the Girl Receiving the Most Votes was Crowned "Dixie Queen."

MARTINSVILLE, Indiana, knows an event when such a thing looms on its civic horizon. Hence school did not keep on September 15; whistles tooted, but not for work, and every place of business, except the postoffice, was closed up tighter than a drum.

*Governor Ralston Laying the first brick in the first strip of pavement in the Great Lakes to the Gulf project—The Dixie Highway.*

*Carl Fisher laying a Brick in the monument commemorating the beginning of the Dixie Highway.*

The Dixie Highway was becoming a real highway.

Its first strip of pavement was under way.

It was a brick pavement.

Governor Ralston was on hand to lay the first brick.

Really two bricks were laid by Governor Ralston. One was the final crown brick on a municipal pavement that is just being completed. The second one was upon a strip of rural pavement that is to be a part of the Great Lakes to Gulf project. This was the first in a four and three-quarter mile stretch, for which legislative steps are complete.

Governor Ralston was accompanied by Carl G. Fisher and had, as a guard of honor, Company K of the Indiana National Guard, the directors of the local chamber of commerce, a band and a host of school children. The progress to the scenes of the two ceremonies was made with due form and solemnity.

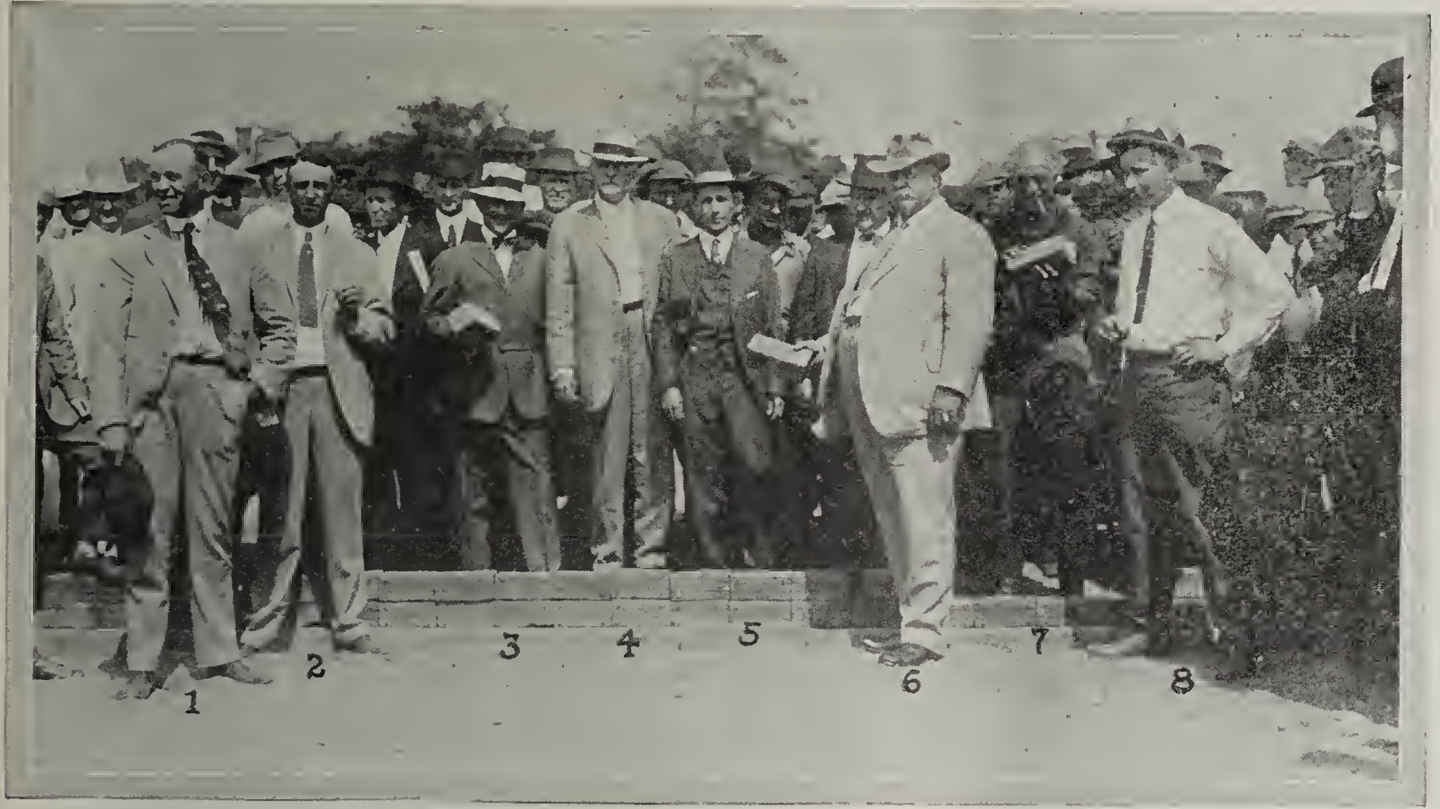
The afternoon, likewise, was given over to commemorative exercises. It was initiated by a parade in which the place of honor was given to Miss Marguerite Mars, who bore the title of Dixie Queen and rode on a float in the center of a bevy of pretty Martinsville maids. The Governor's party, militia, police, chamber of commerce, band, fire department, decorated machines, symbolic floats, etc., made up the cavalcade.

Miss Mars was chosen for her place after a voting contest conducted in co-operation with the Blackstone theater. She was crowned as part of the ceremony of the day. The laudatory remarks were delivered by J. C. McNutt, after which W.

S. Galbreath presented her with a handsome bouquet of roses. President Roy E. Tilford presented her with a fifty dollar gold prize and the actual crowning was performed by the Governor.

The entire affair was managed by the Martinsville Chamber of Commerce, which has recently been organized with John E. Northway as secretary. The success of the day speaks volumes for his enterprise and the effect has been to give so much favorable attention to the good roads movement and the Dixie Highway as to mark an epoch in the road development of the Hoosier state.

Governor Ralston paid a tribute to the prospective permanence of the road they were building when he said that citizens of Martinsville a hundred years hence will look back upon the day with gratitude and pride. "Some months ago," he said, "I took upon myself the responsibility of calling a conference of the Governors of Illinois, Indiana, Ohio, Kentucky, Tennessee, Georgia and Florida, in the city of Chattanooga, to discuss the advisability of improving a road from Chicago to Miami, which should be known as the Dixie Highway. In my remarks at that time, I said that I had no particular route to recommend, but merely urged that such a road be constructed.



*Nos. 1 and 2—Jas. and Fred Cunningham, who are building the new road. No. 3—Carl Fisher, "Father of the Dixie Highway." No. 4—Hon. J. C. McNutt, Vice President of the Indianapolis-New Albany Dixie Highway Association. No. 5—John E. Northway, Secretary Martinsville Chamber of Commerce. No. 6—Hon. S. M. Ralston, Governor of Indiana. No. 7—W. S. Gilbreath, Secretary Dixie Highway Association. No. 8—E. I. Poston, Maker of Brick used in pavement.*

*All Martinsville turned out for the celebration. The schools were dismissed and all the children appeared in a big pageant.*

"I now congratulate you, however, on securing a place on the route and upon your enterprise in undertaking the first substantial improvement. Highways are among the chief agencies of civilization. They enable the people to meet and mingle in public assemblages, to trade and to imbibe ideas from travel. Martinsville is famous for its mineral springs and will doubtless attract many visitors over the Dixie Highway by the curative properties of these waters.

"Morgan county has some 475 miles of public highway, of which 275 miles are already improved. This county has sufficient financial resources and sufficient material for all the good roads that it desires. The entire county is underlaid with knobstone shale, famous, I am told, as a paving brick material. Because of the presence of knobstone shale in your county you have been maintaining three great brick plants with a daily capacity of more than 100,000 brick.

"My friends, I congratulate you upon the spirit of this occasion. Your home pride is fine. Your willingness to live beyond yourselves affords a lesson worthy of emulation everywhere. I thank you for affording me this opportunity to meet and mingle with you."

Secretary Northway, of the chamber of commerce, in a letter to "Dependable Highways" says that it is generally hoped and planned to pave the entire course of the Dixie Highway through Morgan county with brick.—Dependable Highways.

# RESEARCH IN BRICK CONSTRUCTION.

*In this article of the Clay Worker's series dealing with different forms of brick construction some interesting light is thrown upon a form of construction that has seldom been favored by brick makers, but which is today playing an important enough part in the home building world that it calls for earnest consideration.*

## BRICK-VENEER FRAME CONSTRUCTION.

A FORM OF construction that seems new because of its present prominence in the home building world but which is really quite old, is that of combining wooden frame work with a brick outer wall. It is commonly referred to as brick-veneer frame construction. As a rule, too, the brickmakers of the country have objected to and fought against this form of construction, claiming it as a sort of imitation of brick building but not the real thng. They have contended that the walls should be entirely of brick and not merely have an outside facing, consequently they have frowned upon brick veneering of this kind instead of making a close study of it and its possibilities in extending the market for and the interest in brick.

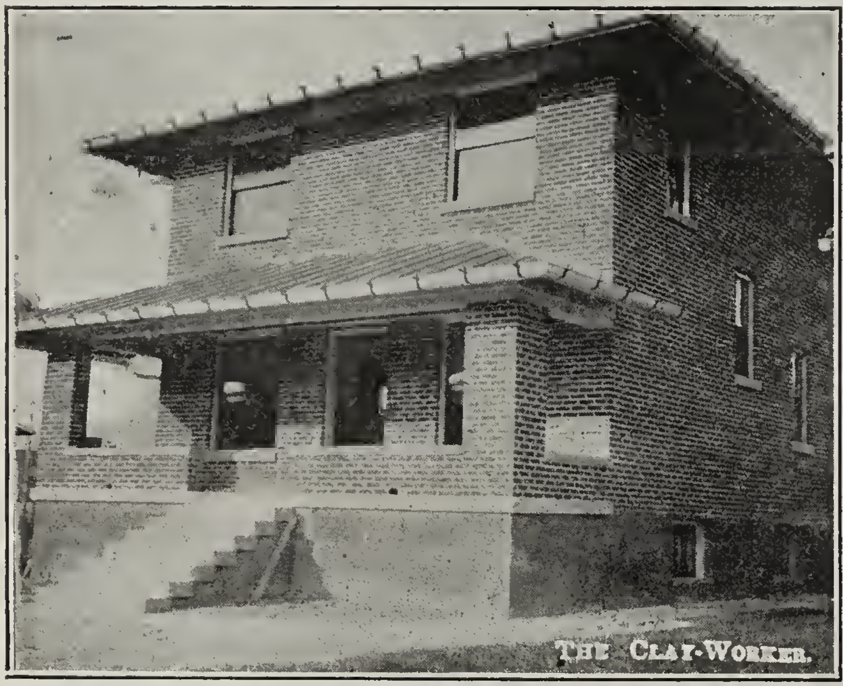


Fig. 1. Brick-Veneer House Costing About $3,000.

Conditions have developed recently in connection with lumber boosting that make it imperative for brick manufacturers to show more interest in this class of construction. The lumber people have paid brick the compliment of imitation and there is being actively exploited today a new novelty siding made of lumber grooved and cross-grooved in imitation of brick. It is called brick-veneer siding and already the novelty has appealed enough that quite a lot of it has been used in home building notwithstanding that it costs something extra for the siding and it must be painted both on the surface and in the grooves to imitate brick and mortar joints.

### Brick-Veneer Better Than Imitation.

It should not cost the prospective builder any appreciable amount more to put up a real brick outer wall, a real veneering of brick, than to put on this wooden imitation of brick-veneer, and there are not many prospective builders but what if approached with the matter would take the brick in place of the wooden imitation. That is one of the things that makes this subject of particular interest at the present time, and if it is taken up with earnestly and handled right the exploitation of this wooden novelty siding imitation brick-veneer should materially assist in getting real brick-veneer used more extensively. Certainly it would be better for both home builders and for the brick industry to use real brick-veneer than to use either the woden imitation or an outer wooden siding. No matter if the brickman feels like arguing that the entire wall should be of brick, we should also remember that half a loaf is better than no loaf, and that often it may be best to advocate brick-veneer over frame and recognize this as a step toward brick construction eventually, a step which for the time being will call for a considerable use of brick.

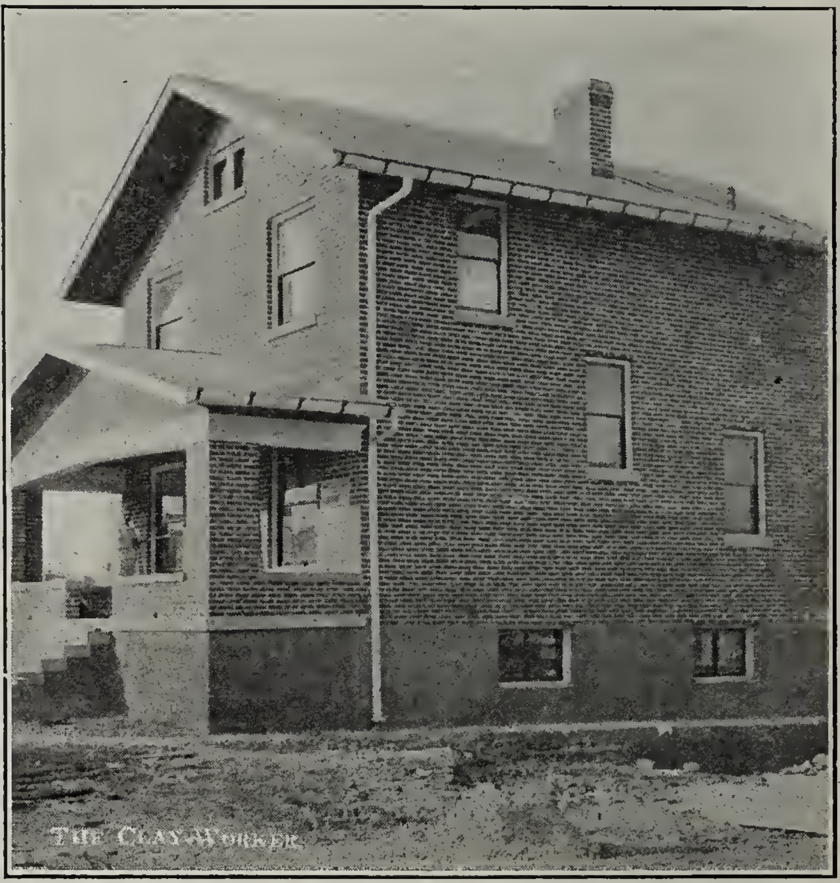


Fig. 2. House Similar to Fig. 1. Size 26x28 Feet.

### A Type of Pioneer Construction.

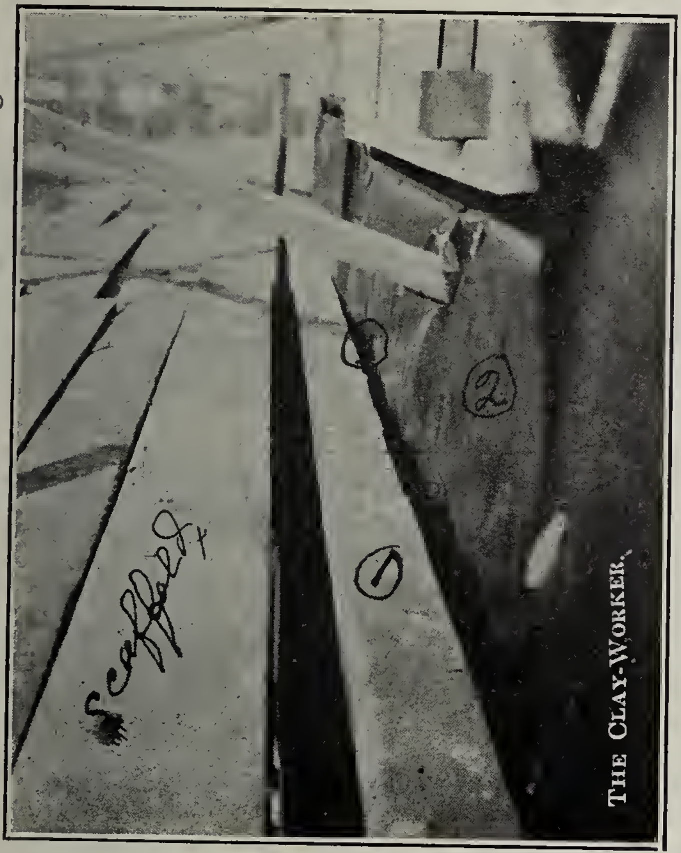
Aside from the question of fire resistance structurally, a brick-veneered house properly put up is a good house. In fact, when we delve back into the history of brick-veneering we find it but a development from a pioneer form of construction that was very substantial. In some of the old English homes we find brick walls that are worked around and into an interior wooden framing which ties the building together and strengthens it structurally. Indeed some of this same type of construction may be found now and then in tearing down old pioneer buildings in the country. They were good substantial buildings, too, more substantial in fact than those of our later forms of solid brick walls.

Brick-veneering, as it is known today, is a modification of that by simply eliminating the inner course of brick and putting a sheathing of lumber on the outside of the frame while this in turn has an outer protection of a one-course brick wall.

The usual form of construction is to make the foundation wall at least 12 inches wide and to set the frame in cn it until about 6 inches of the wall extends beyond the sheathing on the outside of the studding.

### How It Is Done.

The house frame is put up in the usual way with the exception of some difference in the construction of window and door frames to make them conform to the brick outer wall. Then over the framework of studding is nailed a sheathing of common inch boards sometimes running straight-ways and at other times run at an angle. After the frame is carried up and sheathed over the sheathing is covered with a layer of tar paper or waterproof building paper of some kind and the bricklayer starts his brick wall, usually about an inch away from the sheathing. There is no effort made to get a contact bonding between the brick wall and the sheathing of the frame. This might improve the work structurally but it is argued that it might lead to rotting of the lumber through moisture working its way through the mortar joints. So an air space of about one inch is left and the outer brick wall is built of a single brick thickness laid in stretcher courses and tied to the sheathing wall with the regulation galvanized brick wall ties laid between the courses, then turned up at one end and nailed to the sheathing.



No. 1, Brick Wall; No. 2, Tar Paper; No. 3, Space Between Brick and Wood.

Structurally this does not look as strong as if a contact bond was made between the brick and the sheathing wall, but the writer has never known of an instance where the brick outer wall has given way or fallen, and if the inner frame is substantialy put up the building as a whole is good structurally.

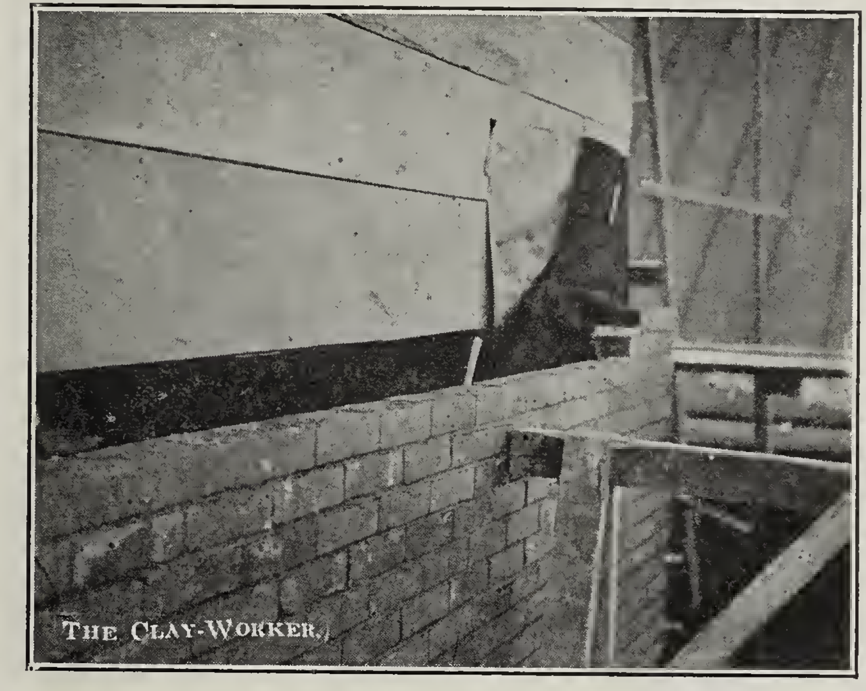
### How Construction May Be Varied.

There are several types of construction that may be used. The one described here is the one in common use. To improve the building structurally and for warmth one may, in addition to the outer sheathing of the frame, put an inner sheathing of what is known as byrkit lath instead of the regulation plaster lath. Byrkit lath is a rough ceiling lumber grooved to receive plaster clinches. It serves really the double purpose of a storm sheathing and lathing, because the plastering is done right upon the inner surface of this byrkit sheathing. With it used inside and another sheathing wall on the outside of the frame then an outer wall of brick-veneer one has a house that is not only strong structurally, but is pretty thoroughly insulated against both cold and heat.

For cheaper construction in warm climates the writer has an idea that the outer sheathing wall of lumber might just as well be done away with entirely and then simply byrkit sheathing or the regulation plaster lath put on the inside of the frame to plaster upon. Builders seldom do this, for there seems to be a sort of feeling that the sheathing wall of lumber must on the outside of the frame close to the brick even though it is not in actual contact with it as a sort of safeguard or something of the kind. This seems to be more a frame of mind than a condition required by the mechanics of construction. So long as there is no contact between the sheathing wall and the brick wall anyway, what is the difference whether those walls are separated by the space of an inch or a space of four or five inches? In other words, why not just as well put the sheathing wall inside of frame work and attach the wall ties of the brick work to the studding and let it go at that. In some respects it offers advantages. If the idea is to keep the sheathing wall free from moisture it should be better because when there is only an inch space between them there is some mortar falls in and fills up a part of it here and there and this will carry moisture into the wall —the very thing the space is sought to protect against.

### Getting Decorative Effects.

Formerly this brick-veneer construction was confined to plain stretcher course work. Lately there has been more or less effort at variety. There has developed the habit of using a soldier course of brick next to the foundation and in some instances on two-story houses one soldier course has been worked in about even with the second story floor to break the monotony of the wall and add some decorative effect, and this straight up or soldier course is also used around window openings.



Brick-Veneer Frame Construction.

As a rule, the brick-veneered house carries with it the brick porch, sometimes all the way up and at other times parapet walls and piers. In some instances known to the writer, this has been carried out in both front and back porches and in the porch work alone has been used as much brick as is required to veneer the house.

Solid brick walls and complete fireproofing may be the ideal for the final goal, and even solid brick outer walls with frame partitions may be preferred to the entire wooden frame with brick veneer, but as a business proposition in the promotion of brick we must give consideration to the fact that there are many different people, many different ideas of construction, and among these are many who are as limited in their means as they are strong in their desire to have a brick outer wall. We should remember that it is much better to get a brick outer wall than no brick at all, and right at the present time there is a call for some active exploitation of the brick outer wall as a better proposition than the wooden imitation of it for it can be furnished without any appreciable difference in the cost. Indeed where one does not go in for fancy face brick the plain brick-veneered job can be done in most localities at practically no additional cost as compared to any frame building with siding of lumber which must be painted. And certainly it makes a better job.

Written for THE CLAY-WORKER.

## KANSAS CITY BRICK AND BUILDING NEWS.

IN KANSAS CITY and this territory, "Build With Brick," has become more than a mere slogan, it has become a reality, for nearly all the building that has been done in the past month has been with brick. The Kansas Buff Brick Company and the Hydraulic Press Brick Company seem to have been sharing the lion's share of the orders for brick with each other, for indeed these two companies have furnished the largest portion of the brick used in this city during the past two months and their outputs total well into the millions of brick for the summer building period. Some of the largest buildings that permits have been taken out for are the Wesley Hospital, the Christian Hospital, the Morledge Building, the Coca Cola Building, the Moriaty Building, the Chambers Building and the building for the Firestone Tire Company. These are only a few of the larger ones whose expense totals more than $50,000 each and which are keeping the brick, terra cotta and tile plants working nearly to capacity.

The Christian Hospital Built of Hy-Tex Brick.

Not so much can be said for the local paving brick manufacturers and jobbers. The contracts for the paving of streets with brick, and, in fact, all kinds of paving have been held up at the city hall because of a political quarrel between the two factions now in power there. The contractors who have been waiting all summer to bid on the paving work have been raising a great deal of disturbance through the newspapers because the politicians have seen fit to hold up the contracts that should have been awarded some time ago, according to the bonds that were voted at the last election and which were to have been sold immediately. The paving of the city's streets, which should have been done this year will perhaps, therefore, not be done until next year.

G. W. Thurston, secretary of the Western Paving Brick Manufacturers Association, with headquarters in Kansas City, says that the reports that were made at the last meeting of the association, recently held here, that the business in this section of the country had been in excellent condition for this season although Kansas City did not contribute her share of the contracts for the paving of the streets and alleys. "Pave With Brick," has been the slogan of the association for some time and they are furthering their battle cry from coast to coast and especially throughout the southwest. The plants of most of the companies, which are located in various Kansas towns have been working nearly to capacity all summer and the kilns are still busy.

Levi Kramer, president of the Middle West Brick and Tile Company, of Waverly, Mo., through his attorney John Ready, of Sedalia, Mo., recently filed a voluntary petition in bankruptcy in the Federal Court at Kansas City. He gave the liabilities at $10,457.15 and his assets at $290, part of which consists of 125,000 brick now in the kilns valued at two dollars a thousand. Holmes Hall, of Sedalia, Mo., was appointed trustee of the company under $2,000 bond. The plant has not been operated for some time because of a contention between the directorate and the stockholders, caused it is understood, because part of the capital was not fully paid at the time of the incorporation.

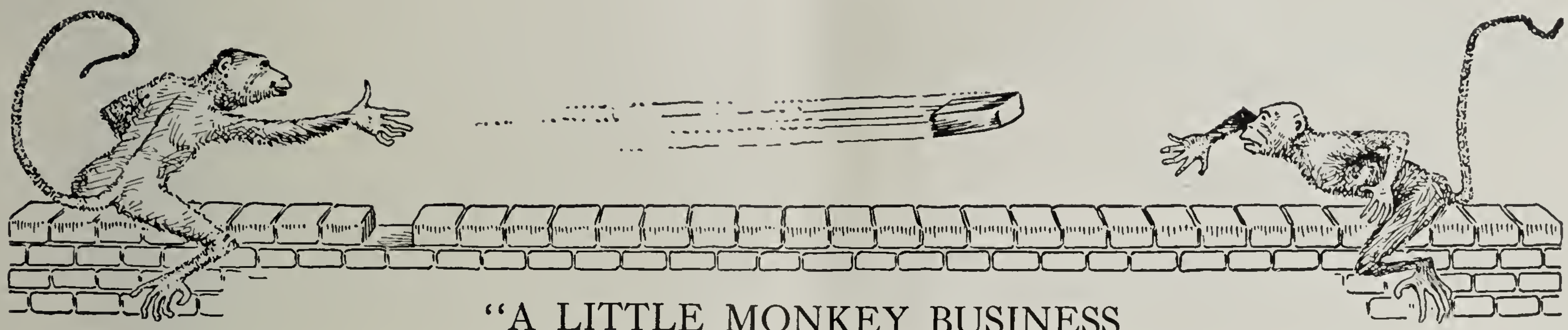
Walter S. Dickey, president and owner of the Walter S. Dickey Clay Manufacturing Company, of Kansas City, recently announced himself a candidate for the United States senate on the Republican ticket, following the requests of many of his friends.

What Happened to the Macadam Pavement when the Sewer Overflowed.

The Kansas City Star, the leading newspaper of the city, has at present several libel suits now in the court for statements made concerning cast iron pipe bought from the uncle of one of the politicians in charge. The Star stated that the pipe was defective and often had to be torn up and replaced, and that good pipe purchased by the city was often broken up and sold back to the foundry from which it was purchased as "junk." The accompanying photograph was made of a manhole in Kansas City made of defective iron pipe. The Star states that some of the concrete pipe that has been used by the city has been defective although not as much so as the iron pipe. Nothing, however, has been said of clay pipe and the city is being influenced to use clay sewer pipe exclusively. It looks from the small amount of testimony taken in the trial so far that a complete victory will be scored for clay sewer pipe because of the fact that the iron pipe and the concrete pipe are more often defective than the clay pipe.

The Vale Brick Company, of Kansas City, is now in the hands of a receiver, Joseph M. Jones, who is under a bond of $950. The Midland Coal Company, of Kansas City, the American Clay Machinery Company, of Bucyrus, Ohio, and the Gray-Bryan-Sweeney Coal Company, of Kansas City, filed a petition in bankruptcy against the company in the Federal court recently, each company claiming respectively debts of $1,135.44, $343.19 and $716.79. George Stephens is president of the Vale Brick Company and O. W. Gossett is the attorney for the company.

Walter Grant Dickey, twenty-four years old, second son of Walter S. Dickey, died suddenly in Colorado Springs, November 9. Mr. Dickey had gone to the Colorado resort to recuperate, following a nervous breakdown caused by the death of his infant son, just three weeks previous. Grant Dickey was born in Independence, Mo., was married June 11, 1913, to Miss Belle Waddell, of Higginsville, Mo., and had been associated in business with his father, the Walter S. Dickey Clay Manufacturing Company. Burial was in Kansas City.



"A LITTLE MONKEY BUSINESS
NOW AND THEN IS RELISHED BY THE BEST OF MEN."

### Weakest Cog.

"What's most liable to get broke about your automobile?"

"The owner," replied Mr. Chuggins.—Washington Star.

### What's in a Name!

Customer—Why do you call this hair tonic "Indian Warwhoop?"

Druggist—Because of its possibilities as a hair raiser.

### Making Sure.

Mrs. Cox (handing her husband a saucer full of white powder)—John, taste that and tell me what you think it is."

Mr. Cox—"It tastes like soda."

Mrs. Cox—"That's what I told Bridget. She declares it is rat poison. Taste it again to make sure."

### A New Excuse.

Wife—"Well, what made you so late this time?"

Hubby—"Why, I took Horace home from the club, and his wife made me take him back again."

### THE ONLY REASON.

Mother (reprovingly)—When I was young, girls never thought of doing things they do today.

Daughter—Well, that's why they didn't do them.

### NO GOOD.

"I had to be away from school yesterday," said Tommy.

"You must bring an excuse," said the teacher.

"Who from?"

"From your father."

"He ain't no good at making excuses; ma catches him every time."

### PROVED.

"Your husband seems to be a man of exceedingly good judgment, Mrs. Tomkins," said Mrs. Tomkins' friend.

"Certainly," replied Mrs. Tomkins, "I'm his wife."

### HAD HIS SUSPICIONS.

A San Francisco lawyer tells of a Texan who, obliged to go to Denver before the termination of a suit brought against him by a neighbor, left orders that his attorney should let him know the result by wire.

In a couple of days he got this telegram: "Right has triumphed."

Immediately the Texan wired back: "Appeal immediately."

### Modern Spelling.

A certain small girl is learning things in a Chicago school.

"Mother, what does f-a-t spell?"

"Fat," says mother.

"What does h-e-r spell?"

"Her," replies mother.

"Now I know I'm right," cries the small one. "And that old teacher tried to make me believe that those letters spelled father."

### A Comparison.

"What would you think," queried the timid youth, "if I were to steal just one little kiss?"

And the fair maid in the parlor scene came back at him thusly:

"What would you think of a burglar who had a chance to swipe a hundred dollars and only took a dime?"

"—Also Some Cook."

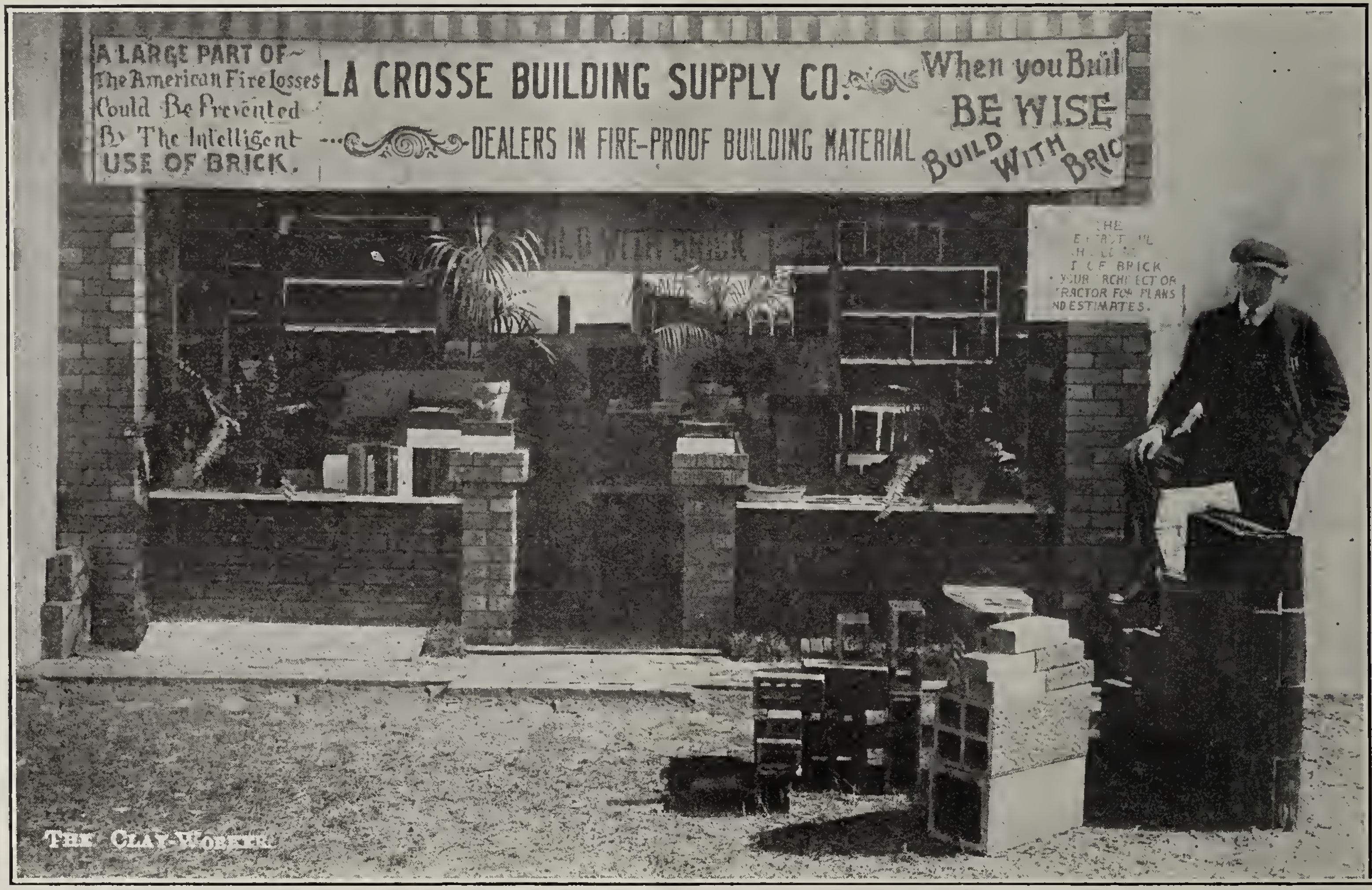
# CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

## Build With Brick Boosting That Pays.

Editor The Clay-Worker:

We are sending you under separate cover a photograph of our exhibit that was taken at our local fair this season. Perhaps you can publish this in your Clayworker for the benefit of those who are trying to boost clay products.


A LARGE PART OF The American Fire Losses Could Be Prevented By The Intelligent USE OF BRICK.
LA CROSSE BUILDING SUPPLY CO.
DEALERS IN FIRE-PROOF BUILDING MATERIAL
When you Buil
BE WISE
BUILD WITH BRIC
THE CLAY-WORKER.

A Splendid Display of Clay Products Made by LaCrosse Building Supply Company.

This exhibit was seen by 40,000 people and was highly praised by every one familiar with building material; this was one of the prettiest and most attractive exhibits at the fair, and proved a great success for fireproofing material.

We secured a good many prospects from this expensive advertising, and will never regret the cost of this exhibit, as we realize the money was well spent.

We have a fine territory that uses a great amount of fireproof building material, and are now established to take care of everything that requires this line of material.

We enclose subscription for The Clay-Worker for one year.

Yours very truly,
LA CROSSE BUILDING SUPPLY CO.
La Crosse, Wis.

## How to Produce Brown Spots in Red Brick.

Editor The Clay-Worker:

I noticed the inquiry of the Brownwood Brick & Tile Company, in a recent issue of The Clay-Worker, and can give them the following information, based upon my own experience in that direction.

Owing to the lack of any description as to the sort and quality of the raw material used in the manufacture of said red face brick, it is difficult to give an intelligent answer. Nevertheless, I will try to give a little account of my experience in this particular line.

The most popular way to produce spots in red face brick is to add a few per cent. of manganese with the clay. These spots, however, will show black and are by no means identical with the so-called "iron spots." The latter are obtained from the natural contents of iron by exposing the surfaces of the brick, during the course of burning, to carbon mon-oxide. This process can be successfully applied to all those grades of clay whose fusing point lies in the neighborhood of 2000 degrees F, or above, while with a material burning at lower temperatures it is generally not possible to produce "iron spots." In such a case, manganese would be the easiest method to obtain the desired effect.

Flashing is done by exactly the same process and simultaneously with the producing of "iron spots," provided that the temperature is sufficiently intense. In order to burn flashed brick, a kiln—preferably of the down-draft type—may be filled by setting the brick in such a manner that the surfaces to be flashed are exposed to the fire gases throughout the kiln. After the ordinary course of water-smoking is completed, the heat may be raised in the usual way to nearly the fusing temperature. Thereupon, the draft is reduced to such an extent that the fire slightly kicks out of the fire box, while the feeding of fuel is not interrupted. This reducing state of fire may be kept up from thirty minutes to two hours, whatever best suits the conditions, and may be repeated two to four times, with intervals twice as long as reducing conditions are kept on.

The progress of the flashing process can be easily controlled by drawing trials from the kiln after each period of reducing conditions. Trials should be inserted at the time the kiln is set; to have them easily accessible, they are generally placed in the peek hole, and drawn through a hole provided for that purpose in the kiln door.

To determine the most practical method of flashing in every individual case can be done by actual tests only. Difference in the grades of fuel used, and variation in the construction of kilns, and finally the nature of the clay itself, make it impossible to establish a rule that would fit all conditions.

RICHARD B. HOEHNE.

## Effects of the War on the British Brick and Tile Industry.

Dear Mr. Randall:

I have been so busy with government and other work that I have been quite unable to answer your kind letter before tonight. I am pleased to be able to tell you that over 20,000 clayworkers have joined the army voluntarily—a good sign of the manner in which men in our line of work will respond to a call when once they realize the need. By far the greater proportion of these men enlisted within the first six months after the declaration of war. We have not received much news in the way of casualties among the British clayworkers, though as these men are in almost all branches of the army they must have had their share of wounds and even of deaths. By the way, it is always interesting to remember that it was the British clayworkers who were among the first organized parties to visit France and to lead up to that pleasant relationship between the two countries which is known as the *Entente cordiale*; a relationship which has undoubtedly been of the greatest benefit to both countries in this horrible war.

With so many men enlisted, the brick trade in the United Kingdom is naturally very slack, but most firms are making for stock as far as their finances will permit, as there is a great idea of a boom in building as soon as peace is made between the belligerents. Arrangements are also being made to supply bricks and tiles to those parts of France to which they can be sent more cheaply from England (by sea) than overland from the clayworking parts of France, many of the latter being part of the battle grounds.

The shortage of men may bring about a series of combinations of firms which would greatly benefit the owners in certain localities. That is to say, the most favorably situated yard in a locality supplies the brick and tile, whilst other yards are closed down or are used for stores by the government or for making munitions. A mutual agreement as to profits has been found to work satisfactorily in those cases where it has been tried, though these cases are only few in number. In the districts controlled by association or local combines this arrangement has been quite easily carried out.

In some localities the brick and tile trade has been fairly brisk, owing to the brick being required for parts of temporary structures and for the extension of works, but on the whole, it is distinctly slack.

One of the largest works has so complete a department for repairs that it has been converted into a munitions works and is turning out shells, etc., in large numbers. Other brickyards which have lathes are doing similar work on a smaller scale or have lent their lathes to other firms. In fact, clayworkers, like the rest of the nation, are doing their share towards winning the war, no matter at what sacrifice or cost. They are working hard in a variety of ways, too numerous to mention, and several managers whom I know well have refused good offers from the United States, purely out of patriotism.

This war has certainly shown the great reserves of manhood and virility in the British clayworkers, and how easily outsiders may misunderstand them until they become intimately acquainted with their mode of thought.

One rather curious fact is that the number of students taking clayworking lessons in my school has largely increased, notwithstanding the war. This unexpected result is due to two reasons: (1) The men find that they have plenty of time for reading, even though they have enlisted, and some of them are making use of this time to study their subject more thoroughly than ever, and (2) owing to the enlistment, a number of men in the colonies (who are unable to enlist) have been compelled to return home, as the works have closed down. These men, realizing the value of our manager's diploma, naturally take this opportunity for studying for it.

The British government is usually supposed to be rather slow, but since the war began, the various departments have been very busy in assisting different trades and manufactures, and the pottery and allied trades have come in for a share of this work. It was found that there were no works in this country engaged in making certain kinds of pottery used extensively for testing and analysis. The government at once set to work in several directions, and now the manufacture of this ware is on a firm footing. Similarly, the Board of Trade has done all it could to enable British potters to manufacture ware suitable for export to markets hitherto largely controlled by Germans. They have succeeded to a certain extent, but the conditions under which clay products are made in this country are so different from those in Germany before the war, that unless a very extensive series of changes occurs it seems doubtful whether the cheapest markets will be held for long by British potters.

As to the probable extent of the war, I think I express the feeling of the more intellectual among us when I say that we are too busy doing other things to spend time in speculating. The feeling is very prevalent that when Kitchener enlisted the men "for three years or the duration of the war," he did not expect to be finished much under the three years. We all hope that it will end much sooner than this, but are fully prepared to go on to the end, whenever that may be. The number of those who thought the war would be over in a year was never large, and those who anticipated a complete finish before next August are not more numerous. In this and in many other military and naval matters, we are largely content to rely on the discretion of our leaders and willingly give them all they ask for. Things have advanced sufficiently far, however, for a careful student to be quite clear as to the inevitable victory of our country and our allies. It is possible that this may come very quickly when the Dardanelles has been completely mastered.

Yours sincerely,
A. B. SEARLE.

Sheffield, Eng., Sept. 3, 1915.

## WHY YOU SHOULD BELONG.

Every man has the right to ask the question why he should belong to the Building Brick Bureau and what he should expect to get out of it. Some of the answers to the question of why are as follows:

Because life and expansion in the brick trade may be obtained by exploitation.

To get a full measure of returns for the money spent in exploitation it should be intelligently done, and the Bureau will furnish valuable information to all its members about how to exploit brick successfully.

A central organization is a sort of power station of enthusiasm as well as a bureau of information and is essential to harmony and success of effort.

Because the Bureau can furnish information to all its members at nominal cost that would require considerable time and money for each to compile for himself.

Because the Bureau has for its business the study of conditions in the brick trade and among the competitors of brick and the planning of ways and means to successfully exploit brick in competition with all the other building material.

Because it will help you get more profit out of your business, as well as put more enthusiasm into it.

Because it is the right thing to do and the first essential step to progress.

Because associated effort practically always succeeds over individual endeavor, and it is through co-operation that we secure the greatest results.

# OFFICIAL ANNOUNCEMENT.

### Thirtieth Annual Convention of the National Brick Manufacturers' Association and Allied Organizations, to Be Held at the Statler Hotel, Cleveland, Ohio, February 20 to 26, 1916.

### The National Paving Brick Manufacturers' Association Will Meet at the Statler Hotel, Beginning Monday, February 21.

### The American Ceramic Society Will Hold Its Eighteenth Annual Convention at Cleveland, Beginning Monday, February 21.

### Reduced Railroad Rates Have Beeen Granted by the Central Passenger Association.

IT IS GENERALLY CONCEDED that the two most prosperous cities in America today are Detroit and Cleveland. Remembering the splendid convention in the former city last winter, the members of the N. B. M. A. and allied associations will be glad to learn that it has been decided to accept the urgent invitation of the Cleveland members to hold the next national convention in that city, February 20 to 26, 1916.

### The First Complete Building Show.

At that time, there will be a great exposition of brick and other building materials in that city, the first American **Complete Building Show**. The chief purpose of the Building Show is to demonstrate to the prospective builders of the nation the importance of building incombustible structures. The exhibits of materials entering into the construction of such buildings will afford an object lesson that can but impress the beholders with the advantages of building permanent, safe and unburnable homes and commercial structures. Hence, such displays must inevitably prove of great material value to the manufacturers of clay products for structural purposes, for brick, tile and terra cotta are unquestionably the best and safest building materials.

For years past American churches and school houses have, as a rule, been built of brick. When such buildings are contemplated, permanency and low cost of maintenance are always considered as elements of first importance. The same should be equally true of our homes and business buildings, for when built of incombustible materials, they afford protection against fire and loss of life, as well as against loss of property.

### Matters of Great Importance to Brickmakers.

These facts should be brought home to the masses, and the Building Show will be an effective means to that end. Clay products for structural purposes being the most durable and in the long run the most economical building materials, brick, tile and terra cotta will naturally play an important part in the Building Show.

No other building material has been improved in both form and color to the same degree of perfection as have brick and tile in the past decade. A building show which will demonstrate this fact will surely be of advantage to the clay craft in general and members of the N. B. M. A. in particular, as the latter have in the past pioneered the way in the march of progress, hence a meeting at Cleveland at this time is desirable.

### Reduced Railroad Rates Granted by the Central Passenger Association.

Delegates to the convention, and those accompanying them, can secure round trip tickets on a basis of two cents per mile, this concession having been granted by the Central Passenger Association, which includes the territory west of Pittsburgh and Buffalo, east of the Mississippi River, and north of the Ohio, extending to Chicago and Detroit. It is anticipated that other traffic associations will concur in this concession so that round trip tickets can be purchased from all points east, south and west. The tickets may be purchased February 19, 20 and 22, and will be good returning March 1, 1916.

### Cleveland a Popular Convention City—Hotel Statler Again Headquarters.

The Ohio metropolis is very near the center of the great clayworking industries, and so is conveniently get-at-able to a large majority of our members. It may properly be termed the home of the great paving brick industry, and its vast manufacturing and commercial interests make it a most attractive place of meeting for business men.

Last, but not least, one of the essentials of a great convention is ample hotel accommodations, and these will be afforded by Hotel Statler, which will be headquarters during the convention and will provide unsurpassed conveniences and comforts for the delegates and those who will accompany them. An addition to the hotel is now being erected, which will make the Statler one of the largest as well as one of the finest hotels in the land. As our members know from past experience, the same reasonable rates will prevail during the convention as at other periods, for the Statler hotels do not raise their rates during conventions.

An appropriate program will be arranged covering the various important phases of the industry, which may be considered with pleasure and profit by the members. Clayworkers desiring any particular feature of the business included on the program are invited to communicate with the secretary in regard to same. Those desiring information as to requisite of membership, etc., are requested to write to the secretary at Indianapolis, Ind.

THE EXECUTIVE COMMITTEE,
C. P. Mayer, President.
Theo. A. Randall, Secretary.

### CONVENTION DATES.

The American Face Brick Association,
Hotel Chamberlin, Old Point Comfort, Va., Dec. 8, 9, and 10.
The Canadian National Clay Products Association,
King Edward Hotel, Toronto, Ont., Canada, Jan. 18, 19, 20.
The Iowa Clay Products Manufacturers Association,
Iowa State College, Ames, Iowa. Feb. 3 and 4.
The Illinois Clay Manufacturers' Association,
Hotel Jefferson, Peoria, Ill. Feb. 8, 9 and 10.
The National Builders' Supply Association,
Hotel Statler, Cleveland, Ohio. Feb. 17, 18 and 19.
The American Ceramic Society,
Cleveland, Ohio. Feb. 21, 22, and 23.
The National Paving Brick Manufacturers' Association,
Hotel Statler, Cleveland, Ohio. Feb. 21 and 22.
The National Brick Manufacturers' Association,
Hotel Statler, Cleveland, Ohio. Feb. 23, 24, and 25.
The National Clay Machinery Manufacturers' Association,
Hotel Statler, Cleveland, Ohio. Feb. 22.

# THE AMERICAN FACE BRICK ASSOCIATION TO MEET AT OLD POINT COMFORT, VA., DEC. 8-10.

THE FOURTH ANNUAL meeting of the American Face Brick Association will be held at Old Point Comfort, Va., December 8, 9 and 10, 1915, a letter ballot of the directors recently taken proving that famous resort to be the choice of a majority of that body. It is a happy choice, for Old Point Comfort is always an attractive, delightful place to visit, and it is particularly so just at this time, when the nation's navy and military forces are being considered by every American citizen. Fortress Monroe is one of Uncle Sam's best equipped military barracks, and Hampton Roads is the rendezvous of our great war vessels, which gather there at all seasons for refitting and inspection.

The pleasant side of military life may be seen and enjoyed here at its very best. Fortress Monroe is open to visitors at all times, and the guard mounts, and dress parades are a delight to civilians who find unending amusement in rambling about the ramparts, listening to the band concerts or watching the military evolutions, which are carried on under the eyes of trained officers, more than a hundred of whom are stationed there. There are a number of government institutions in the immediate vicinity of unusual interest. The neighboring cities of Newport News, Norfolk, Hampton and Portsmouth, which may be reached by boats at frequent intervals through the day, afford opportunities for pleasure parties of great interest.

For many years Old Point Comfort has been noted as a pleasure and health resort, and boasts one of the finest hotels on the Atlantic coast. Hotel Chamberlin is noted for its comfort, its gayety and its fine equipment and service. It has a number of unusual attractions, one of which is the wonderful sea pool, with its filtered sea water, in which belles and beaus, young and old, may disport themselves at any and all seasons of the year. Its palm gardens and sun parlors, its teas and its balls, all combine to make the Chamberlin one of the most delightful places of recreation imaginable.

Members of the A. F. B. A. and their friends will find convention week at Old Point an opportunity of combining business and pleasure such as is seldom enjoyed elsewhere. The Chamberlin is operated on the American plan exclusively. Those who are fond of sea foods will find delicacies here that are seldom enjoyed elsewhere. Then there are outdoor sports, fishing parties, boating and hunting trips, etc., that will appeal to those who enjoy such sports. There are fine vessels which ply daily between Old Point and Washington and Baltimore. An enjoyable sea trip may be experienced by taking the Old Dominion Line boat from Norfolk to New York.

With so many attractive features, certainly there ought to be a large attendance at the convention. An interesting program is in course of completion and those desiring same are requested to write R. D. T. Hollowell, secretary, Fulton Building, Pittsburgh, Pa.

The Hotel Chamberlin, Headquarters for the American Face Brick Association,

## ANNUAL CONVENTION OF CANADIAN CLAYWORKERS.

Arrangements have been made for holding the fourteenth annual convention of the Canadian National Clay Products Association at King Edward Hotel, Toronto, January 18, 19 and 20, and a large attendance is anticipated. Each year has seen an increasing number present at these annual meetings, and it is predicted that this next convention will be the largest and most interesting yet held.

The executive and entertainment committees have been hard at work, planning to make every visitor happy and at the same time afford an opportunity for the consideration of business questions of importance to the clay industries. A series of interesting papers will be presented, including the following:

"Clay Plant Equipment," by Prof. Roy T. Stull, ex-director of ceramics, University of Illinois, Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.

"The Future of the Face Brick Industry in Canada," by F. R. McCannell, assistant to president and managing director, Milton Pressed Brick Co., Milton, Ont.

"The Clay Deposits of Southern Saskatchewan," by N. B. Davis, Mines Branch, Ottawa. Valuable clays of that district, occurrence, uses and exploitation.

"Application of Salt and Quicklime in Drying," by Joseph Keele, Mines Branch, Ottawa.

"Operating Clay and Shale Pits in Canada," by William Burgess, superintendent Don Valley Brick Works, Todmorden.

"Safety in Clay Products Plants," by Chas. A. Miller, inspector clay products plants, under Ontario Workmen's Compensation Act.

"Holloware Dies—Troubles and How to Correct Them," by A. F. Greaves-Walker, manager Sun Brick Co., Toronto.

The chief entertainment features will be a theater party Tuesday evening and the annual banquet at Prince George Hotel Wednesday evening. Visitors from the States will be welcomed cordially as in the past. Those desiring further details can secure same by addressing Gordon C. Keith, secretary, 42 Colborne Street, Ontario, Canada.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION.*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, ETC., required by the act of August 24, 1912, of THE CLAY-WORKER, published monthly at Indianapolis, Ind., for October 1, 1915.

Name of Editor and Business Manager, Theodore A. Randall, Indianapolis, Ind.

Assistant Editor, James E. Randall, Indianapolis, Ind.

Publishers, T. A. Randall & Co., Inc., Indianapolis, Ind.

Owners are T. A. Randall & Co., Inc., Indianapolis, Ind.; Theodore A. Randall, James E. Randall and Denton F. Billingsley, each and all of whom are at 211 Hudson St., Indianapolis, Ind.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

(Signed) Theodore A. Randall, Editor.

Sworn to and subscribed before me this 25th day of September, 1915.

(Signed) Walter G. Holt, Notary Public.

[Seal] My commission expires March 28, 1918.

Vol. LXIV. NOVEMBER, 1915. No. 5.

## CURRENT COMMENT.

Have you marked up that Cleveland date on your calendar, February 20-26.

* * *

The N. B. M. A. is preparing to set up its 30th milestone at Cleveland. Let us make it a big one.

* * *

Are you in touch with your local schools and arranging for prize essays on why we should build with brick?

* * *

Perhaps one of the surest signs of busier times is in reports that the railway traffic is becoming congested and prompt delivery somewhat difficult.

* * *

Associated exploitation increased the quantity of paving brick used from 654,499,000 in 1903 to 958,680,000 in 1913, and raised the average price per thousand from $9.86 to $12.66.

* * *

Notwithstanding the comparatively dull season in the brick business the Canadian clayworkers are showing commendable enterprise and preparing to have a big convention in the King Edward Hotel, at Toronto, January 18-20, at which they will be glad to welcome all brickmakers from this side of the border who can attend.

* * *

When you want to "hang something onto" a man, make it a "Build With Brick" sign.

* * *

Brickmen should stand together like a good brick wall to hold in check the fire of claptrap competition.

* * *

No matter what other claims are put up by rival building material, nothing is better than the fact that brick is the best.

* * *

In planning out the things we want to do to help promote brick building let us not forget that we need to recruit and train a much larger army of bricklayers.

* * *

When closing down machinery for the winter a little extra thought and precaution at the time will save damage and lots of work when it comes starting time again.

* * *

During the nine months ending with September, the excess of gold imports over exports was $252,934,533. That is enough to make quite a golden flood of prosperity if properly distributed.

* * *

About the time we have real prosperity with us again there will be a car shortage howl going up and then we will wonder why the railroads didn't build more cars when they had nothing else to do.

* * *

Cost figuring is a mighty fine thing to help demonstrate where you are today, but the most important thing for the future is persistent brick boosting which will make bigger things for the trade in the future.

## THE CLOSE OF THE SEASON.

The fall building season nominally closes about the first of November in a large part of the country, especially where the bad weather of winter makes difficult outside work. There is, for example, in Chicago two semi-annual moving days; one the first of May and the other the first of November, and those building houses, flats and apartments strive to finish out and have buildings ready for occupying on these dates. Of course, there is considerable lapping over, but as a general proposition, one may figure that November practically closes the building season in those parts of the country where the winter weather is severe enough to hamper building operations.

## PROSPECT FOR BUSY TIMES.

This year the building season started off rather slow, but has been making something of a spectacular finish. The best part of the season was the past two months and at this writing there are more building operations under way than at any time during the year or that have been under way at this season of the year for several years past. This means that the official ending of the building season has brought with it about the liveliest scramble for building material that we have had for two or three years. Those who have kept their plants going and a good supply on hands so they have been prepared to meet the call have reaped a benefit from it, while others who have been afraid to venture and to keep stock ahead have probably missed some good business. Nor is that all, the official closing of the building season does not mean an entire cessation of the demand for brick. There is a lively demand for brick at the present writing and the indications are that there will be considerable more than the usual winter call for brick. In fact, it looks like busy times practically till the end of the year, and while here and there plants may be closing down earlier and making repairs and getting in shape to start up again in the spring and make their spring orders, others are still busy and some of those that closed early will perhaps wish they had not.

### NOW'S THE TIME TO PLAN PLANT IMPROVEMENTS.

This year the indications are that the enlivened trade at the wind up of the season will encourage the making of more improvements than would have been otherwise because it has not only increased the business for brickmakers, but has created confidence in the possibilities of the spring trade which will lend encouragement to making enlargements and improvements to be prepared for the greater output next season. This is the one encouraging feature of the situation for the machinery men at the present time, and they are entitled to some such encouragement, too. So long as business was slow and uncertain, brick manufacturers have hesitated about putting in new equipment and improving their plants. Now, however, as the season closes, there is a much better feeling and if the signs read right, it means that the clayworkers will buy machinery and do more plant improvement this winter than they have for several years.

### THE DAY OF OPPORTUNITIES.

Today is the great day for opportunities, for developing a much wider use of brick in building operations. The things that make this a day of great opportunities for such effort are:

First, that when we come down to a final analysis, brick is the best building material on earth.

Second, that in the matter of cost it is the most economical building material eventually, and by comparison its first cost is anything but burdensome as compared to lumber, the cheapest building material offered. The building of a home with brick costs from 5 to 15 per cent more, depending upon the relative cost in a community of lumber and brick and upon the quality of face brick used, the style of structure, etc.

Third, that this item of first cost is much more favorable to brick than the general public has been led to believe, consequently there is a need to educate the public in this matter, for when once they understand that brick is not burdensome in first cost, practically all show a preference for building brick homes.

Fourth, it helps prevent fire loss and makes for better and more permanent homes generally.

Fifth, because when brick is properly exploited it will be given the preference in practically all structural work, and this in turn will lead to a volume of consumption in building brick never dreamed of before.

### EXPLOITATION WILL BE A FEATURE.

Whether it appears under the specific heading of exploitation or advertising or not, there is no question but what exploitation will be an important feature of the N. B. M. A. annual at Cleveland, February 20 to 26. The brick trade is not only recognizing that selling the product is an important part of the business, but several things have happened the last few years and are happening now to bring this subject in the limelight conspicuously.

The fact that the coming convention is to be held at Cleveland is itself based upon a proposition of exploitation. The factor of most importance in influencing the executive committee to select Cleveland as the next meeting place was the proposition to give in Cleveland the greatest complete building show that ever happened. This is nothing more nor less than exploitation in modern guise, therefore we will see lots of advertising or exploitation while on a visit to Cleveland to this great building show.

Then there will be a report of progress with the Building Brick Bureau, which was brought into existence by a resolution at the last N. B. M. A. meeting for no other purpose than that of exploiting clay products and encouraging and instructing individual manufacturers and groups of manufacturers here and there in the same line of work.

It follows, therefore, that exploitation or advertising, whichever you care to name it, will be an important feature of the next annual gathering of the clans. It is meet, therefore, that those expecting to attend give this subject thought in the meantime, so that they may be prepared to take part in the discussion, that we may all get the most benefit from it.

Exploitation is being recognized today everywhere as one of the biggest factors in the business and industrial world. We are not only learning that advertising is one of the essentials to success, but we are also learning how to advertise, how to exploit products intelligently and efficiently so that we may get the maximum amount of returns for a minimum of expenditure in money and effort. Therefore, let us make it not only an important feature, but a real live issue of the next meeting to the end that all may be encouraged to do more of it next year and do it better that they may get greater returns.

### GOOD CAUSE FOR THANKSGIVING.

Since primarily the establishing of the annual Thanksgiving day in this country was to mark evidence of appreciation and thankfulness for the year's harvest of crops, it is always in order when the time rolls around for this annual occasion to consider the crops for the year.

This year we should be particularly thankful because we have some of the biggest crops on record, which carry with them high prices for the surplus to be disposed too, because of conditions in other countries making a heavy demand for our surplus grain and other food products.

The latest estimates at hand of government crop reports shows that of winter and spring wheat we harvested this year the enormous total of 1,002,000,000 bushels, making it the first time on record that the United States has reached the billion bushel mark in wheat production. The previous year's production fell a little more than a hundred million short of it and the average for five years is 686,000,000. Considering this average it is easy to understand better the magnitude of the present year's wheat harvest. It not only made a bountiful supply for the home needs but the surplus commanded a splendid price so that wheat growers the country over have prospered wonderfully.

Corn is king of our grain products, showing up this year with a total, according to the latest estimate, of 3,026,000,000 bushels as compared to 2,673,000,000 last year. Last year was pretty close to the five year average, so a comparison of this year's corn crop with last year gives a fair idea of how bountiful was the harvest this year.

The oats crop was 1,517,000,000 bushels, nearly half a million bushels above the last year crop and the five year average.

The potato crop, according to the last reports, is 368,000,000 bushels, which is a little above the five year average but somewhat below the production last year. This is one of the few crops which fell below last year's production, but even at that the potato crop is abundant.

The apple crop estimate is 71,632,000 barrels of three bushels, which overruns some of the earlier estimates but is about 12½ million bushels short of last year's crop.

The cotton crop, the great staple of the south country, comes up with a comparatively low total this year which in a way is fortunate because it has improved the price considerably and led to more prosperity in the south than would have resulted from another bumper crop such as was produced in 1913 and 1914. People in the cotton section grew more corn and wheat than ever, before but adverse weather conditions and insects cut down the cotton crop total bill estimates now range around 11 million bales as compared to over 16 million bales in 1913 and over 14 million bales last year. There has come with this shorter crop, however, perhaps a better order of prosperity for the south than would have obtained had it been more abundant. Anyway, the south country has recovered from the depression resulting from the war in Europe and is in splendid condition at this writing.

Sugar beets, beans and hay crops make a good showing, too, in fact, taking the country all over, it is doubtful if there has ever been a year when the harvest showed up with as great a production all around. The government in making out a map of corn conditions has only two spots showing below 90 per cent of the full crop. Those are in the states of Maine and Georgia. There are only three or four states showing the crop as low as 90 to 95, while the great central country extending from the Lakes to the Ohio river and from Texas to Canada, on the west side of the Mississippi river, show a general crop total running about 110 per cent.

Surely this is a year for great heartfelt thanks for crops, to say nothing of the many other blessings that have been provided, for this country today is the greatest country in the world in the double blessing of peace and prosperity.

## BUSY TIMES ON LONG ISLAND.

Under date of the 15th inst., Mr. Jotham Post, building brick manufacturer of Glenhead, Long Island, writes that business has taken on a decidedly better aspect. That he now has more orders on his books for brick than at any time previous during the last year and at better prices. Consequently they will continue operations later in the season than usual.

## AMERICAN IDEAL END-CUT PAVER.

On page 490 of this issue our readers will find an interesting illustration of a new roller die for the manufacture of end-cut pavers for which a number of advantages are claimed. The inventor of this device, Daniel E. Reagan, Columbus, Ohio, is one of the best known and most successful brick manufacturers in the land. He knows from practical experience whereof he speaks in regard to the making of brick, both pavers and builders, and he will be pleased to go further into the details of this new device with any of the readers of The Clay-Worker who are interested sufficiently to correspond with him on the subject.

## OPTIMISM PREVAILS IN NEW JERSEY.

The potteries at Trenton have not been as active during the summer as usual, but business is picking up now and orders are increasing. The war in Europe has not yet sent the volume of orders to Trenton that was expected, but manufacturers hope for that in the future. They are beginning to feel the impulse of the movement to some extent, yet it has hardly gained sufficient momentum to make any material difference. Sanitary ware has shown an increase, but few of the other varieties have yet arrived at the point where trade is improving. With the outlook favorable manufacturers look forward to next season with expectation of increased trade.

Architects are almost unanimous in saying that the outlook for building development the coming year exceeds anything for a number of years. William T. Fanning, one of Paterson's best known architects, says that his business is better than for years. F. J. Schwarz has a number of buildings on the tables. And others are only less favored. They all anticipate a rush next year.

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**"GETTING THE MOST FOR A DOLLAR,"** has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy Engineering Company.**

[See page 559.]

## ILLINOIS CLAYWORKERS TO MEET AT PEORIA, ILL., FEBRUARY 8, 9 AND 10.

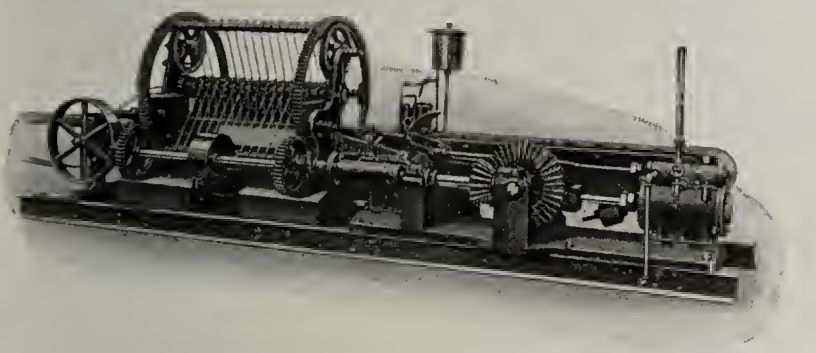
The thirty-eighth annual convention of the Illinois Clayworkers Association will be held at Peoria, Ill., February 8, 9 and 10, 1916. The program is in course of preparation by Secretary A. E. Huckins, Urbana, Ill., who requests those interested to communicate with him direct. He will be glad to have any suggestions in regard to papers or addresses of interest to the trade in general. Peoria is a very attractive city and it is anticipated that the social features of the convention will be exceptionally pleasing. Further announcement will be made as arrangements are perfected.

---

The lumber folks are helping advertise brick by promoting a brick-veneered novelty siding. This will help because when they interest the builder in the beauty of brick-veneer they can get the real brick for the purpose just as easy as this novelty in lumber.

Much the Largest Manufacturers of Much the Best Clayworking Machinery.

The AMERICAN CLAY MACHINERY COMPANY
BUCYRUS, OHIO
The Haigh Continuous Kiln
BUILT RIGHT RUN RIGHT



American Automatic Cutter.

American Auger Machine.

American Pug Mill.

American-Haigh Continuous Kiln.

# Increased Capacity
# Increased Profits

When you find it advisable to make changes in your plants, it will be well to remember to ask for information about—

## Our New Line of Automatic Cutters
## Our New Line of Auger Machines
## Our New Line of Pug Mills

These are all essential to profitable production and they have all been designed to increase capacity and decrease the cost of operation. That means increased profits.

There are no other machines that compete with these. Get complete descriptions and judge for yourself.

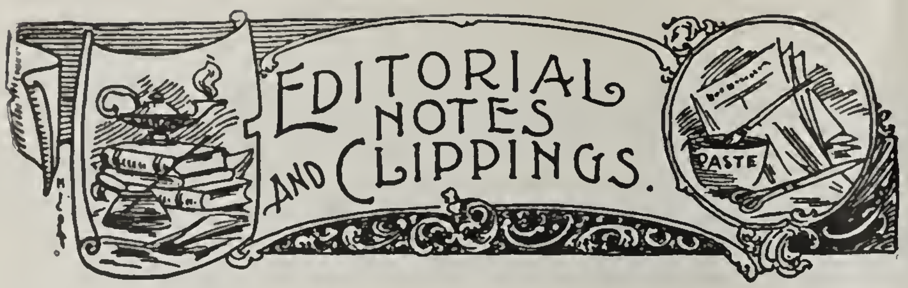
The Haigh Continuous Kiln will save about a half of your burning cost. Ask for catalog and particulars.

The American Steam Shovel will reduce your clay cost.

We supply large and small wants with equal care.

**The American Clay Machinery Co.**
**Bucyrus, Ohio**

We Build Every Machine and Appliance Needed in the Clay Trade.



# EDITORIAL NOTES AND CLIPPINGS.

The Standard Brick Company, Crawfordsville, Ind., has increased its capital stock from $100,000 to $175,000.

C. L. Robinson, of Winchester, Va., has purchased the plant of the Valley Brick Company, of Charlestown, W. Va.

The Pittsburg Brick Company, of Pittsburg, Pa., was recently incorporated by Joseph B. and Davis Shaw, George L. and J. D. Burgess, all of Pittsburg.

The Walsh Fire Clay Products Co,. St. Louis, Mo., have recently installed a new four-mold Boyd Brick Press at their Vandalia, Mo., plant for making fire brick.

The capital stock of the Belden Face Brick Co., at Port Washington, Ohio, which recently acquired the plant of the Enterprise Clay Company, has been increased from $150,000 to $200,000.

The American Pressed Brick Co., of St. Louis, Mo., report that business has been considerably better with them the last few months, and that while it is behind the regular volume of business, they anticipate a steady improvement.

Frank Pireaux, the oldest brick manufacturer in the northern part of Wisconsin, died recently at his home in Green Bay, at the age of eighty. He had lived at Green Bay for over half a century. He was engaged in making brick for nearly thirty years.

Hiram Swank's Sons, fire brick manufacturers, Johnstown, Pa., are increasing their plants at Johnstown and Irvona, Pa., about 25 per cent and within a short time will have a capacity of 35,000,000 brick per year. They are adding seven new kilns, making a total of twenty-seven.

The Fulcher Brick Co., Nashville, Tenn., reports the shipment of a large quantity of their brick to South Carolina. Though this is ordinarily the dull season with the brickmakers, the Fulcher Brick Co. reports excellent sales and very flattering indications for a steady improvement from now on.

A. T. Smiley, W. A. Payne and J. H. Houck, of Bristol, Tenn., will erect a brickmaking plant at Staunton, Va., with a daily capacity of 30,000 brick. Mr. Houck, who is an experienced brick manufacturer, will have charge of the construction of the plant. The company has been capitalized at $35,000.

Extensive improvements have been started at the plant of the Ogden Brick & Tile Co., at Ogden, Utah, which will include the erection of seven additional brick kilns. When the improvements have been completed, the company will make a specialty of dark red brick from shale which they will ship in from extensive beds at Henefer, Utah. The plant will have a capacity of about 100,000 brick per day.

The fire brick people at St. Louis are unusually busy, owing to the recent activity of the steel business. The Alsey Brick & Tile Co. is practically turning its whole output to fire brick. They recently had some new material tested out in the state laboratories at Urbana, Ill., with very satisfactory results. As the result of this test, they have secured a very large order for some tank blocks for a crematory.

The Paducah Clay Company, Paducah, Ky., has recently been organized with the following officers: H. R. Lindsey, president-manager; Luther F. Carson, vice president; Luke T. Burradell, secretary-treasurer. Mr. Lindsey states that they have one of the largest bodies of black plastic clay known, which they are now mining and shipping to tile manufacturers and potters. They are also developing some white clays at present.

The fire brick situation on the Pacific coast is getting stronger than ever on account of the difficulty in getting foreign products. Local competition with English fire brick is successful, as there are fire brick made in California which can stand the severest tests. Very fair prices are being maintained also. The Stockton Fire & Enamel Brick Co. is supplying 300,000 fire brick for the new oil refinery of the Shell Co., at Martinez, Cal. This refinery will be one of the very largest in the West. The Livermore Fire Brick Co. also supplied a quantity of brick for the new oil plant.

The Kier Fire Brick Co., of Pittsburgh, have installed a four-mold Boyd Press for making fire brick out of flint clays at their Salina, Pa., plant.

The Tupelo Brick and Tile Company is a new concern recently incorporated at Tupelo, Miss., with $25,000 capital stock. L. G. Brown and S. J. High are interested.

The Edgerton Brick and Tile Company, Edgerton, Ind., has been organized to manufacture drain tile. L. J. Hartzell, H. H. Tracht and Kirk J. Corkery are interested in the enterprise.

Frank Frommeyer, of the Superior Pressed Brick Co., of St. Louis, Mo., advises us that business has been very fair with them the past season. They have orders ahead that will insure their running full handed for some time to come.

J. H. Thress, manager of the Adamantine Clay Products Company, of North Mountain, W. Va., recently booked an order for a million brick to be used by the United States government at Baltimore, Md. Shipments on same have already been started.

The Hydraulic Pressed Brick Co., of St. Louis, reports business running along as usual. Frank Aschemeyer, the sales manager of the company, thinks the future looks better than it has for some time and is of the opinion that by spring the usual rush will come in for early deliveries.

The plant of the Castanea Brick and Tile plant at Lock Haven, Pa., which was closed down July 1 on account of being overstocked with brick, has resumed operations. One order alone was booked recently for 350,000 rough texture brick, of which the company makes a specialty. The indications are now that the plant will run continuously throughout the winter.

A new company, to be known as the Columbia Brick Company, has taken over the plant of the Nanticoke Brick Company, Nanticoke, Pa., and will have it ready to operate by the first of December. The officers of the company are: President, Thomas Turner; vice president, L. S. Oplinger; treasurer, A. D. Smith; secretary, George W. Turner; superintendent, T. E. Lewis.

The Alex A. Scott Brick Co., of Knoxville, Tenn., announce that they have leased their whole plant and business to the Scott Brick Co., of Philadelphia, Pa., under whose management the plant will be operated in the future. Brick will be manufactured under a new process which has recently been perfected and patented by Alexander A. Scott. In this process, the brick will be burned by producer gas.

William Wagner, an employe of the West Virginia Fire Clay Company, Toronto, Ohio, was fatally injured when his clothing caught in some of the belts and he was whirled around the shaft until released by some of his fellow employes. The right foot was cut off at the ankle, one arm broken and he suffered many other injuries. He died soon after being taken to the hospital.

Brickmakers generally seem to take to membership in the various Rotary Clubs throughout the country with about the same zest they have always taken to politics, and never miss an opportunity to boost the "Build with Brick" idea. J. M. Jenkins, of Montgomery, Ala., recently addressed the Rotary Club at Montgomery on brickmaking in general and the method of making brick by the Jenkins Company, in particular.

The plant of the Gill Clay Pot Factory, at Muncie, Ind., was almost completely destroyed by fire recently, entailing a loss of $100,000. This factory was established about eighteen or twenty years ago and is owned by Frank, William and Charles Gill and Charles Grafton. Mr. Grafton, who is general manager of the plant states that the factory will be rebuilt at once. The company carried an insurance of about $35,000.

Attorney General Turner, of Columbus, Ohio, has ruled that paving brick made by convict labor cannot be sold in the open market. This opinion, which went to State Highway Commissioner Clinton Owen, has been interpreted as prohibiting the use of such brick in improving public highways. T. F. Davey, member of the state board of administration, states that if this ruling is not modified, or a way found for the state to dispose of these brick, the board will have to close down its brick plant at Junction City and return the seventy-five convicts working there to the penitentiary. Dur-

(Continued on page 554.)

*Chillicothe Street*
*Portsmouth, Ohio*
*Pitch filled*
1895

*Main Street*
*Butler, Pa.*
*Paved*
1891

*Euclid Avenue*
*Cleveland, Ohio*
*Laid*
1883 or 1884

*East Rich Street*
*Columbus, Ohio*
*Pitch filler finished June 22,*
1892

*West 4th Street*
*Newport, Ky.*
*Paved*
1894

# Barrett's PAVING PITCH

## It lasts as long as the pavement

THESE brick and granite pavements are pretty old, but the original Barrett's Paving Pitch in the joints is still on duty and is still maintaining a perfect seal against the intrusion of water and frost.

It still clings to the blocks in every kind of weather, regardless of the expansion or contraction.

Chemically the pitch in these joints is just as good as it ever was, and if it could be taken out, it could be melted up and used over again in a new pavement.

In none of these old pavements is to be found a single crack, for every joint is an expansion joint.

The pavements are much quieter than if the joints were filled with cement and the footing for horses is better because a shallow groove is left at the top of each joint.

From the viewpoints of satisfaction and economy, no other filler is equal to Barrett's Paving Pitch.

We point to the illustrations herewith, and to many other streets all over the country with similar records of efficiency, to demonstrate the truthfulness of our claims.

*Booklets free on request.*

BARRETT MANUFACTURING CO.

New York Chicago Philadelphia Boston St. Louis
Cleveland Cincinnati Pittsburgh Detroit Birmingham
Kansas City Minneapolis Salt Lake City Seattle Peoria
THE PATERSON MFG. CO., Limited: Montreal Toronto
Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

TRADE B MARK

The Wise Little Man of FATE

# “When You Buy

## You Get More Than Just Pig Iron’

—“The Wise Little Man of Fate”

There is more to buying clay machinery than getting just so many pounds of iron—so many screws, bolts, cogs and wheels.

The raw material—while important in itself, is, after all, but a small portion of the product—the rest lies hidden from unseeing eyes.

The pigs of iron and the bars of steel—although changed in shape and texture, are still pigs and bars—plus that invisible something—the whole visualized in the form of a brick machine, a pug mill, or whatever you buy, but—

**What You Actually Buy is SERVICE.** The Service BACK of these visualized pigs and bars—the Service that SHAPES them into machines and devices of EFFICIENCY—that STAYS with them until they are in your clay plant—that CONTINUES with them as long as they are a useful part of your PRODUCTIVE ability.

**And the More SERVICE You Get the Better BARGAIN You’ve Struck.** You see, then—when you buy clay machinery, you are really buying only about ONE part of pig iron and steel bars and really about FIVE parts of SERVICE.

It behooves you, therefore, to look well into the SERVICE you are buying, does it not?

**When You Buy FATE Machinery You Get This Full=Measure Service:** The very best *Raw Materials*—the pigs of iron and the bars of steel.

The very best *service* that goes with these bars and pigs—the skill and the processes that convert them into the toughest and most lasting of textures.

The very best *service* that takes these crude materials and with designs, plans and patterns—all worked out by skillful hands—turns them into EFFICIENT machines and devices.

The very best *service* that guides and directs these machines into your plant and places them there in the position and in the working condition that gives you all the EFFICIENCY and all the SERVICE we intended they should give you.

The very best *service* that aids you in keeping these machines up to the maximum of their efficiency as long as you use them.

### Where and How FATE Full=Measure Service Applies to You

From the day you decide to “break ground” for a new plant, or install a new machine—FATE Full-Measure Service begins its work for you—and *all* that it gives—mind you—costs you NO more than the *little* any other machinery manufacturer *promises* you—for FATE Full-Measure Service is a PART of the machine or device you buy.

1—We test your clay—giving it a *practical* test, under *real* conditions—in a *full-sized* clay machine, by a *real* clay-worker. This test will tell you just *what* ware your clay will make at a *profit*. If it is an unprofitable clay *this* fact, also, will be disclosed, and you will be saved further outlay.

2—We tell you just *what* machines and equipment will best serve you—for some clays will not work to an advantage on just any machine.

3—We furnish you machinery for the purpose wanted and needed, and not to make a plant afflicted with too much machinery—ever remembering that profits largely depend upon running your plant with the minimum of expense in labor and effort.

4—We furnish you machinery that will do the work for which it is wanted—and also see that you understand how to get out of the machines what is wanted.

5—We will keep in touch with these machines and see that they accomplish ALL they are expected to do, and that they *continue* to keep up this efficiency.

# FATE Machinery

Harley H. Fate

George B. Drennan

Harry S. Fate

## This is Our Service Team

### The Men Behind the Service YOU GET

The measure of service you buy depends, of course, upon the men that are responsible for that service.

If these men are **capable** and do not shirk their responsibility by leaving what they themselves should do for someone else to do—then you get a Full-Measure.

The men behind the FATE Full-Measure Service are not only capable, but they are **workers.** Each member of the Fate organization is a plain, unvarnished workman—raised up in the business from the apprenticeship job in the shop, through the various progressive stages to his present executive position. Success has not glued him to the office chair and he is on the job six days in the week.

### General Management

Harley H. Fate—the president and general manager, has **personal** charge of the general management of the J. D. Fate Company and is in intimate contact with every phase of the entire manufacture of clayworking machinery—the general supervision of the purchase of raw material—its visualization into machinery—its sale and its operation after its sale.

To Mr. Fate falls the responsibility of seeing that the long established standards of excellence of "The House of Fate" shall be maintained—that its patrons get more than just pigs of iron and bars of steel.

### Factory Management

To Harry S. Fate, the vice-president, is intrusted the superintendency of every step of the manufacture—from the time the raw material comes in until it leaves the factory a finished product.

No subordinate shares this important part of the work—the SERVICE you buy, for Vice-President Fate personally supervises every progressive step.

### Engineering Service

Drilled in the School of Technicality and Theory and graduated in the School of Experience, George B. Drennan, the Secretary and Treasurer, is unusually equipped to have charge of the Advisory Department.

To him is intrusted the important duty of advising our patrons in laying out new plants or remodeling old ones, if they desire this.

And, of Mr. Drennan in this work, it has been said that he has had more **practical** experience and has assisted in laying out more **profit**-making plants operating today than is accredited to any other one man.

### Sales Service

To Ray Sykes falls the lot of the presentation of the Fate Products—the important duty of bringing you—the buyer—into direct contact with the FATE Machines and Devices—of which there is everything that the clayworker uses—and the FATE Full-Measure Service, which goes with the Fate Machines.

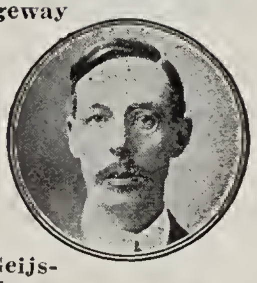
Associated with him in this work is a very able staff of sales experts—men with fertile brains and experience in the clayworking field—not merely salesmen, but advisors in every sense of the word. These men complete the chain that brings the Fate Full-Measure Service right to the doors of your office and plant.

H. J. Votaw devotes his energies to serving the patrons in the Central West and Northwest. G. A. Anderson is always busily engaged in looking after the interests of patrons in the Middle States. S. Geijsbeek serves the patrons in the Far West from our office at 604 Blake-McFall Bldg., Portland, Oregon, and J. A. Ridgeway those in the East from our office in the Woolworth Bldg., New York City. These men are at your service at all times.

Ray Sykes

H. J. Votaw

J. A. Ridgeway



S. Geijsbeek

G. A. Anderson

## Why Not Make a Test of This Service?

There is just one SURE way of knowing the Fate Full-Measure Service—just ONE way of comparing it with the service offered you by other clay machinery manufacturers—and that is to TEST it.

Since you do not place yourself under any obligations—as it costs you NOTHING to make the test—why not do it?

**Send the Coupon** There is an "Investigation Coupon" at the right—an easy way for you to make this test. Check off the items of Service you are most interested in just now and watch the results. And, remember, there is no cost attached to this service—it's FREE to you.

## The J. D. Fate Company

**Plymouth, Ohio**

INVESTIGATION COUPON

The J. D. Fate Co.,
Plymouth, O.

We are interested in the following items and wish you to show us how your Full-Measure Service will benefit us—this request not obligating us in any manner:

- ☐ Clay Testing.
- ☐ Full equipment.
- ☐ Auger Brick Machinery.
- ☐ Drain Tile Machinery.
- ☐ Hollow Ware Machinery.
- ☐ Industrial Locomotives.
- ☐ Disintegrators.
- ☐ Pug Mills.
- ☐ Clay Feeders.
- ☐ Crushers.
- ☐ Elevators.
- ☐ Conveyors.

Name........................................

Town........................................State..............

See our advertisements on pages 582 and 583.

DAVENPORT LOCOMOTIVE WORKS,
Davenport, Iowa.
Send for catalogue and prices.

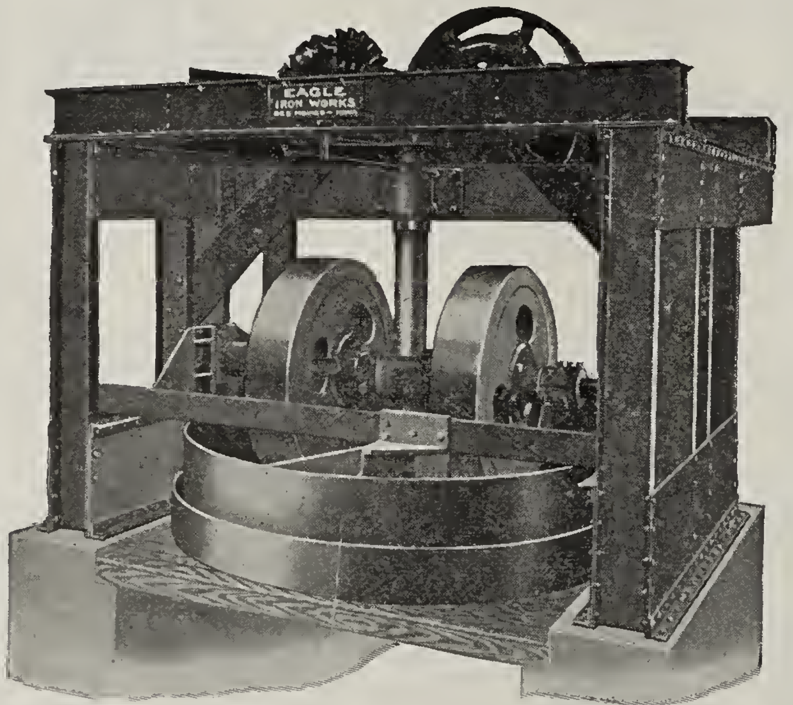
PYROMETERS

A Brown Pyrometer on your kilns will pay for itself in two months in the saving in fuel alone, not to mention better ware produced.

Send for 56 page Catalog No. 17

BROWN INSTRUMENT CO.
PHILADELPHIA, PA.
New York Pittsburgh Chicago

A New Candidate for Favor!
Right in Every Way!



The 8 Foot Steel Frame Dry Pan
Built by the
EAGLE IRON WORKS
Des Moines, = Iowa

## EDITORIAL NOTES AND CLIPPINGS—Continued.

ing the past two years these prisoners have made several million paving and building brick.

The Royalton Shale Brick Company, of Royalton, Pa., is planning to enlarge its plant and will install a lot of new machinery.

The Superior Brick Company, of Everett, Washington, has been incorporated by W. S. Russle, B. P. Castner and J. L. Lyon, with $25,000 stock.

The Standard Brick Company was recently incorporated at Newark, N. J., with $125,000 capital stock. The incorporators are A. J. Barrall, of Secaucus; G. C. Roth, East Orange, and H. S. Smith, Summit.

John Cartwright, a pioneer pottery manufacturer of Utah, died at the home of a daughter in Salt Lake City, October 24, in his seventy-ninth year. He had not been identified with the pottery business, however, for many years.

The Sunset Brick and Tile Co., at Gonzales, Tex., has been reorganized by O. B. and R. L. Robertson and W. T. Miller, and will be known as the Emmet Brick and Tile Co. The new company has been incorporated with $30,000 capital stock.

The Mutual Press Brick Co., of Shrewsbury, Mo. (St. Louis Co.), has just started up its plant and reports a very good business. A number of St. Louis contractors, of whom Edward Zimmerman is the leading spirit, are interested in this new plant.

The plant of the Pittsburg and Buffalo Company at Johnetta, Pa., has been purchased by the Jones Brothers, of Johnetta. The plant, which has been closed down for some time, will be overhauled and put in shape for operation in the very near future.

A. G. Brennick, of Marshalltown, Iowa, is interested in organizing a $60,000 company for the erection of a brick-making plant at Winterset, Iowa. Mr. Brennick is himself an experienced brick manufacturer and has had the clay at that place investigated with splendid results.

The Kendrick Brick & Tile Co. has recently been incorporated with main office at Cherryville, N. C. J. W. and N. B. Kendrick, of Cherryville, and J. B. Lattimore, of Lattimore, N. C., are interested. A plant will at once be erected for the manufacture of common brick and drain tile. The company will be glad to receive catalogs of brick and tile machinery.

The North Dakota Brick Company, of Dickenson, North Dakota, recently completed the installation of the new machinery for turning out hollow building tile. The demand for this fireproofing material is growing in that section and the North Dakota Brick Company will now be able to supply same.

Alexander Paterson, president of the Paterson Clay Products Company, of Clearfield, Pa., gave an informal banquet recently to representatives of the Clearfield Sewer Pipe Company, the Clearfield Clayworking Company, the Williamsgrove Brick Company, and the Paterson Clay Products Company, which was a most delightful affair. Mr. Paterson acted as toastmaster.

William Holmes, president of the Puritan Brick Co., Detroit, Mich., died at the home in that city, October 31. Although he had only been seriously ill for two weeks, Mr. Holmes had been in failing health for nearly a year. He was fifty-six years old and leaves a wife, three daughters and one son, Harold W. Holmes, who is president of the American Face Brick Association.

W. F. Houck, C. H. Houck and J. A. Warren, of Bristol, Tenn., have purchased the plant of the Bluefield Brick Company at Bluefield, W. Va. The capital stock of the company will be increased and the money raised used to make a number of improvements in the plant. When the improvements are completed, the plant, which is to be equipped with J. D. Fate & Co. machinery, will have a full capacity of 60,000 brick per day.

Business has been unusually good with the Indiana Brick Company at Anderson, Ind., the past season. Frank Makepeace is the manager of the company. Orders aggregating two million of what they call their red faced velvet brick were recently booked to be shipped to Ohio, Michigan and Missouri. Notwithstanding all this, however, Mr. Makepeace is not too busy for politics and has just announced he will enter the race for the Republican nomination for auditor of state.

# Announcement

THE INTERNATIONAL CLAY MACHINERY CO., OF DAYTON, OHIO, U. S. A., TAKE PLEASURE IN ANNOUNCING THAT THEY HAVE PURCHASED THE ENTIRE PROPERTY AND BUSINESS OF THE C. W. RAYMOND CO., AND WILL CONTINUE THE MANUFACTURE OF CLAY-WORKING MACHINERY AND SUPPLIES.

THEY HAVE PLACED INTO THE BUSINESS VERY AMPLE FACILITIES, BOTH IN A FINANCIAL WAY AND WITH AN ORGANIZATION FULLY CAPABLE OF RENDERING YOU SATISFACTORY SERVICE IN EVERY DEPARTMENT OF CLAYWORKING.

THE COMPLETE RAYMOND LINE WILL BE CONTINUED, WHICH INCLUDES THE NEW DESIGNS OF BRICK MACHINES, DRY PANS, CUTTING TABLES, PRODUCER GAS AND DIRECT COAL FIRED DRYERS AND PRODUCER GAS CONTINUOUS KILNS.

THEY EARNESTLY SOLICIT YOUR INQUIRIES AND WILL PROMPTLY FURNISH YOU WITH SPARE PARTS FOR RAYMOND MACHINERY AS HERETOFORE.

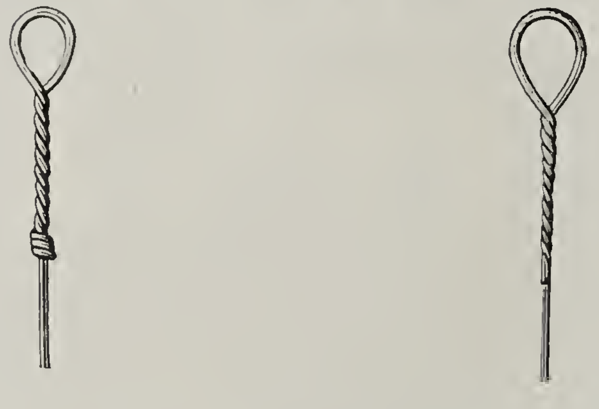
THE DRESSLER TUNNEL KILN
Shown at the Newcastle Meeting is Equipped With

THWING HIGH RESISTANCE & MULTIPLE RECORD PYROMETERS

Others in the immediate neighborhood are at the plants of Armstrong Cork Co., Mayer China Co., Fallston Fire Clay Co., Darlington Clay Products Co. and Sebring China Pottery Co. Our reputation thereabouts is good.
Let us serve you, too.

Thwing Instrument Company
439 N. Fifth St. Philadelphia, Pa.

We Can Save You Money, Time and Trouble on WIRES



Let us send you samples and prices.
Daily capacity, 20,000 finished wires.

The Mittler Wire Mfg. Co.
Robbins, Tenn.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

WHILE BUILDING operations in Milwaukee did not establish the high record in October that was attained in September, when the investment showed a gain of 145 per cent, there was plenty of activity and a satisfactory gain. During the month there were 361 permits issued for structures to cost $747,169, as compared with 281 permits and an investment of $668,413 during the corresponding period a year ago. Excellent weather is being experienced during the early part of November, and this is acting as an incentive to building work all over Wisconsin. There sems to be plenty of building going on in the smaller cities and towns and in the country districts about the state. A bumper grain crop was harvested and is now being disposed of at good prices, while the corn matured in much better shape than had been anticipated earlier. The result is that there is growing evidence of prosperity all over the Badger state. In Milwaukee, the industrial situation has shown wonderful improvement and people have felt more optimistic about going ahead with delayed building projects than has been the case for months. Milwaukee is first of all a center for the manufacture of heavy machinery and it is interesting to note that the manufacturing plants in this field are now operating about 90 per cent of their capacity, according to W. J. Fairbairn, secretary of the Metal Trades and Founders' Association. W. D. Harper, Milwaukee building inspector, is confident that the building record in this city will establish a new high record for the present year. He says that the investment thus far in Milwaukee county is above $16,000,000. Of this amount, between $9,000,000 and $10,000,000 has been expended in the city of Milwaukee.

Indications are that Wisconsin brick manufacturers will close the 1915 season with an unusually light stock of brick to carry over. General demand for brick has shown a steady increase this year, due in part to the increase in building activity and also to the "Build With Brick" campaign which has been carried on by the members of the Wisconsin Clay Manufacturers' Association. Members are thoroughly convinced that the results of the campaign have more than repaid the added expense of advertising and general publicity and that it will mean a greater demand for brick from now on. It is safe to say that there will be no abatement in the publicity work here in Wisconsin.

The Whitnall Coal & Supply Company has been launched in Milwaukee with Edward F. Whitnall, formerly head of the building supply department of the Pennsylvania Coal & Supply Company, as the leading factor. The new company has been incorporated with a capital stock of $50,000, by Edward F. Whitnall, C. H. Swan, Louis Boehne and J. F. Donges. Edward F. Whitnall, one of the best known brick men in Milwaukee, has been elected president. Other officers include: Sumner T. Whitnall, vice president; John T. Whitnall, secretary; Charles H. Swan, treasurer; directors, Harold E. Whitnall and J. B. Whitnall. All those connected with the new concern have had wide experience in the building material field.

The Pennsylvania Coal & Supply Company, of Milwaukee, has completed its reorganization, contemplated some time ago. F. S. Peabody, of Chicago, who has been head of the Pennsylvania since last April, has been elected president of the reorganized company. F. B. Harriman has been elected vice president to succeed W. E. Caldwell, while Frank W. Fellenz, also vice president of the company, is now in charge of all sales. John C. Post was re-elected secretary and treasurer.

The National Fire Proofing Company, of Pittsburgh, Pa., has been awarded the contract, at $7,000, for furnishing the tile for the big sewer which is being constructed on Atlantic street in Appleton, Wis.

The contract for handling the brick paving and furnishing the brick for work to be done on Superior avenue at Tomah, Wis., has been awarded to George R. Keachie, of Madison, Wis.

Zerrener Brothers, of New London, Wis., recently shipped more than 500,000 brick to Rhinelander, Wis., to be used in the erection of a large paper mill addition and in other structure.

William Meadows, secretary and treasurer of the Burlington Brick & Tile Company, was in Whitewater, Wis., recently to look over the new plant which is being erected by the Whitewater Brick & Tile Company. Mr. Meadows, who has been in charge of the Burlington plant for twenty-five years, expressed himself as well pleased with the modern plant which is going up in Whitewater. The Whitewater concern has awarded the contract for furnishing the iron work for the dryer to the Monfy Equipment Company, of Dayton, O., and the contract for erecting the 106-foot chimney to the Weber Company, of Chicago.

Frank Pireaux, said to be the oldest brick manufacturer of northern Wisconsin, died at his home in Green Bay, Wis., on October 23, at the age of eighty years. He had lived in Green Bay for over half a century and had been engaged in brick manufacturing for nearly thirty years. Mr. Pireaux was born in Belgium and settled in Green Bay about 1864. His brick yard and plant, located on East river, was the first in that section of Wisconsin.

A. BADGER.

Written for The Clay-Worker.

## NEW YORK AND VICINITY.

With war orders for all kinds of goods and munitions pouring in by the millions, New York is itself again. Speculation in Wall street has resumed its former activity and once again brickmakers can reasonably expect improved business. None of it has come as yet, but its prospects are great and all look forward to next year as likely to bring forth something worth while.

To enable it to raise the enormous sums required to pay its bills New York has forced up valuations beyond the actual worth of the properties assessed and this, of course, has had a tendency to reduce building operations. What with the cost of labor on an operation and the tremendous taxes the builder who undertakes anything of importance in New York these days is a man of courage and deserves commendation. Probably, this is the real reason for the present conditions in brick selling in New York. The difficulty will ultimately adjust itself, but that does not prove that the brick man of the present can profit very extensively by a change which may take place, but is by no means certain.

Operations in the yards up the river are about over for the season, but still the large barges come down the river laden with brick for distribution in the metropolis. Some are on contract, but others are going into storage to be ready to satisfy the early spring demand before the early burnings are ready for delivery. Some projects will begin early in the spring before new brick can possibly be provided; those in storage will help to make good whatever deficiency may exist previous to that time.

Prices rule steady with a tendency to advance. Up to $7.25 is paid for good brick, and some are adding another twenty-five cents. At the close of this season these figures are not prohibitive, but earlier they would be and the man who could see under such conditions would probabily be considered fortunate.

BURTON.

**BUILD WITH BRICK**

Lower Cost Only One Advantage

Every belt user wants belting that will do his work well, yet at the same time the cost must be as low as is consistent with the service secured.

The low cost of GANDY STITCHED COTTON DUCK BELTING would be no advantage if the belting itself did not offer many superior features: it is not affected by dust, moisture, oils. etc.

GANDY STITCHED COTTON DUCK BELTING.

For 36 years it has proved its ability to do the work as well or better than more expensive belts, yet the initial cost of GANDY is only about one-third that of leather belting, and much less than that of rubber belting.

Test it out. Ask us for samples. We welcome an opportunity to place our proposition before you.

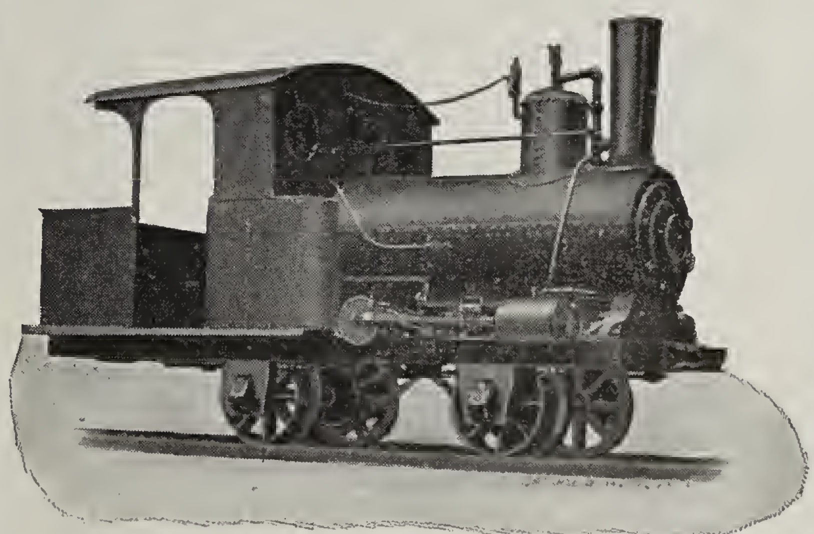
The Gandy Belting Company
749 W. Pratt Street
Baltimore, Md.

*New York Office, 36 Warren St.*

INDUSTRIAL LOCOMOTIVES

TWO SIZES

5 TON AND 12 TON.

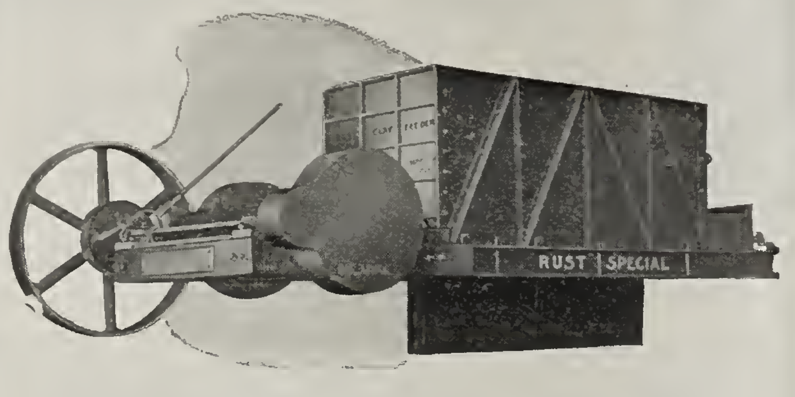


All metal construction, including cab.

Double chain driven. Steel roller chains and cut steel sprockets. Low in first cost and inexpensive to maintain and operate.

The last word in economical clay transportation.

DEWEY BROS., Inc., Goldsboro, N. C.

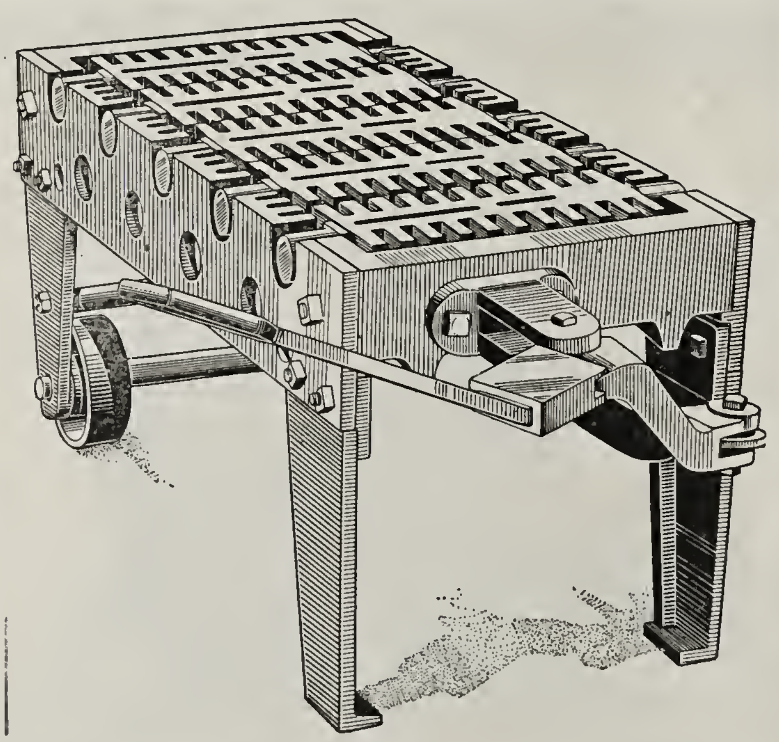


**The Rust Clay Feeder**

is a machine with a purpose. It is used not only for **efficiency**, but for decided **economy**—saving you upwards of $500.00 a year in your clay plant. While it saves you real money, it also permits a more uniform mixture of your material and therefore improves your product.

You may dispense with something else, but not with the Rust Clay Feeder—it is indispensable. Shall we send you more evidence?

**Marion Machine, Foundry & Supply Co.**
**Marion, Indiana**
P. O. Box 156.



**The Keystone Portable Kiln Grate**

will fill a want in many tile and brick plants. Made either with or without wheels.

**Marion Machine, Foundry & Supply Co.**
**Marion, Indiana**
P. O. Box 156.

Written for The Clay-Worker.

## AMONG PHILADELPHIA BRICKYARDS.

DURING THE past five to six weeks, business with common brick manufacturers in and about this city has undergone a steady improvement, and conditions now prevalent with this branch of the clayworking industry here are far healthier, all things considered, than has been the case for some little time past. The prevailing active demand for common brick has materially benefited prices and increased the profitableness of the present business. Local manufacturers quote from $6.50 to $7.00 a 1,000 on salmon brick, and from $8.00 to $8.25 on hard brick, as the predominating values in this section.

William Conway, prominent local manufacturer of building brick and head of the firm of that name, at Fifty-eighth and Walnut streets, West Philadelphia, has been the recipient of a brisk demand throughout the past several months. Mr. Conway is supplying a number of operations throughout the western half of the city with salmon and hard brick and has a number of contracts upon which shipments will be continued until about next February. The firm is very enthusiastic over the success which they have attained through their automobile delivery system in city and suburban shipments, and will continue to operate their plant during the entire winter.

Chambers Brothers Co., makers of brick manufacturing machinery, this city, have just completed an outfit of brick and automatic cutting machines, a disintegrator and conveyor for a brick firm in New Zealand. The equipment was shipped from this city on November 2. J. Howard Chambers, president of the company, reports a material improvement in business during the past two months and looks for good business to supplant the previously uncertain trade during the coming year.

John C. McAvoy, secretary of the McAvoy Vitrified Brick Co., this city, and an active member of the Rotary Club, annexed fresh laurels as a golfer in a recent tournament given under the auspices of that organization on the links of the Aronimink Country Club. Besides having tied with four other participants for the principal prize, Mr. McAvoy was awarded a silver loving cup as a special prize. Mr. McAvoy is now participating in the fall tournament of the Shriners, being held under the management of Lu Lu Temple on the course at the Lu Lu Temple Country Club, in which classic he has met with much success and at this time is looked upon as the probable winner.

Articles of incorporation were granted the Pittsburgh Brick Co., of Pittsburgh, Pa., at Dover, Del., on October 19, with a capital stock of $25,000, to manufacture and deal in brick and clay, etc. The principal incorporators are Joseph B. Shaw, George L. Burgess, W. J. Shaw and J. D. Burgess, of Pittsburgh.

The demand for hollow tile and other clay fireproofing products during the past month underwent a change for the better, according to E. E. Nickson, resident manager for the National Fire Proofing Co. The company was the successful bidder on the contract for this material to be used in the erection of the new Hotel Casey, at Scranton, Pa., and is about completing its contract on the new high school building at Coatesville.

P. A. B. Widener, widely-known financier and a director in the Jarden Brick Co., of this city, died at his home at Elkins Park, Pa., early Saturday morning, November 6. Mr. Widener for a number of years was one of the leading factors in the Reading Railroad Co., the United States Steel Corporation, the American Tobacco Co., the Philadelphia Traction Co., the International Mercantile Marine Co., the Jarden Brick Co., and numerous other large enterprises, in which he enjoyed a directorship. For many years Mr. Widener, who was eighty-one years old, had been gradually withdrawing from the directorate of a number of industries in which he had formerly been active, but continued in executive capacity with the Jardin Brick Co. up until the time of his death.

Capacity operations have been a feature of the present year's business with the Frankford Brick Works, Bridge, above Torresdale avenue, Frankford, this city. The company reports having experienced an increasing demand for its products from the building trades. A representative of the firm augmented his report by stating that the local brick business has not been so brisk for many years. A QUAKER.

## TRADE NOTES.

H. P. Turner & Sons, Athens, have under way plans for a plant at Mexia, Tex., for the manufacture of high-grade pottery.

The Wrenshall Brick Company, of Wrenshall, Minn., advise us that they may rebuild their plant, and in that event will be in the market for a new sand mold brick machine.

The capital stock of the Lima Brick and Tile Co., of Lima, Ohio, has been increased from $30,000 to $50,000. The plant will be enlarged and work on the same will be begun at once.

A new industry which has been developed during the last few months at Riverdale, Chicago, Ill., is that of the manufacture of clay birds and traps for throwing the targets, by the Black Products Company.

Will S. Shellak, of the Polinske-Shellak Brick Company, at Hastings, Neb., dropped dead in the office of the company November 11, while talking to his business associates. A widow and several children survive.

Samuel W. Moore, of Brazil, Indiana, traveling salesman for the Hydraulic Pressed Brick Company, has been transferred to Toledo, Ohio, where he takes charge of the sales department of the Hydraulic Company there.

The city of St. Cloud, Fla., awarded the engineering for their sanitary sewer system, city water works and electric light plant to Wilbur A. Ginn, consulting engineer, whose southern office is at Sanford, Fla. Mr. Ginn will be pleased to give further information to any material men who are interested.

The Ready Brick Company's plant at Richmond, Va., was badly damaged by fire November 1, which originated in a pile of brick molds. The brick yard had been closed for several weeks, and the fire had gained considerable headway before discovered by a passerby.

The Drury Brick & Tile Company, of Essex Junction, Vt., have finished making brick for the winter and are well satisfied with the business for the season. They found a ready market for their output which numbered something over 6,000,000, which is about the average product for the company.

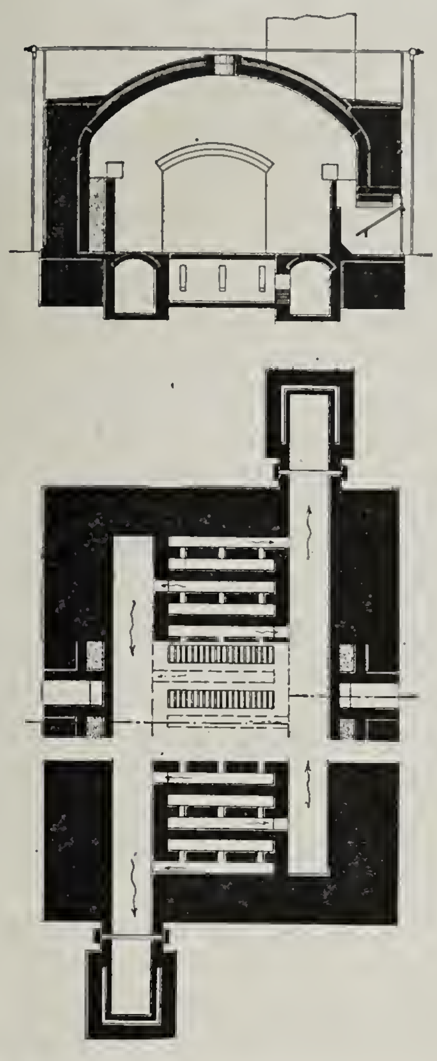
Times will be good in one part of Louisiana this winter, if our good friend, Fritz Salmen's good example is emulated by the manufacturers in that part of the country, for his company, the Salmen Brick & Lumber Company, announced November 2 that the wages of all the employes of that concern had been advanced twelve and one-half per cent.

The Laclede-Christy Clay Products Co., St. Louis, Mo., recently installed another four-mold Boyd Press, which makes four of these machines they are now operating. The new press is equipped with a special mold box and molds for making large size bricks, 4½x13½x3 inches, 9x9x3 inches, 7x9x3 inches, as well as regular 9-inch brick, including standard shapes, such as arch, wedge, key, soap and split brick.

## BROWN INSTRUMENT CO. ENLARGES QUARTERS.

Just about a year ago, the Brown Instrument Co., of Philadelphia, moved into their new factory; this has now proven too small for their growing business and they recently let a contract for an addition which will provide them with nearly 50 per cent additional floor space. The factory, which a year ago seemed ample for all their needs, has been outgrown, due to the steadily increasing demand for Brown pyrometers for the control of high temperatures.

AN EDUCATION IN KILNS---Continued.



A BALANCED DRAFT KILN.

The Richardson-Lovejoy Engineering Co.
Columbus, Ohio
Consulting Engineers for the Clay Industries.
Pamphlet "CERAMIC ENGINEERING" Free

HOLES
SOLD and GUARANTEED
It's The
Perfection Clay Screen

Sold strictly on merit and results and on an entirely new plan that purchaser only pays as results are actually obtained in saving over former method.

Stop that HOLE where gold dollars leak out in your plant, make greater capacity, better product

At Less Cost.
We guarantee it. Write us today.

DUNLAP MFG. CO.
BLOOMINGTON ILLINOIS

Written for The Clay-Worker.

## PACIFIC NORTHWEST CLAY NOTES.

AS TIME GOES ON, and improvement in general building is slow, the clayworkers of the Pacific Northwest are asking each other when will it get better, and no answers are received. As a matter of fact, taking all in consideration, we here in the Pacific Northwest have come to the point that we have to settle down to a strictly economic business basis, and that we will have to adjust our clayworking establishments on a smaller plan. Building permits show that building is still going on at a good gait, for Seattle was able to show a total of $471,615 for the month of September, and Portland for the same period, $299,820. Spokane did some $100,000 more than in the same month a year ago, and totaled $144,103, and Tacoma did hold its own with $40,613. In these permits, of course, building materials such as brick and hollow tile are still finding a large market, and it therefore is up to the clayworker to see that he gets his due share of this business. Now, it is a fact that when business gets dull, that every clayworker will take from 50 cents to $1.00 per 1,000 brick less, in order to make sales, but if business keeps on remaining slow, it is certainly foolish to keep the prices down, and therefore there is some movement among the Pacific Northwest clayworkers to get together with a view of adjusting matters so that prices can be advanced to a living proposition.

In the outside-lying districts business in the brick line has been good. The Bend Brick & Lumber Co., of South Bend, Ore., has made this summer over two million brick, and will make brick until the cold weather sets in, when they will be compelled to stop operation.

The Weston Brick Yard, of Weston, Ore., report through their manager, Mr. T. P. Harbour, that they have had one of the best seasons since they started to operate their yard, and that they have made nearly four million brick so far this season.

A new industry, which will help some in this section, is the discovery of magnesite near Atlin, British Columbia. Messrs. Armstrong & Morrison, who are also interested in the Clayburn Brick Co., of Clayburn, B. C., have acquired control of some of the deposits, and it is their intention to ship the crude material for the manufacture of magnesite brick and furnace lining to the Clayburn company and also establish a calcining industry to supply the home and export demand.

The Denny-Renton Clay & Coal Company, of Portland, secured a large order for sewer pipe in various sizes for the new sewer system at Forest Grove, Ore. The total length of the pipe to be furnished is about fourteen miles.

The Columbia Brick Works, of Portland, is furnishing all hollow tile for the ten large lumber dry kilns which are now being built for the Hixon-Shelvin Lumber Co., at Bend, Ore.

The new drainage law of the state of Oregon, passed last spring by the legislature, is already bearing fruit, and two drainage districts have been organized, one around Woodburn and one around Corvallis. As soon as the bonds are disposed of and the work started, it will require many miles of drain tile.

The Oregon Clayworkers' Association held a very successful meeting in Portland, November 4 and 5. Some twenty-five clayworkers from all parts of the state attended. The principal clayworking plants around Portland were visited. The association raised enough money to start their advertising campaign, and it was decided to hold the annual meeting in Corvallis, next February. SIWASH.

War orders have created some scarcity in structural steel for the time being and this is hampering building operations a little but not seriously yet.

**SAVE**

**FUEL,**
**TIME,**
**LABOR.**

**IMPROVE THE QUALITY OF YOUR WARE.**

**INCREASE THE CAPACITY OF YOUR KILNS**

By turning them more often.
All this can be done by the installation of the

**HOOK SYSTEM OF BURNING**

Old kilns can be converted to the Hook System at comparatively small expense and new kilns built at less cost, as a rule, than kilns of other types.

We can furnish plans for remodeling old or building new kilns, or where desired, send competent masons.

*Estimates on request.*

**HOOK PATENT KILN CO.**

**Main Office, Vigo, Ohio**

**Canadian Office, 250 Dufferin Street**
**Toronto, Ont.**

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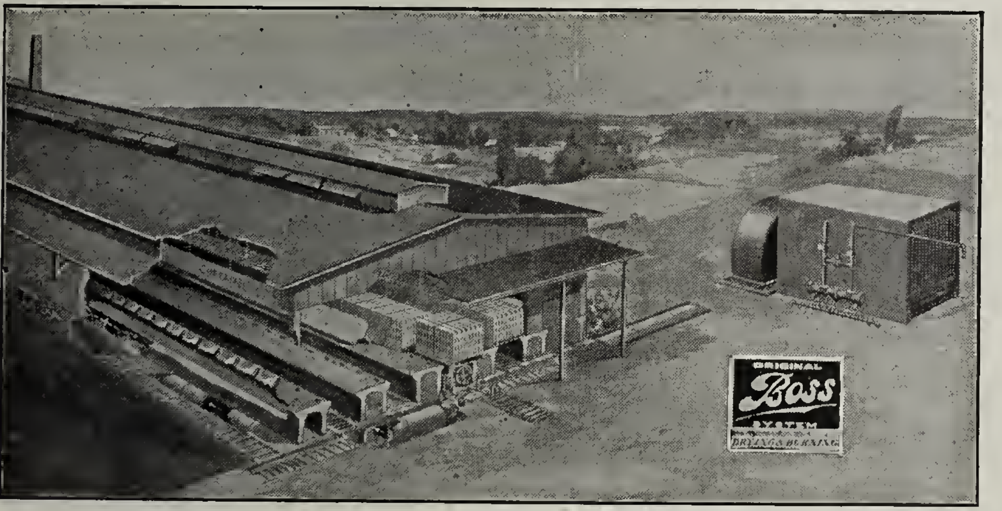

The Boss Ten-Hour Unit-Control Exhaust Steam Dryer.

**Mr. Brickmaker:**

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

**NO CLAY TOO TENDER.**

Ask us to show you how we do it.

**JOHN C. BOSS COMPANY**
**Elkhart, Indiana**

**WEBB WIRES WEAR WELL**

**WRAPPED**

**TWISTED**
**SOLDERED**

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

**The WEBB WIRE WORKS, New Brunswick, N. J.**

# The Man Who is Spending Money for New Buildings---Where is He?

That is what the fellows with the building materials to sell want to know.

Bradstreet reports say that the Middle States are leading in building operations. The new structures in these states for August more than doubled the expenditures in any other section of the United States.

Cleveland is the center and the metropolis of this busy section and—in spite of wars and its effect upon the sensitive banker—is now $3,000,000.00 ahead of last year in building operations.

Some field to cultivate, isn't it?

Here is an economical way to reach all the builders and prospective builders of the vast Cleveland District:

Demonstrate your materials in The Complete Building Show to be held in Cleveland February 16th to 26th, 1916.

More than $125,000.00 will be expended in educational exhibits filling a floor space of 65,000 square feet—on one floor. Sixty percent of this space already applied for.

If you are not already in you will have to hurry, but you can't afford to stay out.

Write for floor plan and particulars.

# THE COMPLETE BUILDING SHOW

## Leader-News Building, Cleveland, Ohio

# Classified Advertisements

**FOR SALE, WANTED, ETC.**

**Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.**

## FOR SALE

FOR SALE.

Complete sand lime brick plant, 20,000 capacity, including Corliss engine, Boyd 4-mold brick press, situated in Eastern New York. Everything modern and in good condition. Low price.

WICKES BROTHERS,
11 2 c Jersey City, N. J.

FOR SALE ON ROYALTY.

Large deposit of the famous Brookville, Pa., fire clay, suitable for manufacture of porcelain and fire brick. Railroad near by and factory site available on lease. Address Owner,

11 3 c K. B. LEWIS,
Bellwood Farms, Geneva, N. Y.

FOR SALE.

777 Raymond stiff mud machine, repress and semi-automatic cutter, good as new; price very low.

20x27 horizontal heavy duty Corliss Russell engine.

Two horizontal tubular boilers, 72x18.

6x8 horizontal high-speed automatic cut-off engine.

DOVER FIRE BRICK CO.,
11 2 d Cleveland, O.

FOR SALE CHEAP.

One 27-inch circular center feed, open delivery Johnson Filter Press, having twenty-four filtering chambers.

One thirty-inch circular with thirty-five filtering chambers.

One rotary sand dryer, thirty feet long, four feet in diameter, built by the Iroquois Iron Co. Address,

THE KAOLIN COMPANY,
456 Fourth Avenue,
9 3 cm New York.

FOR SALE.

1 75-ft. by 6-ft. hardening cylinder.

1 Four-mold Boyd combination brick and block press, capacity 20,000 per day.

1 Rotary brick press, capacity 10,000 per day.

2 Hydrating tanks.

Miscellaneous brick machinery.

Above machinery good as new. Will sell very cheap for cash.

Inspection and inquiries invited.

ARTESIAN STONE & LIME WORKS CO.,
11 1 d 2500 Grand Ave., Chicago.

FOR SALE.

Brick and tile plant. Excellent shale. Three kilns. Will sell for half original cost. Address,

SHALE BRICK & TILE CO.,
9 6 cm Winterset, Iowa.

FOR SALE.

About half million second-hand fire brick, of strictly high refractory quality, cleaned and whole. Opportunity for any one building kilns in Eastern States to save some money. Carload lots only.

Address D. A. LAKE,
11 1 c Care Clay-Worker.

FOR SALE.

A dry press brick plant, 120 acres of shale and fire clay land, underlaid with coal, also 18 acres in town site, together with numerous buildings, kilns and equipment. For further information address JOHN C. BRONAUGH,
2331 Grand Ave.,
11 2 cm Kansas City, Mo.

FOR SALE.

Type 0 5/8 cu. yd. Thew Shovel. Late Type—high shop number. First-class condition. Good bargain. Address Box 11—ERIE, care Clay-Worker.

FOR SALE.

Thew steam shovel, 0 type; Martin steam dryer, complete, 54,000 capacity; 8,000 steel pallets; 2 Erie boilers, 150 and 100-horse power; automatic Buckeye engine, 125-horse power; Horton soft mud machine, capacity 60,000; shafting, steel pulleys and belts; all in first-class condition.

WELLFORD & TAYLOR,
Trevelers Building,
11 1 cm Richmond, Va.

## WANTED, ETC.

WANTED.

Good second-hand Chambers sander for stiff mud machine, and also dryer cars. State condition and price.

BOX 11—CLAY,
11 1 d Care Clay-Worker.

WANTED.

One small crusher, suitable to crush broken tile and brickbats for ballast on railroad.

SHALE HILL BRICK & TILE CO.,
11 1 c Chillicothe, Mo.

WANTED.

Situation as superintendent or manager of clay plant manufacturing either dry pressed, stiff mud, paving brick or partition and drain tile. Have had 20 years of experience in designing, erecting and operating plants, using up-draft, down-draft and continuous kilns, also direct and waste heat dryers. No. 1 references. Address

Box 10, W. C. M.,
10 3 d Care Clay-Worker.

SITUATION WANTED

By a man who thoroughly understands the clay business from pit to office, including the selling end; also thoroughly understands the manufacture of high grade face brick, fire brick, common brick, sewer pipe and fire proofing also thoroughly understands the erection complete of all kinds of plants, including kilns, etc. Thoroughly understands the successful handling of all kinds of fuel and the successful handling of all kinds of dryer troubles and kiln troubles; a first class handler of labor to get results. Want to get with a concern where ability will be recognized. Address,

BOX 8—TEXAS,
8 tf d Care Clay-Worker.

## Wanted===Experienced Salesman

WANTED

At once experienced Face Brick Salesman for city sales and out of town lettings. Responsible position, exceptional opportunity. Salary according to ability. In first letter state age, present employment, experience, etc., and whether married or single. Address

ALBERT D. KLEIN, of J.
Manager Brick Department,
Sunderland Bros. Co., Omaha, Neb.

## Classified Advertisements—Continued.

WANTED.

Several pressed brick and rough face brick shaders. Steady work and good wages.

FREDONIA BRICK CO.,
10 2 d Fredonia, Kans.

WANTED.

Position as manager or superintendent of a paving or face brick plant. Preferably in the southwestern section of the country. Can furnish the best of references. Address

Box 10, S. E.,
10 tf d Care Clay-Worker.

POSITION WANTED.

By an old-timer, practically experienced clayworker, who could introduce several high-grade specialties or new methods of the trade. Would be glad to accept any position of skilled labor where his extensive and varied experience would lead to permanency and higher position on demonstration of qualifications. This is worth investigation, even by old established firms whose conditions are considered satisfactorily good. There may be still room to improve. Address

Box 10, C. P.,
10 1 d Care Clay-Worker.

FOR SALE.

A GREAT BARGAIN.

An Oliver Typewriter, most recent style, just as good as new, having been used as a demonstrator only. Carries factory guarantee. Will be sold for half price for cash. Address

BOX 6—OLIVER,
Care Clay-Worker.

**Do Business by Mail**

Start with accurate lists of names we furnish—build solidly. Choose from the following or any others desired.

| | |
|---|---|
| Apron Mfrs. | Wealthy Men |
| Cheese Box Mfrs. | Ice Mfrs. |
| Shoe Retailers | Doctors |
| Tin Can Mfrs. | Axle Grease Mfrs. |
| Druggists | Railroad Employees |
| Auto Owners | Contractors |

Our complete book of mailing statistics on 7000 classes of prospective customers for the asking.

**Ross-Gould, 814 Olive Street, St. Louis.**

**Ross-Gould**
**Mailing**
**Lists St. Louis**

Consulting
Prospecting
Testing
Designing
Constructing
Operating

Producer Gas-Fired
Continuous Kilns
and Dryers
Cost and Efficiency
Systems. Old
Plants Rehabilitated

**JAMES P. WILLIAMS**

CLAYWORKING ENGINEER

**2803 N. Kings Highway**
**ST. LOUIS, U. S. A.**

# THE HOLLOW-TILE HOUSE

**By Frederick Squires, Architect.**

A book wherein the reader is introduced to hollow-tile in the making, is told how it is wrought into houses, and it is shown how these houses look and from what foreign ancestry their appearauce is a heritage.

The book says the last word on the construction of the fireproof home, the most modern development of wall construction in "Texture-Tile," and the most recently devised systems of fireproof floor construction and architectural concrete work.

*210 pages; 215 illustrations and figures.*

**Cloth 7½ x 10 inches. Price $2.50 net.**

**T. A. Randall & Co. (Inc.) Indianapolis, Ind.**

## Classified Advertisements.

# MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.**
**LYNCHBURG, VA.**
MINERS AND GRINDERS.

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## Pamphlets Suitable for Distribution by Paving Brick Manufacturers

VITRIFIED BRICK THE BEST MATERIAL FOR SURFACING PUBLIC HIGHWAYS, by Herbert S. Casson.

BRICK PAVEMENTS AS AN INVESTMENT, by W. T. Blackburn.

IDEAL ROADWAYS, by T. A. Randall.

TRUTH IN NEW JERSEY CEMENT ROAD WORK.

STANDARD RATTLER TESTS FOR PAVING BRICK.

FACTS ABOUT ASPHALT PAVEMENTS.

Specimen copy of any one of these pamphlets sent on request. Price in lots of 100, $2.00. Will quote you prices on larger quantities.

**T. A. RANDALL & CO., Inc.**
**Indianapolis, Ind.**

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Special Arrangement for "MONTHLY" Readers.

## No Reason to Worry

About that Accident or Illness
Which Might Happen---If You Hold One of These POLICIES.

| FORM "S-76" | FORM "S-75" | FORM "S-74" |
|---|---|---|
| Special | Special | Special |
| **Accident & Sickness** | **Accident & Sickness** | **Accident & Sickness** |
| $4.00 Yearly | $6.00 Yearly | $10.00 Yearly |
| No Dues. No Assessments. | No Dues. No Assessments. | No Dues. No Assessments. |
| Loss of life.....$1,500.00 | Loss of life.....$2,500.00 | Loss of life.....$5,000.00 |
| Loss of both eyes, hands or feet.. 1,500.00 | Loss of both eyes, hands or feet.. 1,250.00 | Loss of both eyes, hands or feet.. 2,500.00 |
| Loss of one hand or one foot.... 375.00 | Loss of one hand or one foot.... 750.00 | Loss of one hand or one foot.... 1,250.00 |
| Loss of one eye.. 150.00 | Loss of one eye.. 250.00 | Loss of one eye.. 500.00 |
| $10.00 Weekly Accident Benefit. | $15.00 Weekly Accident Benefit. | $25.00 Weekly Accident Benefit. |
| $10.00 Weekly Sick Benefit. | $15.00 Weekly Sick Benefit. | $25.00 Weekly Sick Benefit. |
| $25.00 Emergency Relief. | $50.00 Emergency Relief. | $100.00 Emergency Relief. |

Send for application blank at once to

**INSURANCE DEPARTMENT MANTEL, TILE & GRATE MONTHLY**
**UTICA. N. Y.**

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Mention THE CLAY-WORKER
When writing to Advertisers,
Mention THE CLAY-WORKER

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FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Clay Glazes and Enamels," $5.00; tells how to glaze and enamel brick and gives valuable recipes. "The Effect of Heat Upon Clays," by Prof. A. V. Bleininger, price $2.00; a book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent. "Analyses of Clays," $2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," $2.00; a manual for all engaged in the manufacture of articles from clays. "Clays"; their occurrences, properties and uses, with special reference to those of the United States, $5.00. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,
Indianapolis, Ind.

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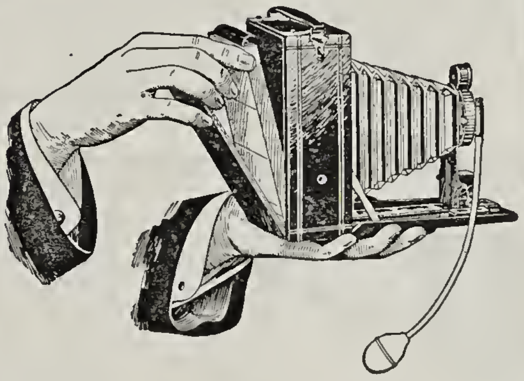
Open back—drop in pack—close back—that's all you do to load a



# Film Premo

The smallest, the lightest, the easiest to load and operate of all cameras—and the nearest dealer will prove it to you. Daylight loading, tank development and an excellent optical equipment are among its other features.

Our catalogue describes many styles and sizes of Premos at prices from $1.50 to $150.00. It explains the wonderful Premo Film Pack system of daylight loading films, and the Premo Film Pack Developing Tank. Free at the dealer's, or prepaid to you on request. Get it to-day.

IMPORTANT—In writing, please be sure to specify PREMO Catalogue.

**Rochester Optical Division**
Eastman Kodak Co., Rochester, N. Y.

E. SCHMATOLLA
Consulting, Designing & Constructing
**Engineer and Patent Attorney**
To the Manufacturers of
Brick, Lime, Magnesia, Silica & Ceramic Wares.
150 Nassau St., New York, U. S. A.

**The Yates Patent Down-Draft Kiln Also Continuous Down-Draft.**

If you want to pay dividends, build modern kilns, as good burning is the keynote to success. Eighteen of my kilns are in operation at the Shawmut Virtified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Other references given if desired.

This kiln is operated by natural draft without a damper, and for color, uniformity and economy of fuel it is unexcelled.

ALFRED YATES,
SHAWMUT, PA.

**If...**

**You Want to Sell or Buy...**

**Second-hand Claywork-ing Machinery, Tile Mills, or anything pertaining thereto.**

**If... You Want a Man**

**for any position or a position in any connection with the Clayworking Trades use the**

**For Sale and Want Columns of... The... Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

**Machine-Molded Gears**

One to 6-inch pitch and larger. Our machine-molded gears last longer than others, give higher efficiency under actual scientific tests, and in many cases cost no more than inferior gears. Send for Catalog No. 38.

**H. W. Caldwell & Son Co.**
17th St. and Western Ave.
CHICAGO

NEW YORK CITY
Fulton Bldg., Hudson Terminal
No. 50 Church Street.

TABLETS OF RECORD in Metal, Marble and Stone for Exterior and Interior of Public Buildings, Office Buildings, Banks, Churches, etc. Designed and Executed to Client's Instructions and Limit of Expense designated. Correspondence Invited.

*Illustrated data and photographs sent on request.*

J & R LAMB

Studios, 23, 25, 27 Sixth Ave.,
New York.

**The Parker-Russell Mining & Mfg. Co.**

OAK HILL GAS RETORT AND FIRE BRICK WORKS

SAINT LOUIS, MISSOURI
Laclede Gas Building

Fire Clay and Silica Products of Quality for Service—Especially for Kiln Construction.

**Books of Interest to the Clayworker**

REFRACTORIES & FURNACES, by F. T. Harvard, E. M. Price $4.
Gives much valuable information relative to the properties, preparation and application of materials used in the construction and operation of furnaces.

CERAMIC GLAZES, price $10.00.
The book is remarkable for its systematic thoroughness, no more finely arranged charts of glazes in the way of careful gradations, coupled with extensive variations, could well be imagined.

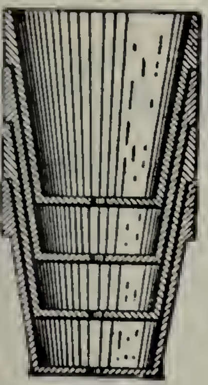
Sold by
T. A. RANDALL & CO. (Inc.). Indianapolis.

**Chicago Retort & Fire Brick Co.**

**"AJAX" Fire Brick for Building Kilns**

'Phone
Wabash 6131

GENERAL OFFICE;
208 South La Salle St.
CHICAGO, ILL.



**Make Money**

WITH THE ONLY SUCCESSFUL

**Flower Pot Machine**

(PATENTED.)

No expert workmen required.
Capacity in 10 hours:
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "
Write for Circular and prices.

**The Rockwood Mfg. Co.,**
1801 English Ave. INDIANAPOLIS, IND.

**New Books Which Are Being Offered To the Trade:**

HOLLOW TILE HOUSE, by Fred'k Squires, Price, $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

CEMENT, CONCRETE & BRICK, by A. B. Searle, Price, $3.00.

A book dealing with the raw materials, methods of manufacture, testing, chemical and other changes in drying and burning, etc., of the above-mentioned building materials.

SOLD BY

T. A. RANDALL & CO. (Inc.) Indianapolis, Ind.

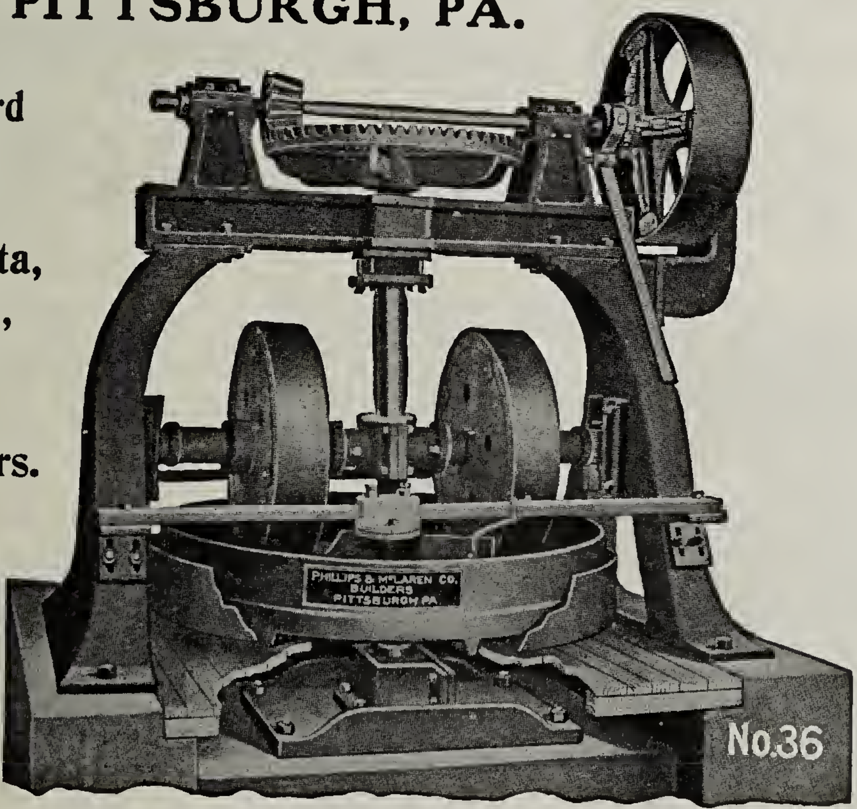
**PHILLIPS & McLAREN CO.**

**PITTSBURGH, PA.**

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
**Stephen Girard Bldg.**
Philadelphia, Pa.


PHILLIPS & McLAREN CO. BUILDERS PITTSBURGH PA.
No.36

**$2.00** THE CLAY-WORKER ONE YEAR (IN ADVANCE) **$2.00**

**Anchor Brand Colors**

For Mortar Cement and Brick.

**BROWN, BLACK, RED AND BUFF.**

Strongest and Most Durable.

Manufactured by

**C. K. WILLIAMS & CO.**
EASTON, PA., U. S. A.
Correspondence solicited.

**Chattanooga Paint Co.,**
Chattanooga, Tenn.
Manufacturers of

**Red Oxides for Brickmakers' Use.**

**ECLIPSE MORTAR COLORS,**
**Red, Brown, Buff, Black.**

YOU HAVE KNOWN FOR YEARS THAT

**RICKETSON'S MORTAR COLORS**

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

**Why Not Insist on Having Them?**

They are the acknowledged best for all uses—Mortar, Brick, Cement, Concrete and Stone.

**Red, Brown, Buff, Purple and Black.**

**RICKETSON MINERAL PAINT WORKS**
MILWAUKEE, WIS.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Clay Glazes and Enamels," $5.00; tells how to glaze and enamel brick and gives valuable recipes. "The Effect of Heat Upon Clays," by Prof. A. V. Bleininger, price $2.00; a book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent. "Analyses of Clays," $2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," $2.00; a manual for all engaged in the manufacture of articles from clays. "Clays"; their occurrences, properties and uses, with special reference to those of the United States, $5.00. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,
Indianapolis, Ind.

The
ROESSLER-HASSLACHER
CHEMICAL COMPANY
100 William Street
NEW YORK

As a Preventative of Scums Use

CARBONATE OF BARYTES

R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

The Latest Fountain Pen. Guaranteed by Makers. No Filler. No Lost Time. No Soiled Fingers. Perfect. Simple.

REMARKABLE OFFER.

The Old Way

We will send this famous gold-pointed pen, post paid, and THE CLAY-WORKER, for one year, to any address in the United States and Canada for $3.00

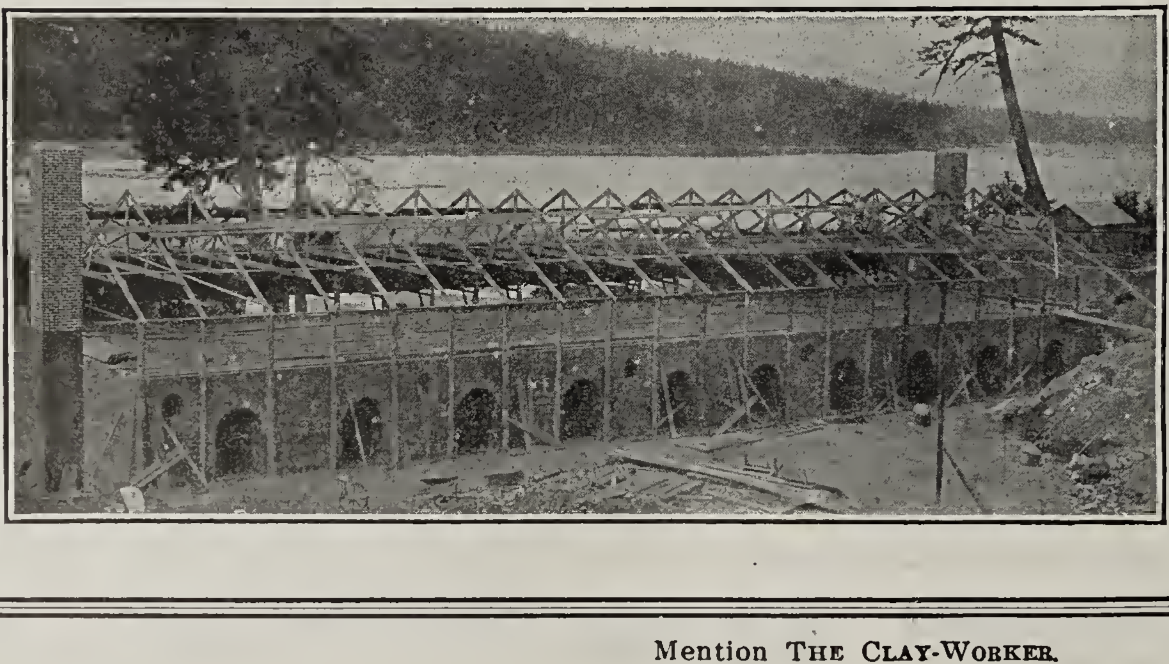
"POST" SELF FILLING CLEANING FOUNTAIN PEN.

Gen, Lew Wallace, the author of "Ben Hur," wrote: "I have tried every kind in the market, and unhesitatingly give the preference to the "Post."

ADDRESS THE CLAY-WORKER, INDIANAPOLIS, IND.

The New Way

THE OREGON KILN



A semi-continuous kiln for large and small yards. Cheap to construct, easy to operate. You have perfect control of the draft and fire at all times. For information write to

A. KLOSE
277 Hawthorne Ave.
PORTLAND, ORE.

## DO YOU KNOW

that in the BURNING OF BRICK a DRAFT GAGE is of greater advantage than a PYROMETER? We furnish both.

## DO YOU KNOW

that for many years we have made the BEST DRAFT GAGES for all styles of kilns?

Write us for information of all kinds of controlling apparatus for clayworkers.

**Ceramic Supply & Construction Co., Columbus, Ohio**

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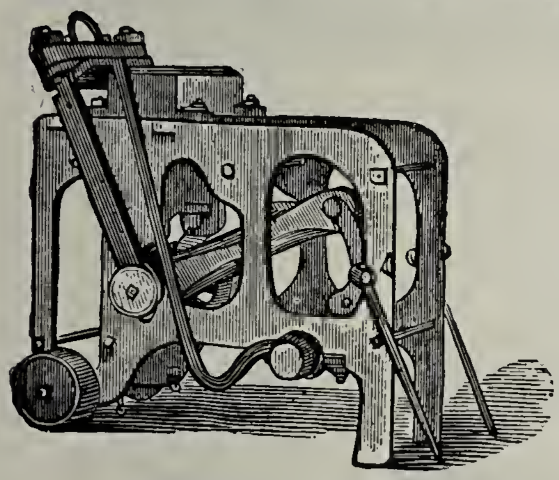
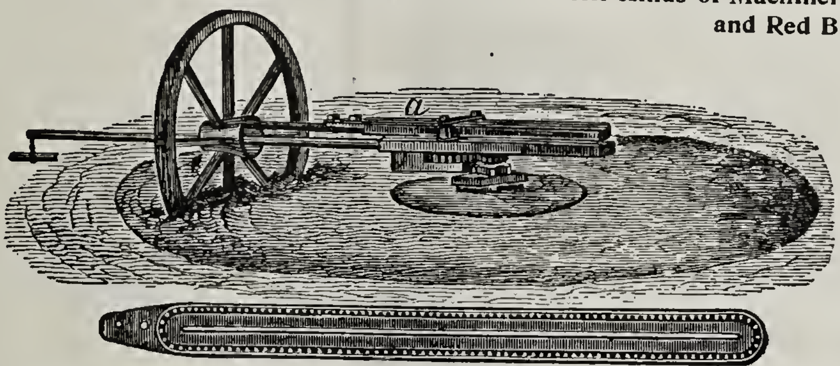


RED BRICK PRESS.

## Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

☞ Send for Circular and Price List.

**GEORGE CARNELL**, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

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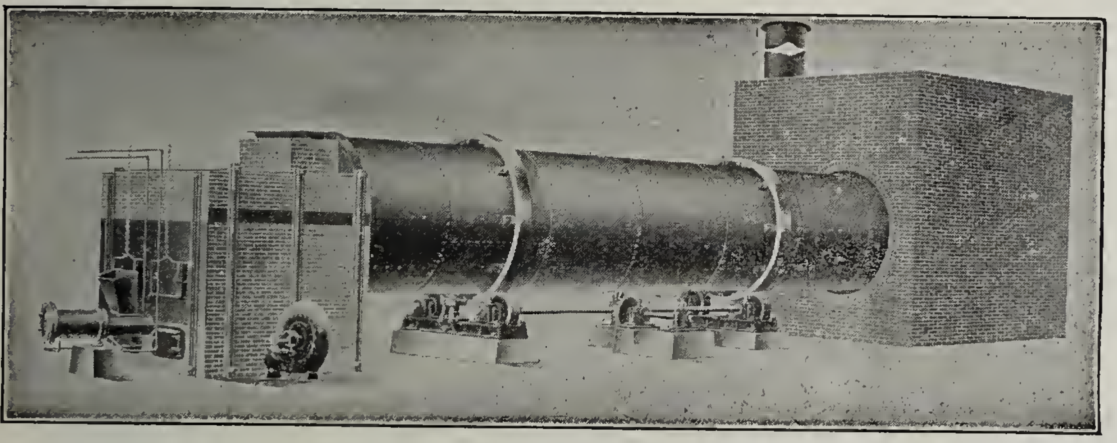

ROTARY CLAY DRYER

## DRY YOUR CLAY

AT LOW COST

YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON.

*It Assures Uniform Product.*

YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

**American Process Co.**
68 William Street
NEW YORK

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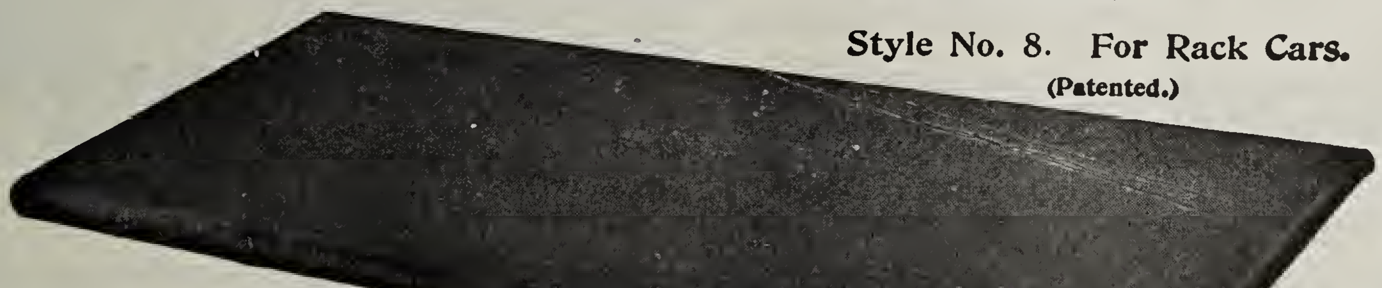
## "OHIO" ROLLED EDGE STEEL BRICK PALLET.

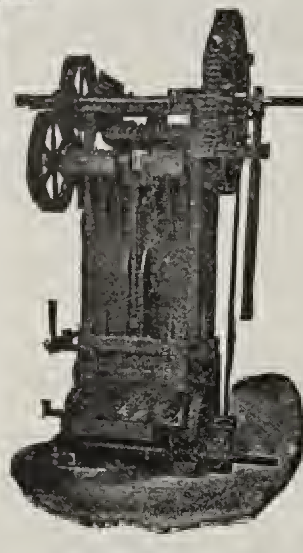
Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
⅝-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

**THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.**

## MODERN CLAY-WORKING ENGINEERS



And Builders of Complete

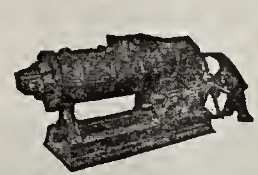
**BRICK MAKING PLANTS**

For Either Soft or Stiff-Mud Processes.

Steam Power 50 Thousand
Animal Power 20 Thousand

We Build the Most Complete Line of Yard Supplies and

**CRUSHERS**



**THE HENRY MARTIN BRICK MACHINE MFG. CO.**
**LANCASTER, PA., U. S. A.**
**Get Our Big Catalog.**

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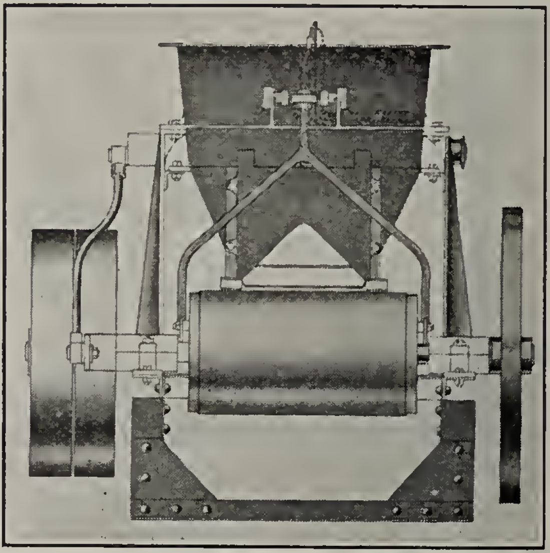
## The Schaffer Poidometer

PATENTED



The Poidometers automatically temper the clay. They unite any number of materials in correct proportions. They weigh the materials, measure the water and deliver them in a predetermined quantity per minute in an even, constant flow.

They cause a uniform column of clay to flow from the brick machine at a regular speed.

INVESTIGATE AND
INVEST IN THESE MACHINES.
IT WILL PAY YOU.

**The Schaffer Engineering & Equipment Co.**
**Tiffin, Ohio**

---

**The Above Illustration Shows a 22-Tunnel**

## JUSTICE CLAY PRODUCTS DRYER

**Patented**

**Installed for the National Fireproofing Co., Haydenville, Ohio**

They are not only getting **dry ware now,** but are doing it at a cost that is surprisingly low. Isn't this an object lesson for you?

**The Manufacturers Equipment Co., Dayton, Ohio, U. S. A.**

HOTELS STATLER

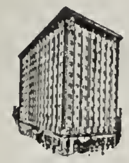
BUFFALO—CLEVELAND
DETROIT

An *Interested* Service

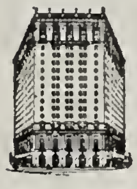
WHEN we say Hotels Statler offer a "complete service" we mean that every guest gets what he *wants* in a Hotel Statler. He is served by well-trained, unobtrusive employees who are in the background till the moment they're wanted, and are there right at hand *and interested.* He gets this service whether he spends $1.50 or $20 a day.

Every—*every*—Hotel Statler room has private bath; outside light and air; circulating ice water; writing desk with plenty of stationery, etc.; local and long distance telephones; pin-cushion, with needles, thread, buttons, etc.; candle for a low night-light, and numerous other unusual conveniences. Morning papers delivered free to every guest room.

Hotels Statler lobbies and public rooms are cheerful, luxurious, and comfortable.



BUFFALO
450 Rooms
450 Baths



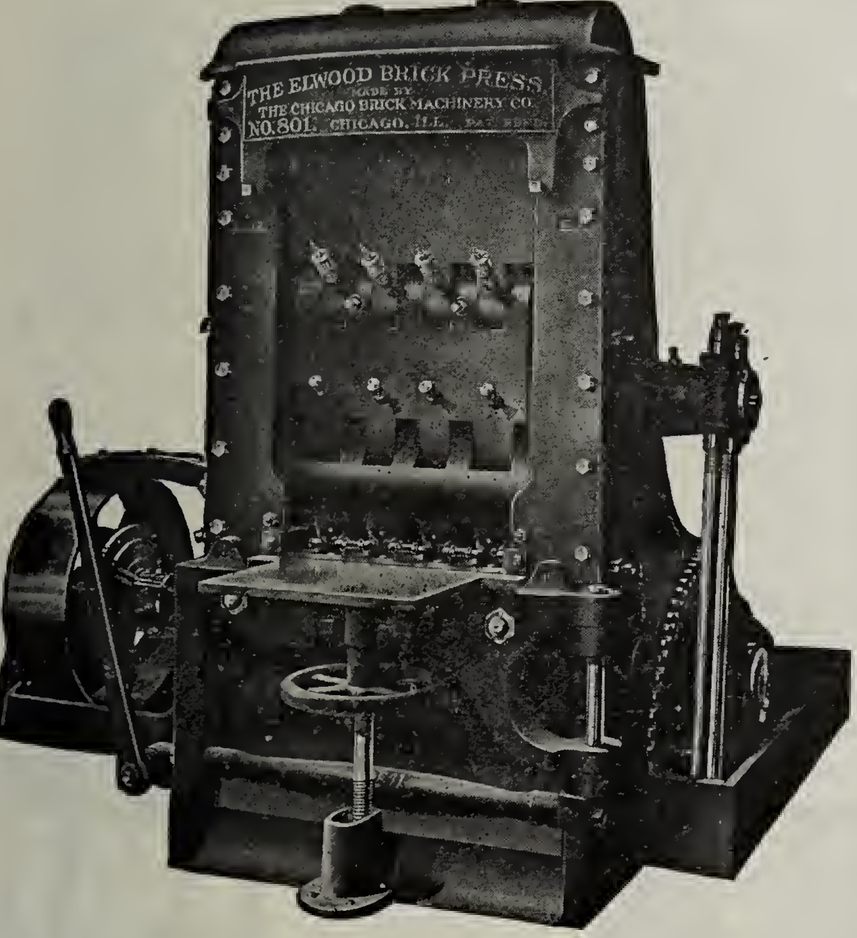
DETROIT
800 Rooms
800 Baths

CLEVELAND
700 Rooms
700 Baths

Books for Brickmakers

"CLAY GLAZES AND ENAMELS," H. R. Griffen............ $5.00
"CLAYWORKERS' HANDBOOK," by Author of "Chemistry of Clayworking" .................................... 2.00
"CLAYS," Heinrich Ries.................................. 5.00
"VITRIFIED PAVING BRICK," H. A. Wheeler, E. M....... 2.00
"PRACTICAL FARM DRAINAGE," C. G. Elliott............ 1.50
"ENGINEERING FOR LAND DRAINAGE," C. G. Elliott... 2.00
Mailed, postage free on receipt of price.

T. A. RANDALL & CO., Publishers, Indianapolis, Ind.



ELWOOD PRESS

BUILT FOR HEAVY DUTY.
ALWAYS MAKES GOOD.

WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.

CHICAGO BRICK MACHINERY CO.

Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

20 W. Jackson Blvd., Chicago

# Worth Its Weight In Gold

**Every Clayworker in the Land Should Have a Copy of Prof. Bleininger's Book**

# THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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**Price $2.00**

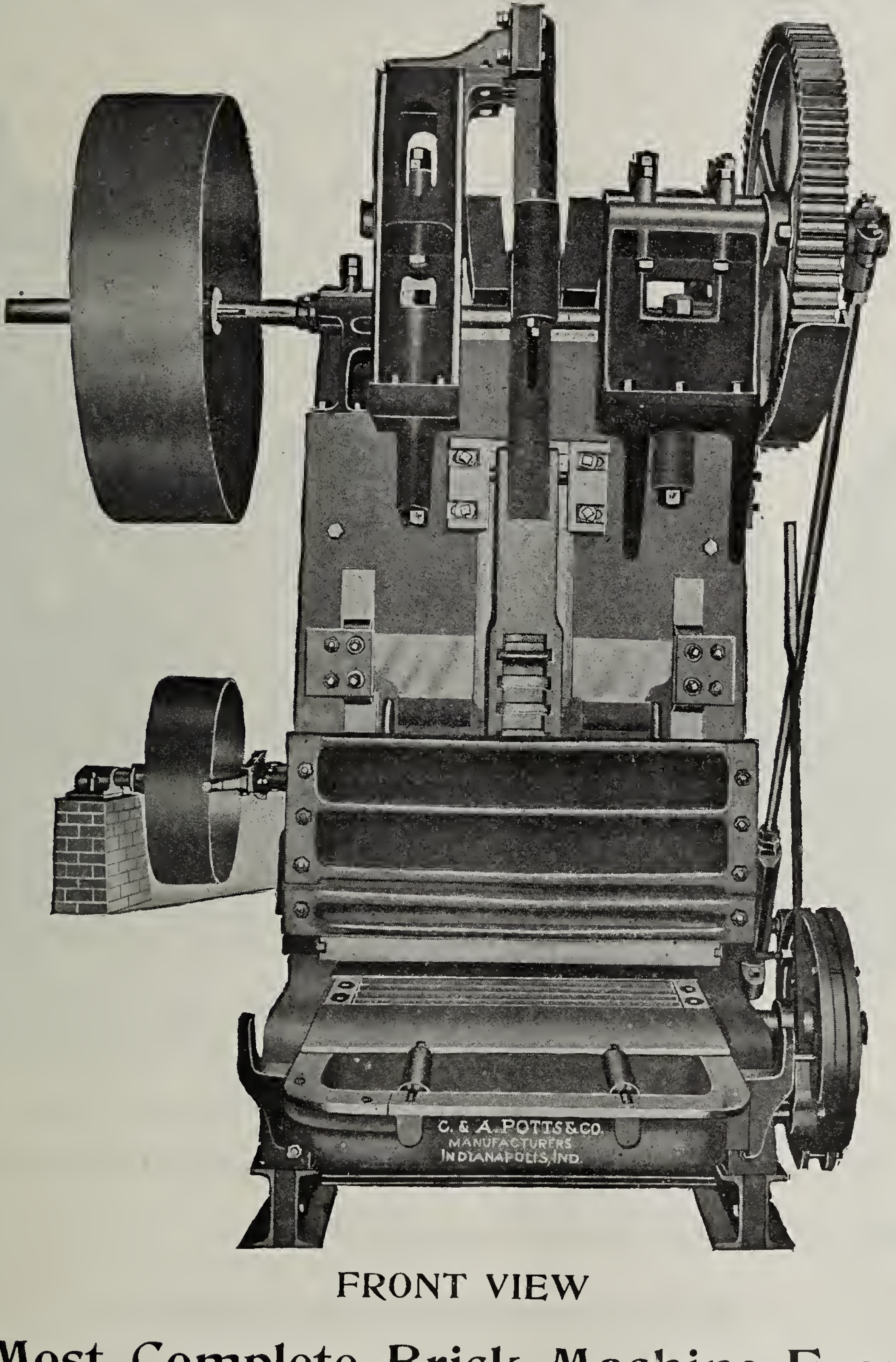
**Sold Only by**

## T. A. RANDALL & CO.

**Indianapolis, Ind.**

# The Potts Special
# Soft Mud and Fire Brick Horizontal Brick Machine

Drop Forged Crank Shafts. Cut Steel Gears. Large Bearings. Heavy Powerful Press. No Light Parts Working in the Clay.



FRONT VIEW

Note Heavy Construction of Press on Special Soft Mud and Fire-Brick Machine. Built for Service.

## The Most Complete Brick Machine Ever Built

WRITE
FOR
CATALOGUE.

## C. & A. POTTS & CO.
INDIANAPOLIS, IND.

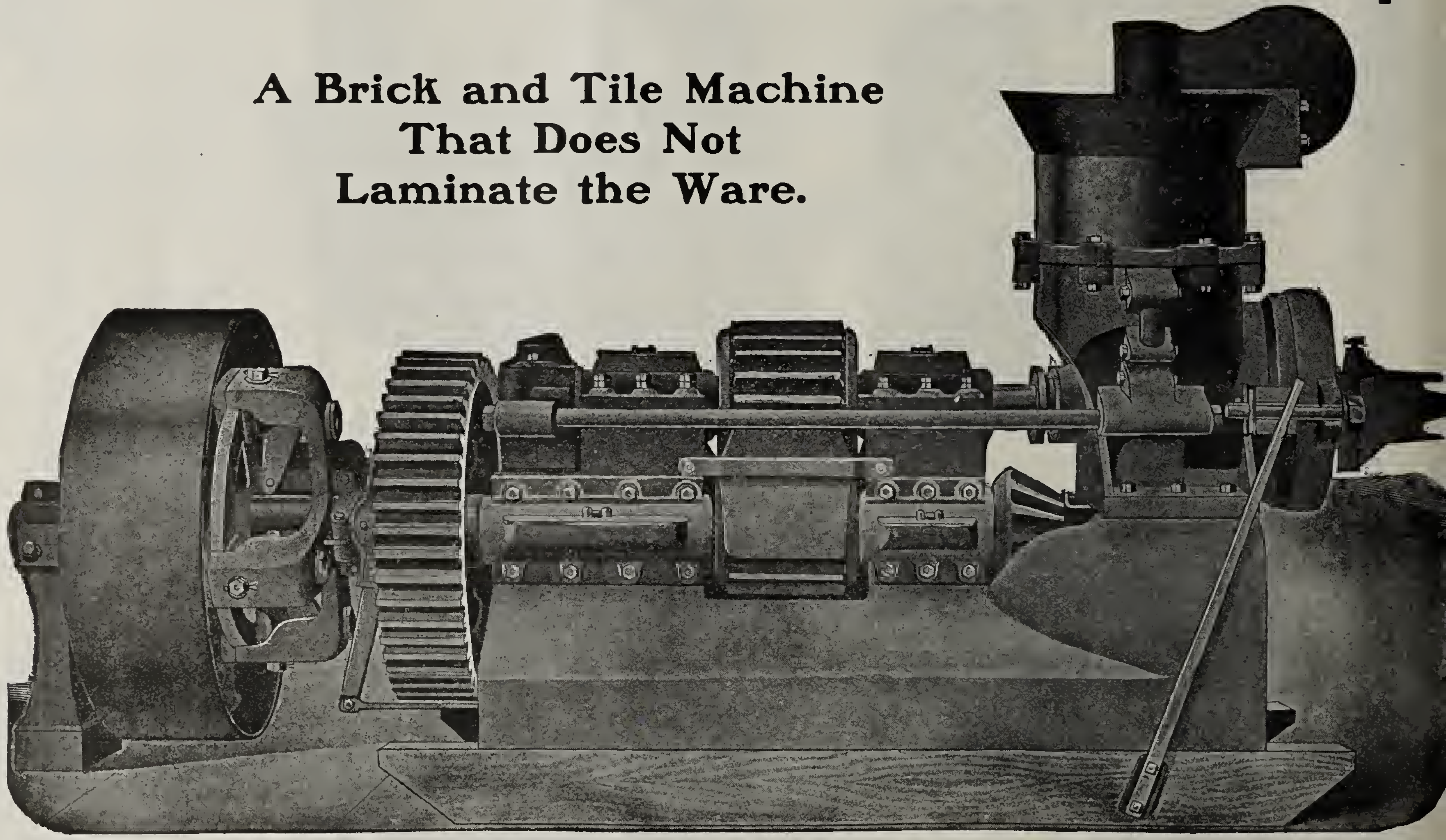
LET US
KNOW
YOUR WANTS.

# TURN FAILURE INTO SUCCESS

## With The Wonder Machine.

**A Machine of Large Capacity. Unequaled in Record of Durability.**

**A Brick and Tile Machine
That Does Not
Laminate the Ware.**



The Big Wonder Brick and Tile Machine

**We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.**

*Write for Catalog and Prices.*

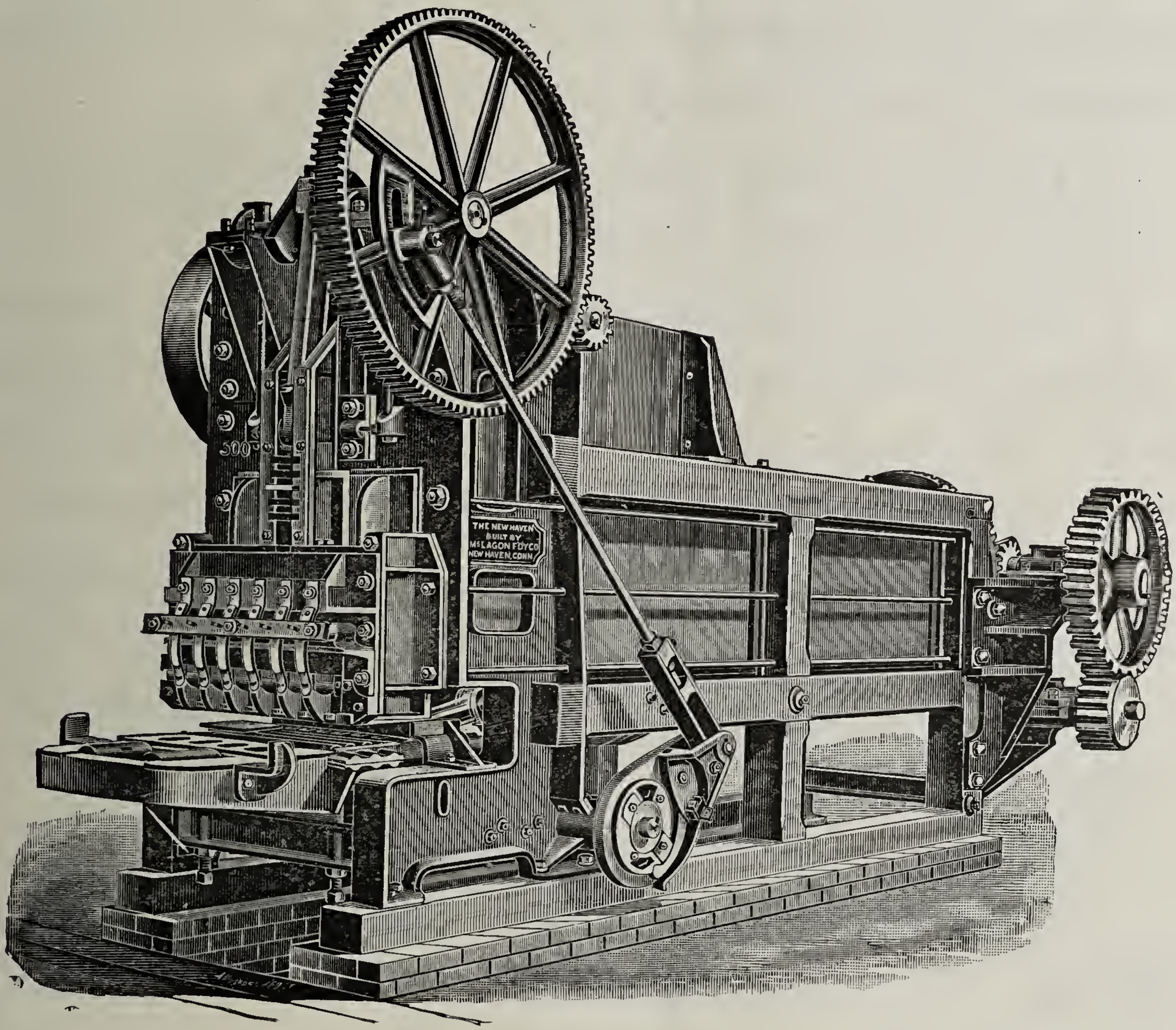
# THE WALLACE MFG. CO.

## FRANKFORT, IND.

# Endurance the Crowning Quality

***The "New Haven" Horizontal Brick Machine is the Strongest Soft Clay Brick Machine in the World.***

It is adapted to work any clay and is suitable for any yard, large or small, that uses steam for motive power. The brick made on it are solid and square, having smooth surfaces and sharp corners. For ***Quantity*** and ***Quality*** of production we challenge comparison with any machine built. The capacity of the machine is really limited only to the facilities for handling the brick as they are made.



"NEW HAVEN" HORIZONTAL BRICK MACHINE.

We will be pleased to submit estimates for complete plant or any portion of one. We can furnish machinery of the most modern and approved construction for soft mud plants of any capacity at reasonable prices. Shafting, hangers, bearings, pulleys, gearing and machine work of all description.

---

## The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

# AND THEY SAID IT COULDN'T BE DONE!

More than one hundred firms and individuals in a dozen different states have united in a campaign to educate the American builder in the way of SAFE building.

The men back of this national movement represent every accepted fire-safe material and include engineers, architects, contractors, fire engineers and city officials.

This is not a campaign to sell any one material, nor is it an effort to "knock" any type of construction.

The medium of this great movement is an organization devoting its whole enery to convincing prospective builders that it not only is safer and better to build with materials that will resist fire, but that it actually is cheaper in the long run.

This organization is known as THE SAFE and it is making converts every day, and in the territories where it is active the building records show a marked increase of the use of fire-safe materials.

Why aren't you a part of this movement?

Let us send you free copy of address delivered by John J. Thomas, The Lloyd-Thomas Co., Chicago, which PROVES that safe buildings are cheapest.

## THE SAFE

### Society Advocating Fire Elimination

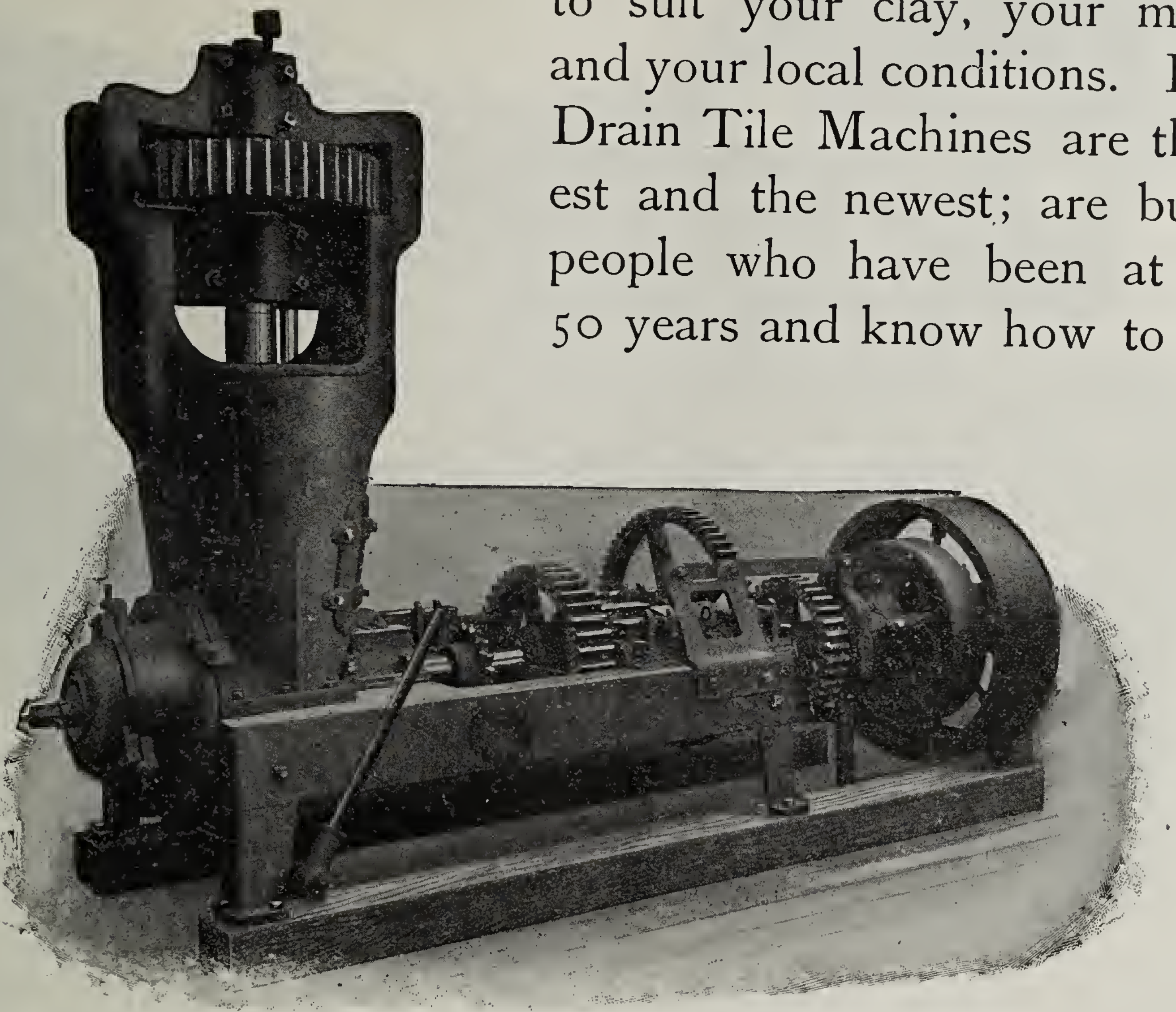
R P. Stoddard, Secretary

356 Leader-News Building CLEVELAND, OHIO

IF MARKED BREWER IT'S GOOD

# DRAIN TILE MACHINES

We build and guarantee both upright and horizontal patterns in several sizes, and can furnish you with just the proper machine to suit your clay, your methods and your local conditions. Brewer Drain Tile Machines are the oldest and the newest; are built by people who have been at it for 50 years and know how to do it.

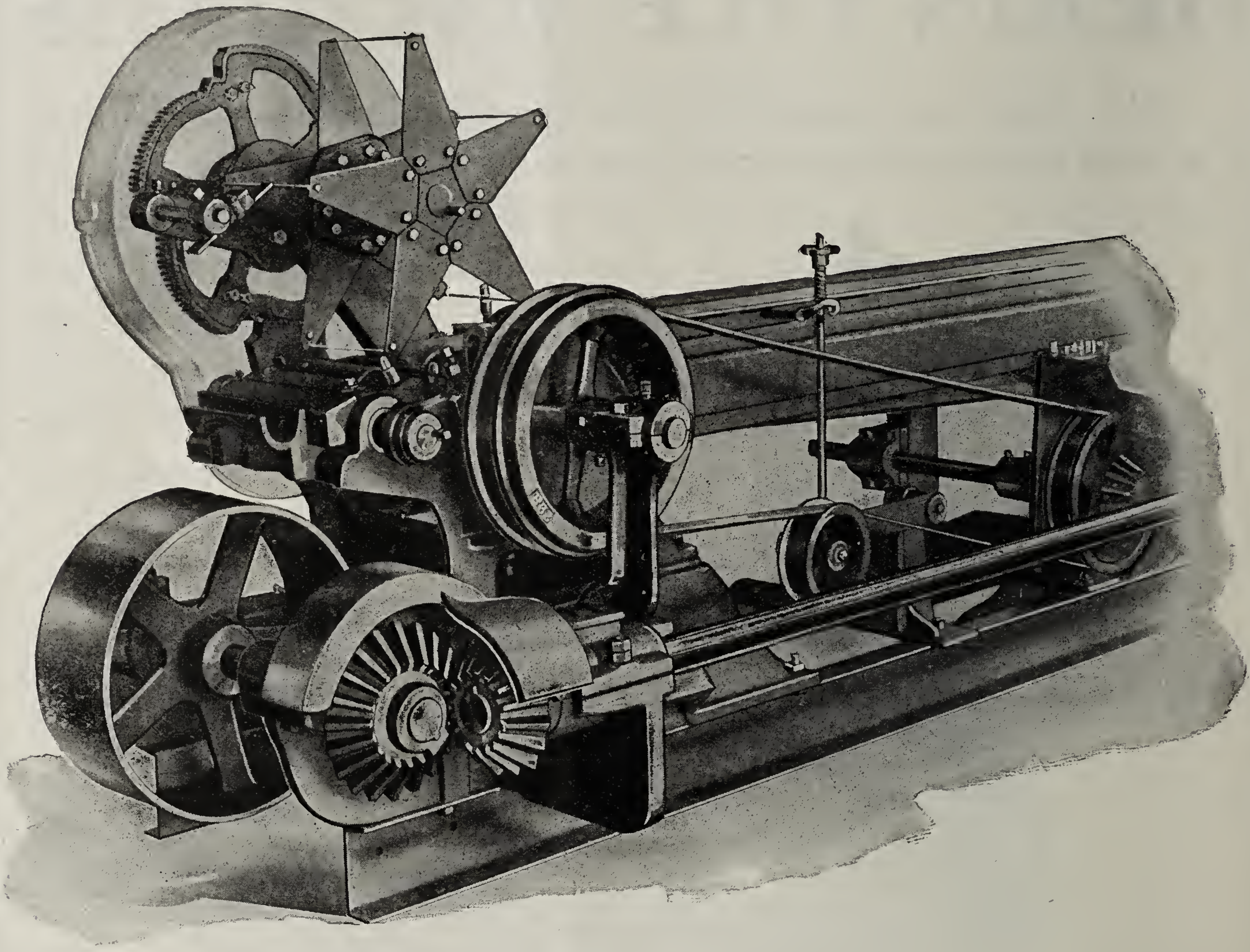


We also build Horizontal Brick Machines, Automatic Cutters, Crushers, Pug Mills, Feeders, Dry Pans and a full line of stiff-mud machines.

***ASK FOR COMPLETE CATALOG.***

**H. BREWER & COMPANY, Tecumseh, Mich.**

# You Have Heard of the Reputation of the Steele End Cutter
# You Realize the Advantage of Square Cut Brick
# If You Have Any Doubt of the Superior Principle or Workmanship of This Cutter Frankly Ask Us to Show You



The cut is controlled direct by Irregular Gears which prevents lost motion, reduces friction and practically eliminates wear.

Will handle the largest capacities.
Will work with any machine.
Nearly one thousand in use.

Don't let your competitor get in this cutter first.

## J. C. STEELE & SONS

**STATESVILLE, N. C.**

**George H. Smith, Western Agent, 203 Sheidley Bldg., Kansas City, Mo.**

## JOIN THE

**BOOST**

# BUILD WITH BRICK

**BOOST**

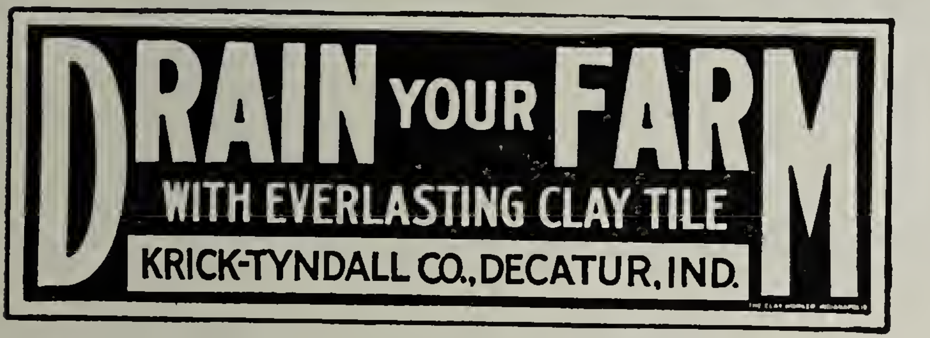
## CAMPAIGN

A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

### THE BUILD WITH BRICK MOVEMENT.

IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

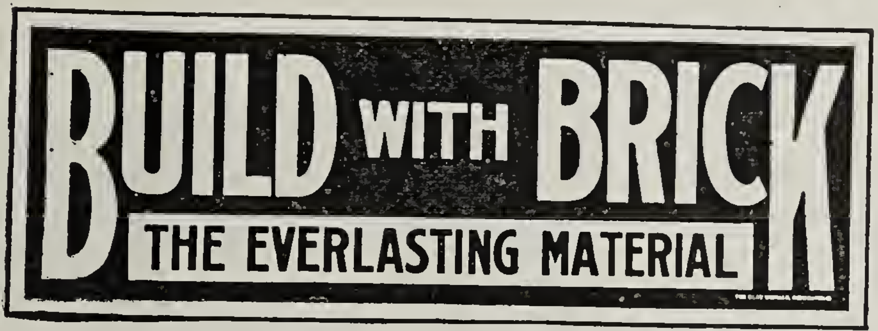
Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.

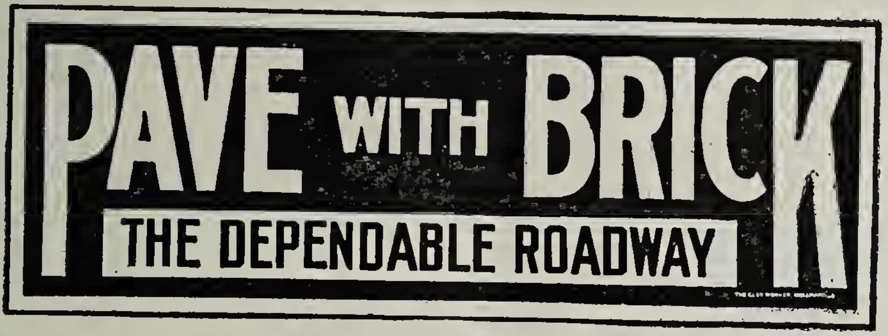


It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.

Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background.

These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.





Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.

---

**T. A. Randall & Co., Publishers The Clay-Worker.**

Gentlemen:

You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ................................................

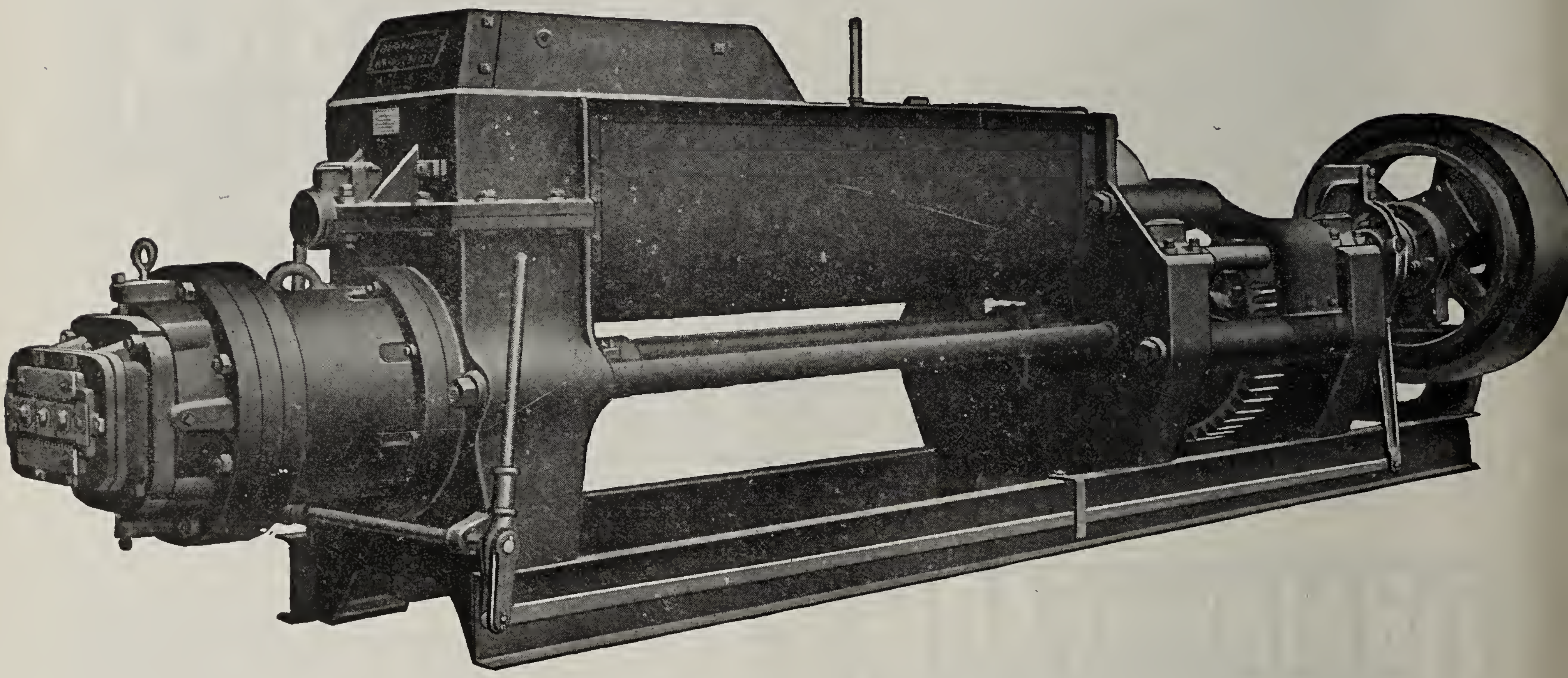
................................................

**(Cross out the items not wanted, fill in and mail us the coupon.)**

Why does the KB Union Hollow-ware
Machine produce 50% more ware
than the machine previously used—
a machine nearly as large?

Why does it consume 25% less power
than the machine previously used?

Why does one of its users say it
is the nicest piece of clayworking
machinery he has ever had on
his plants?



Union Hollow-ware Machine

**A worry-eliminator for
the hollow-ware manufacturer**

**E. M. FREESE & COMPANY, 140 South St., Galion, Ohio**

**Dependable Machinery of Proven Efficiency**

Mention The Clay-Worker.

For
Sixty-Three
Years
The Name

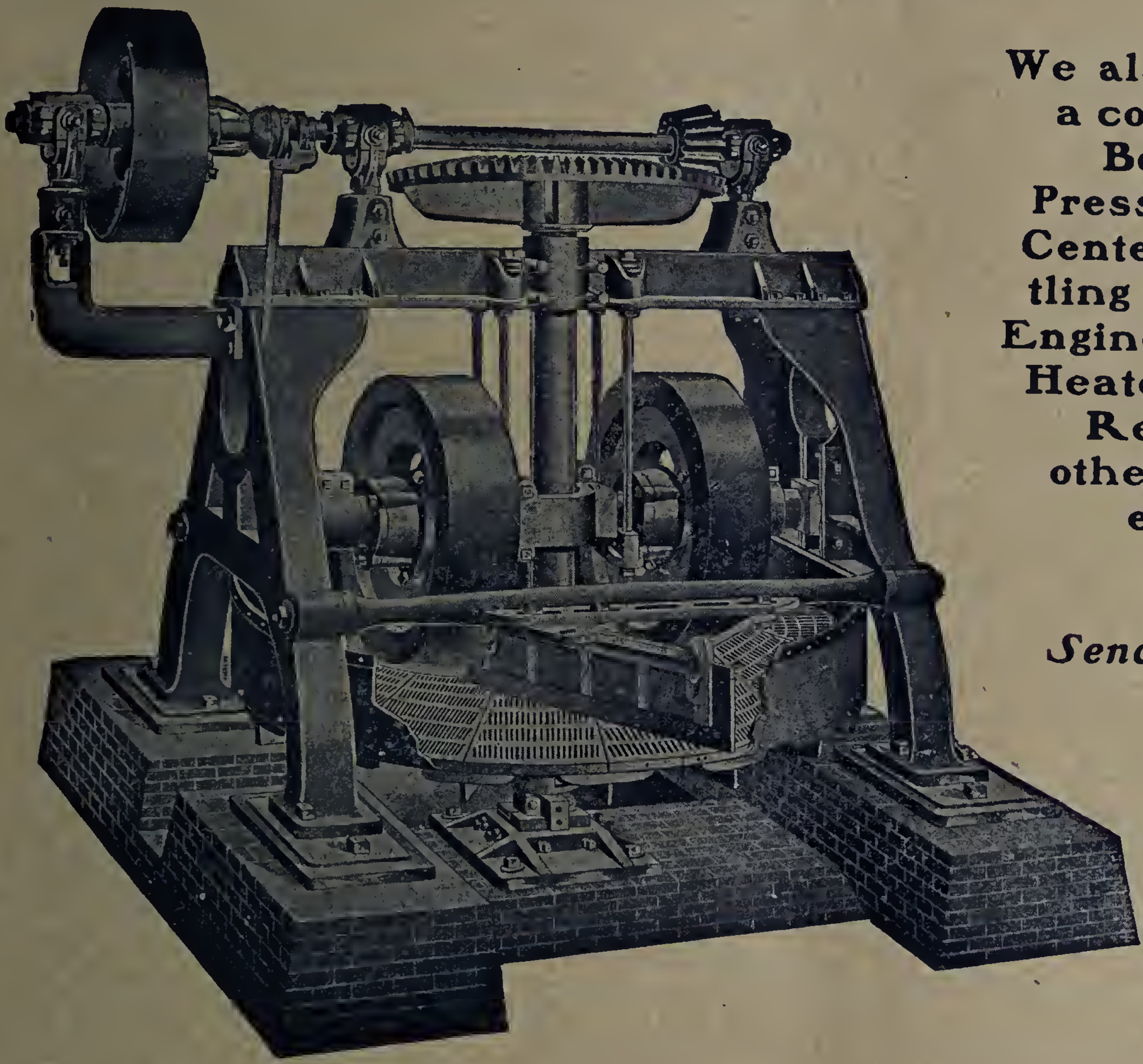
# Frost

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.

**WHY!** Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.



We also manufacture
a complete line of
Boilers for all
Pressures, Side and
Center Crank Throttling and Automatic
Engines, Feed Water
Heaters, Tanks, Air
Receivers and
other power plant
equipment.

---

*Send for Bulletins.*

## The Frost Manufacturing Co.

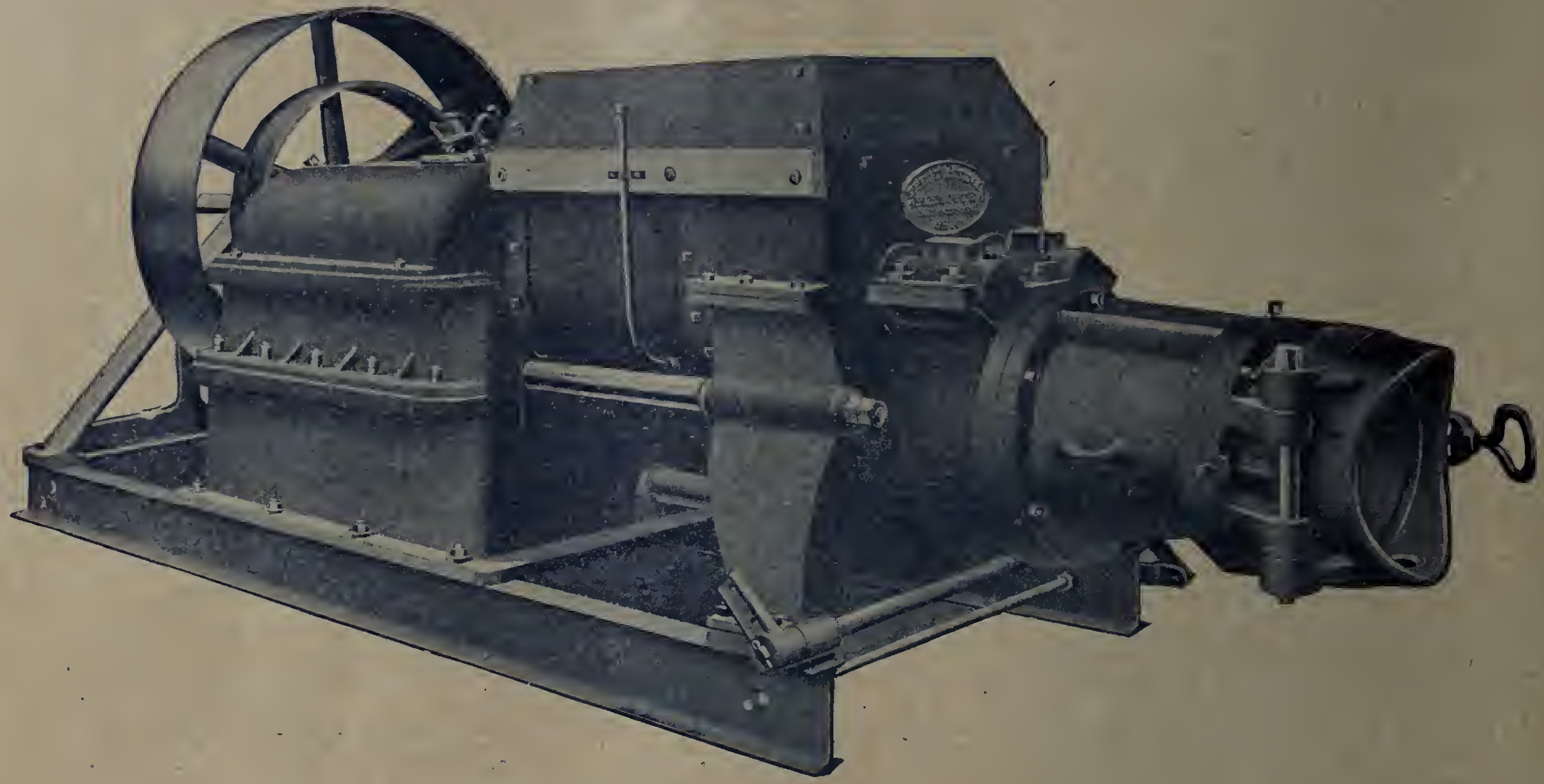
Works at
GALESBURG, ILL.

Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

# The Fate Quality

*Quality hinges on two things—mechanical perfection and the best material.*

*These factors enter into the product of the House of Fate.*



OUR NEW "H" SPECIAL AUGER MACHINE.

This machine has been developed from our well and favorably known Imperial Machine and embodies the best points of our heavier and famous Special Premier and "M" Special Machines. It has been so designed that it can, with a few changes, be splendidly adapted to the making of either brick, hollow-ware or drain tile in reasonably large quantities.

Built in this short, stocky form, with plenty of room in the hopper for feeding, it makes an ideal machine for use in connection with a pug mill that is already installed, or where for any reason a combined machine is not desired.

It has our regular double feeder shaft arrangement—large, heavy shafting throughout, an exceedingly large diameter roller thrust bearing on the auger shaft and all gears are cut and enclosed in a dustproof oil chamber.

Those who have already used it are strong in their praise of it. Let us tell you more about it. A postcard request will bring you full information.

We can also supply a machine of the same size and type in a combined machine, called our Special Imperial.

Read one of the comments on this machine on the opposite page.

---

## The J. D. Fate Company

### Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent

**Vincent Clay Products Company**
MANUFACTURERS OF
VITRIFIED DRAIN TILE AND BUILDING BLOCKS
617 FIRST NATIONAL BANK BUILDING

FORT DODGE, IOWA,

August
Ninth,
1915.

J. D. Fate & Co.,
Plymouth, Ohio, U.S.A.

Gentlemen:-

We have had your Special Imperial Machine in operation about six weeksand are very pleased to report that the operation of the same is very satisfactory to us.

The new roller bearings for the thrust seem to be just the thing for this work, as we have not had the slightest trouble with heating even from the first. The gears running in oil appear to make the machine run very much smoother and easier, and while we are satisfied that it uses less power for this machine than it did for the one we had before, we are not able to state positively how much the saving is.

The operation of this machine is practically noiseless and we cannot say more for its operation than that it is perfectly satisfactory in every way. Thanking you very much for your efforts in our behalf in getting this machine out for us as you have, and hoping you will have the continued success with it that you merit, we are

Yours very truly,

HSV:AS.

VINCENT CLAY PRODUCTS COMPANY.

H. S. Vincent

## Read Carefully This Letter.

Note that the Thrust Bearing does not heat—not even when first started.

Note that with the gears running in the enclosed oil chamber, the machine runs smooth and easy.

Note that less power is required than with the machine with small thrust and open gearing.

The machine referred to in the above letter is the same as the "H" Special shown on the opposite page, except that it is a regular combined machine with a full length pugging tub. It has in addition the large roller thrust bearing to take the severe backward thrust of the auger shaft, large well proportioned shafting throughout—iron rim friction pulley, with our new positive working clutch, adjustable from the outside; and is an entirely self-contained machine.

It is a machine that any clayworking plant may well be proud to own and operate.

Why not take up with us now your needs for next season in the way of new equipment.

## The J. D. Fate Company

Plymouth, Ohio

Wsetern Office, 604 Blake-McFall Bldg., Portland, Ore., S. Geijsbeek
Eastern Office: Woolworth Bldg., New York City, Jas. A. Ridgway, Representative
Manufacturers Equipment Co., Dayton, Ohio, Sales Agent

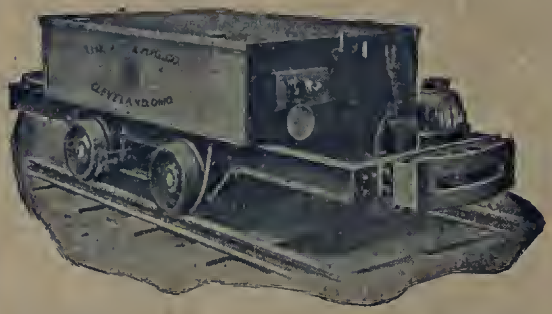
See our advertisements on pages 552 and 553.

## REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives



Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
1189 Marquette Road, Cleveland, Ohio

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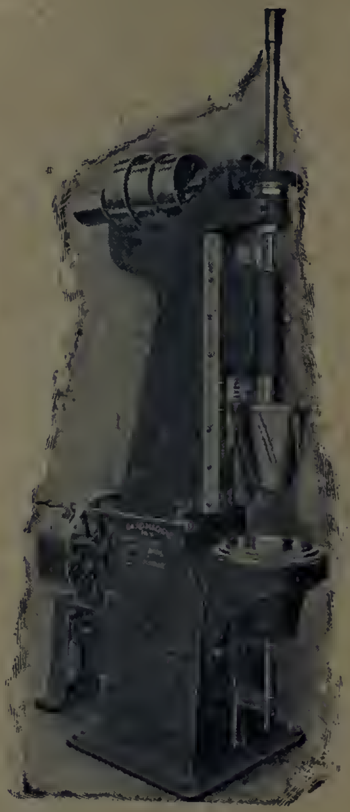
# BAIRD
## POT MOLDING MACHINERY



We specialize
Machines
for the
Manufacture
of Pottery
and Guarantee
Every One We Sell

*Write us for information*

**Baird**
**Machine & Mfg. Co.**
54-56 Jefferson Ave.
Detroit, Mich.

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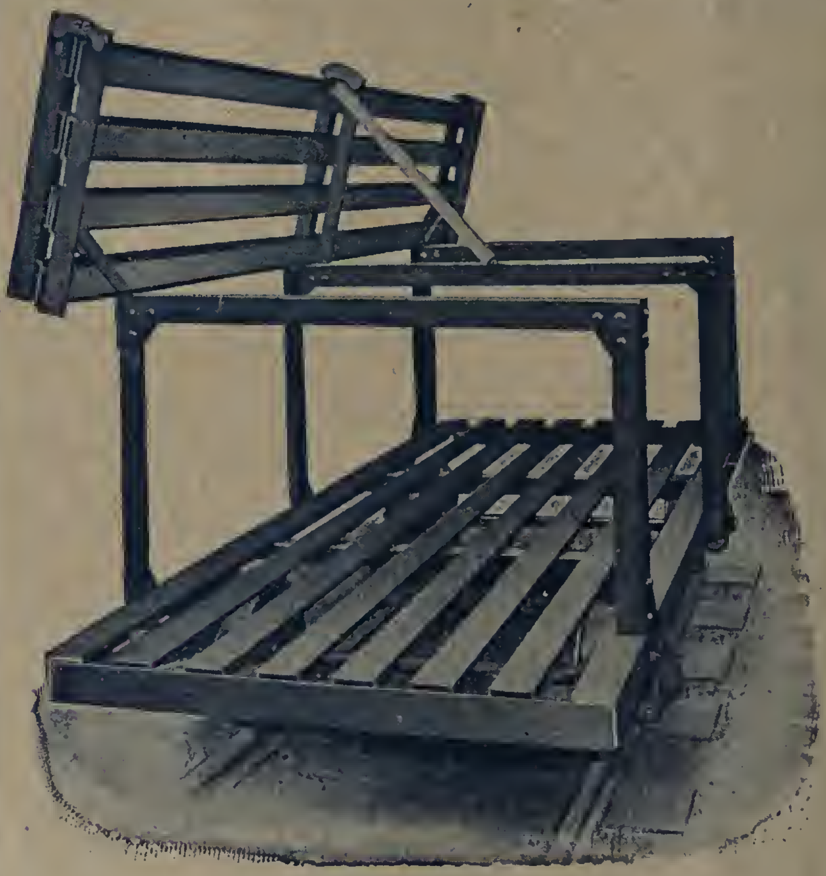

With Chase Flexible and Reversible Bearing and Folding Deck.

Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.

**The Chase Foundry & Mfg. Co., Columbus, O.**

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# "LAKEWOOD LINE CARS"

**Dryer Cars**
**Rack Cars**
**Dump Cars**

LAKEWOOD NO. 166

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
Cleveland, Ohio

Chicago: 506 S. Canal St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802.
Baltimore: Munsey Bldg. Kansas City: N. Y. Life Bldg.

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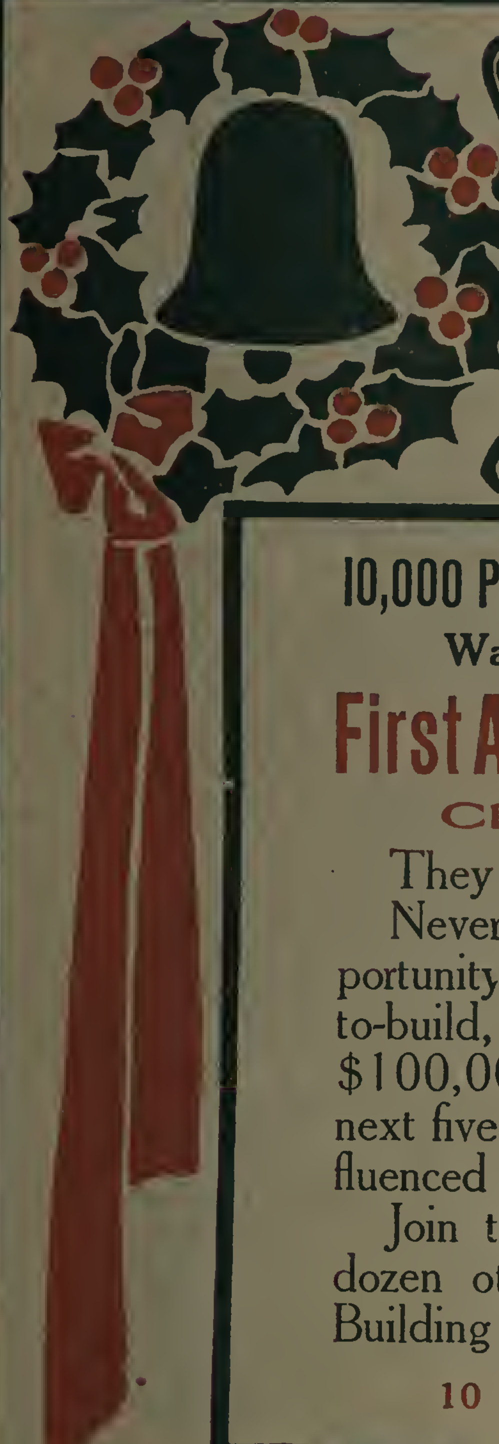
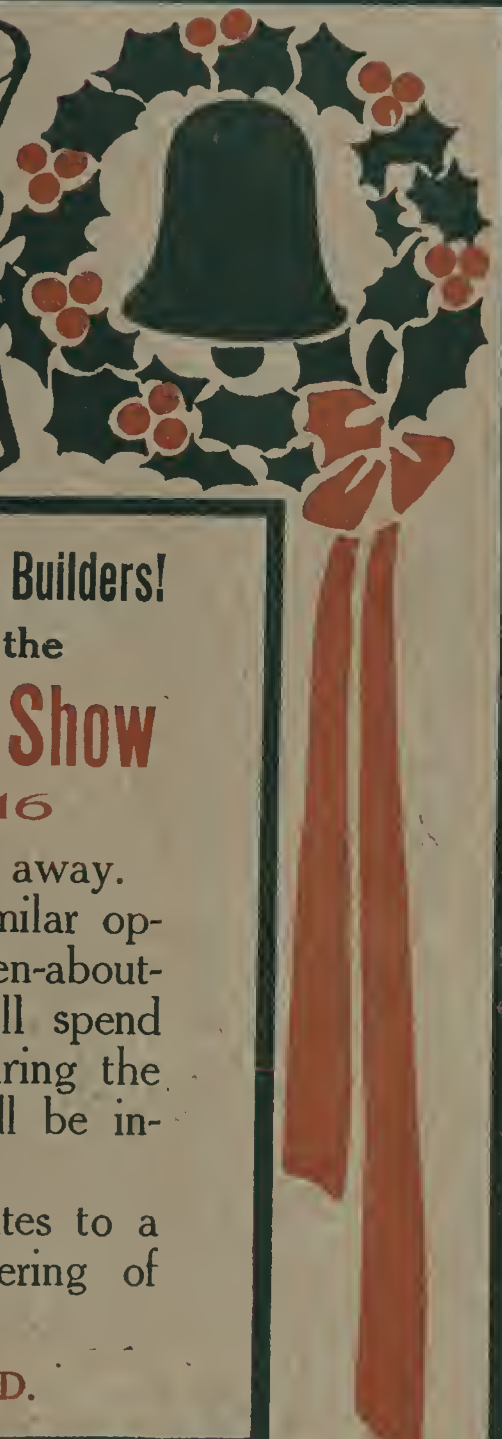
# THE CLAY WORKER





## CHRISTMAS

## 1915

**10,000 People of the Trade! 200,000 Prospective Builders!**

**Want to See You and Your Product at the**

## First American Complete Building Show

**Cleveland, Feb. 16 to 26, 1916**

They will be there—you can't afford to stay away.

Never has there been offered in America similar opportunity for promoting your material. The men-about-to-build, who will attend this exposition, will spend $100,000,000.00 for Building Materials during the next five years. Their choice of materials will be influenced by the Show. It's up to you!

Join the N. B. M. A. members, and delegates to a dozen other conventions, in the biggest gathering of Building Folks ever brought together.

10 DAYS OF EDUCATION SUGAR-COATED.

T·A·RANDALL·&·CO
PUBLISHERS·INDIANAPOLIS

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BUYERS' READY REFERENCE LIST
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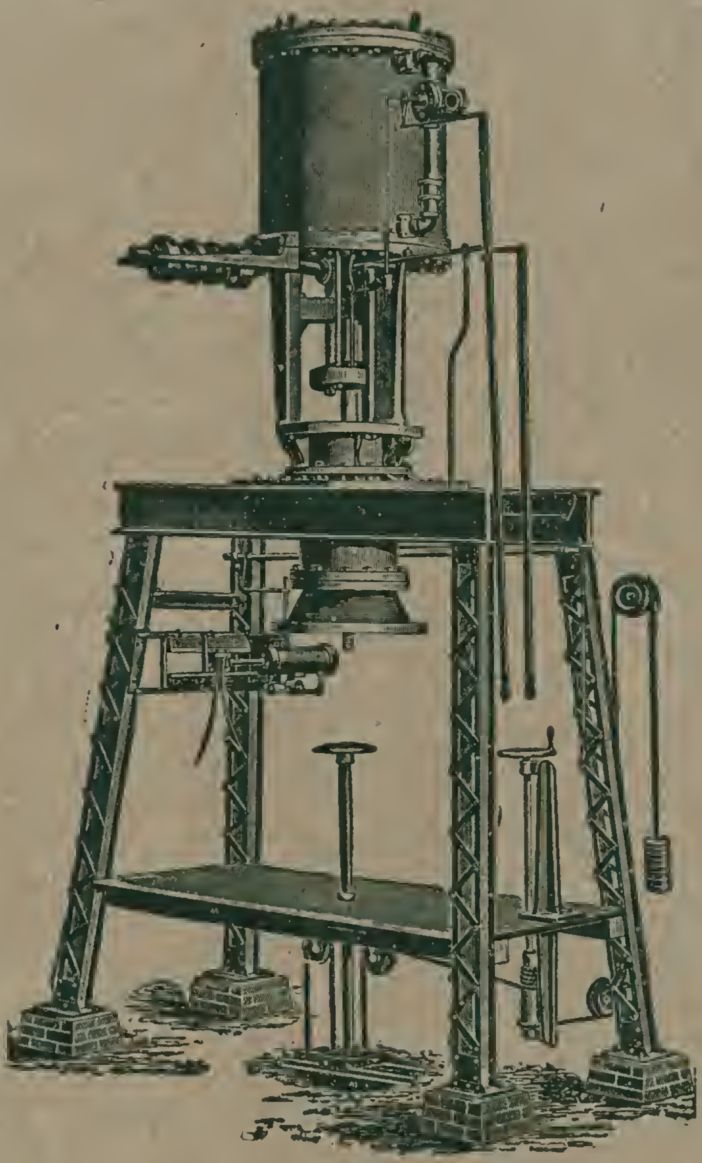
Page 682

All men get stung sometime. Some men get stung all the time, except the ones who buy PIONEER CLAYWORKING MACHINERY.

ASK FOR THE PIONEER BRAND, made by THE TAPLIN, RICE-CLERKIN CO., of Akron, Ohio. THAT MEANS SOMETHING SPECIFIC. Means a line of goods that has been well and favorably known to the Clayworking Industry for the past forty years.



We had no competitors at that time—because we were the BEGINNERS; and every step in development and improvement of Clayworking Machinery has been done by Our Company. WE BLAZE THE WAY.

Every up-to-date Sewer Pipe Plant from Maine to California; from the Lakes to the Gulf; from Vancouver to Halifax; from El Paso to Mexico City—is equipped with our machinery.

This business was not obtained on PRICE, but ON MERIT and well known, proved results.

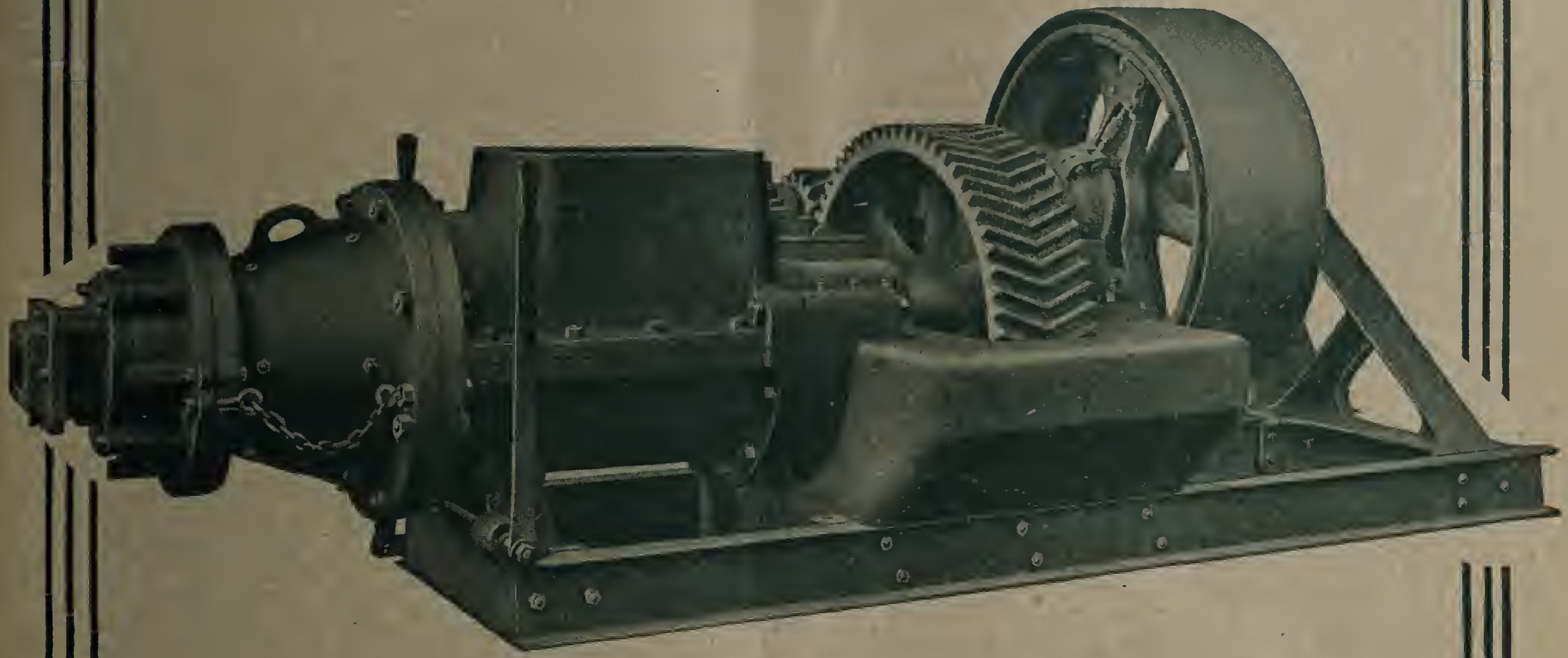
Our catalog No. 29 tells about it. The balance is told by 125 different, well-satisfied users, in the territory above described.

---

## THE TAPLIN, RICE-CLERKIN CO.

**Akron, Ohio**

The largest manufacturers of the best Sewer Pipe and Clayworking Machinery "that produces the results" without trouble to the manufacturer, in the United States.



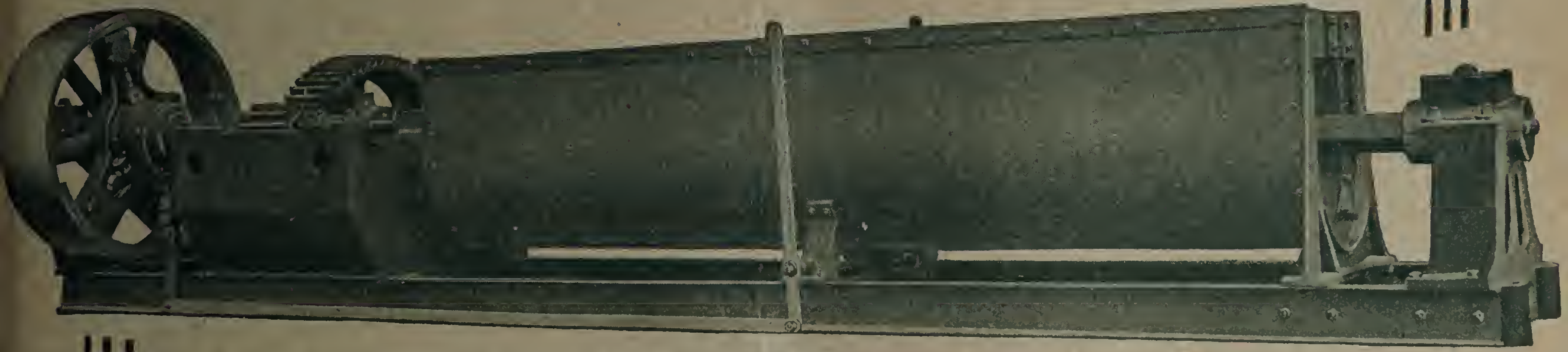
## THE ROLLING MILL STYLE OF GEAR.

a type of gearing which has been used in rolling mill and steel mill service wherever possible because of its strength, smooth running qualities and ability to withstand shocks.

We are building this single gear machine in two sizes---one for 25,000 to 30,000, the other 50,000 to 60,000. Frame is one piece casting, with oil pan on bottom.

Both brick machine and pug mill have marine type thrust bearing in front side of frame and ample space between drum and bearing for clay to drop without getting into bearing.

Write us for information on these uptodate machines.



**THE BONNOT COMPANY**

**CANTON, OHIO**

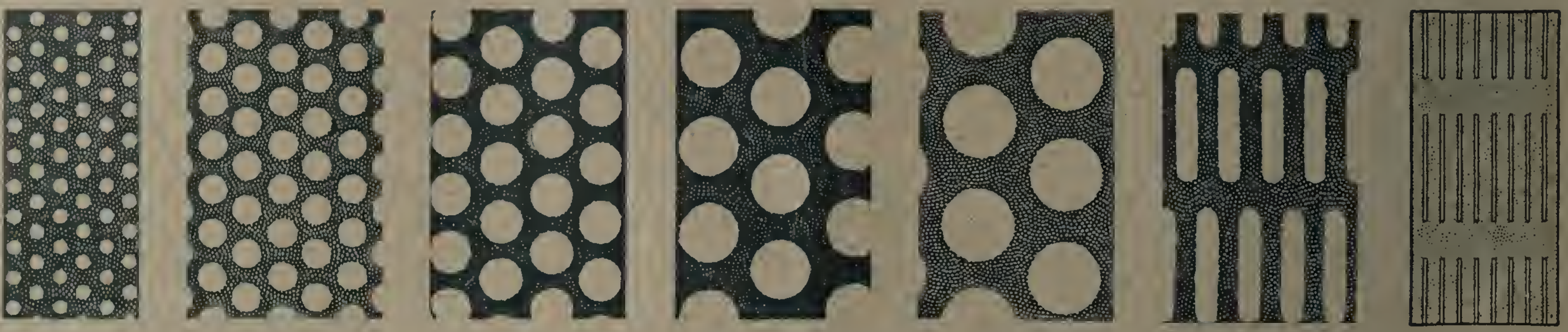
909 N. Y. Life Bldg.
KANSAS CITY, MO.

211 Higgins Bldg.
LOS ANGELES, CAL.

# PERFORATED STEEL SCREENS

## FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

### Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

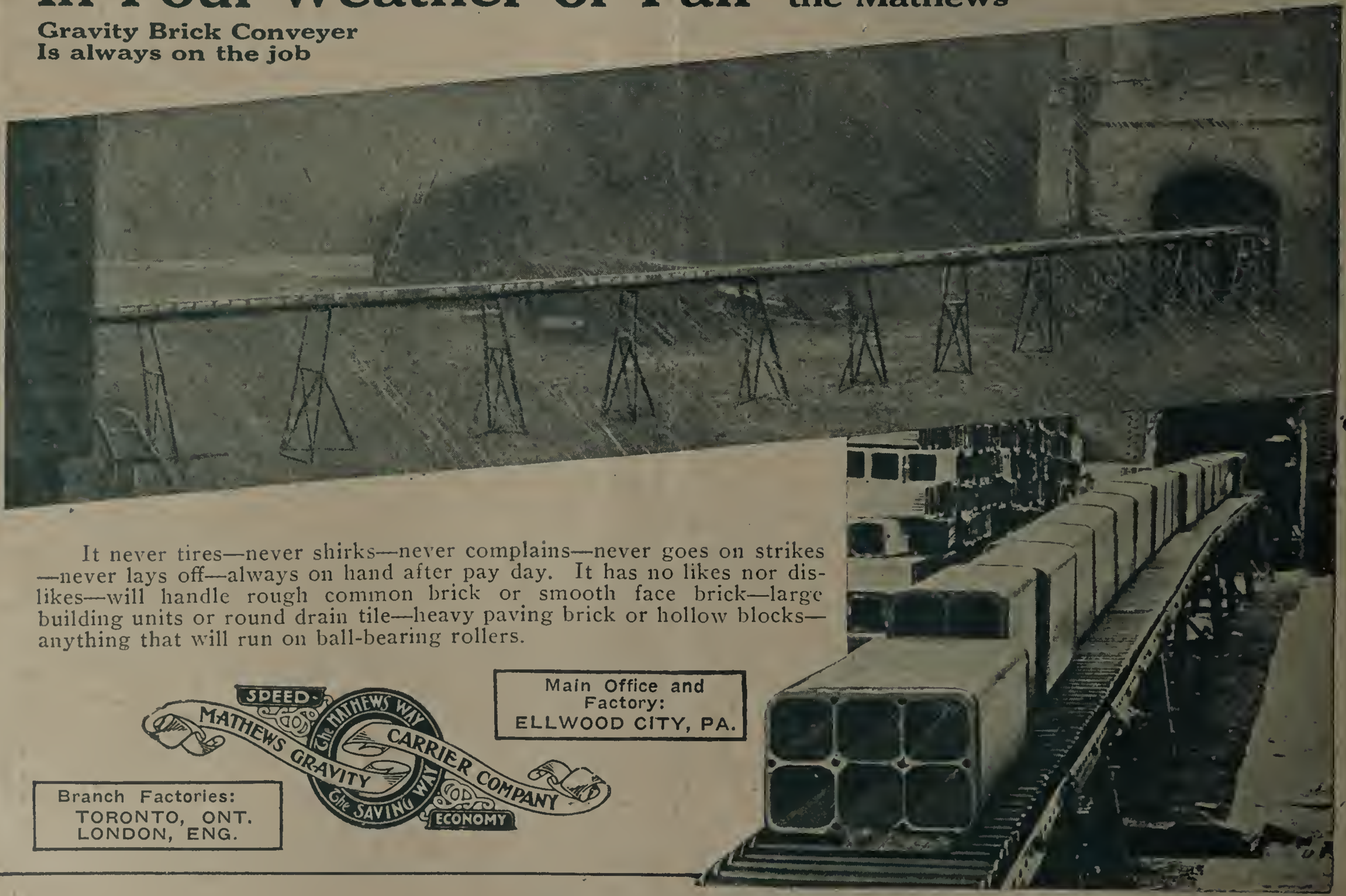
**The Harrington & King Perforating Co.**

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union Ave.
CHICAGO, ILL., U. S. A.

# In Foul Weather or Fair the Mathews

**Gravity Brick Conveyer
Is always on the job**



It never tires—never shirks—never complains—never goes on strikes—never lays off—always on hand after pay day. It has no likes nor dislikes—will handle rough common brick or smooth face brick—large building units or round drain tile—heavy paving brick or hollow blocks—anything that will run on ball-bearing rollers.

Main Office and
Factory:
ELLWOOD CITY, PA.

SPEED
MATHEWS GRAVITY CARRIER COMPANY
The MATHEWS WAY
The SAVING WAY
ECONOMY

Branch Factories:
TORONTO, ONT.
LONDON, ENG.

RODGERS

# DON'T KEEP YOUR NOSE

too close to the grindstone. NEAR-SIGHTEDNESS will be sure to result and place you at a disadvantage.

Stop the grind now and then, and take a look around--cultivate FAR-SIGHTEDNESS.

Your way of grinding may have served you "well enough" YESTERDAY, but a look around TODAY will undoubtedly convince you that it will not do so TOMORROW. New days bring new ways of grinding.

The far-sighted clay products manufacturer keeps well within his vision

**RODGERS WASTE HEAT DRYER PLANTS,**

for they---he well knows---are the finest examples of clay product plant "up-to-dateness."

**DON'T GROW NEAR-SIGHTED.**
**CULTIVATE FAR-SIGHTEDNESS.**

**L. E. RODGERS ENGINEERING CO.**

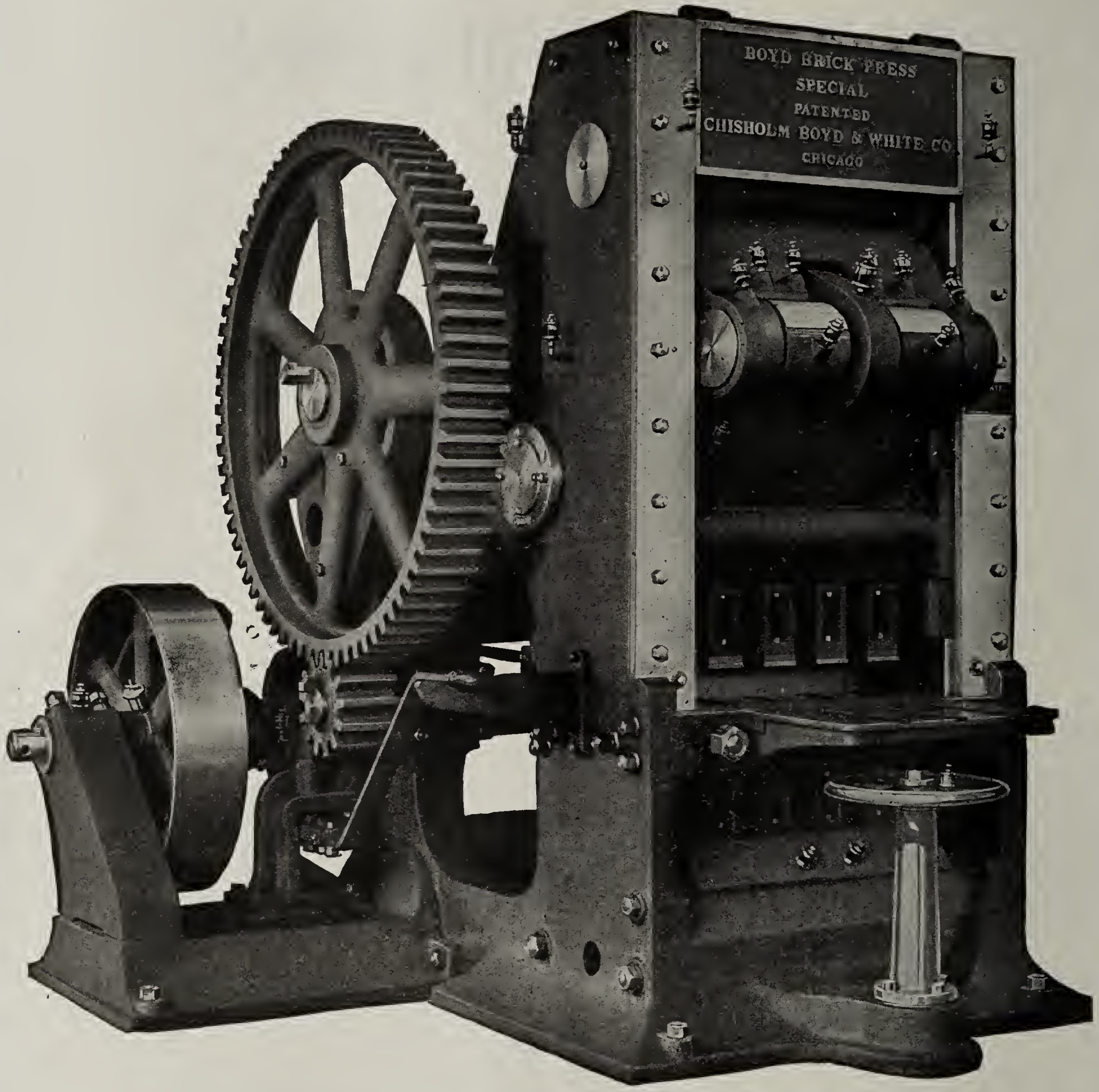
**Waste Heat Dryer Specialists**
**Brick Works Engineers**
**Largest Manufacturers of Brick Drying Equipment in the United States**
**General Offices and Works**

O
H ZANESVILLE, I
O

RODGERS

# The Boyd Brick Press

## "Built Up to a Standard—Not Down to a Price."



## ITS OWN BEST SALESMAN

### FIRE BRICK PRODUCED AT LOWER COST

For more than 20 years the BOYD BRICK PRESS has been in use for making FIRE BRICK and shapes and today is used by many of the largest and most successful fire brick manufacturers in the country.

**Chisholm, Boyd & White Company**
**Office and Works, 57th and Wallace Sts. CHICAGO, ILL.**

# Buyers Ready Reference List.

**To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.**

---

### Ammeters.
The Brown Instrument Co.

### Analysists and Chemists.
Ceramic Supply & Con. Co.
N. J. State University.
Richardson-Lovejoy Engr. Co.

### Arch Cutting Apparatus.
Ceramic Supply & Con. Co.

### Automatic Clay Bin Emptier.
Fate Co., The J. D.
International Clay Mach. Co.

### Automatic Cutting Tables.
(See Cutting Tables.)

### Barrows and Trucks.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Barytes, Carbonate of.
Roessler-Hasslacher Chem. Co.

### Bearings, Roller.
(See Supplies.)

### Belting.
Ceramic Supply & Con. Co.
Gandy Belting Co.

### Belt Conveyors.
American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
International Clay Mach. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

### Blowers.
American Blower Co.
American Clay Machinery Co.
International Clay Mach. Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Boilers.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.

### Brick (Building).
Kushequa Brick Co.
Purington Paving Brick Co.

### Brick (Fire).
Chicago Retort & Fire Brick Co.
Parker-Russell M. & M. Co.

### Brick (Paving).
Alton Brick Co.
Bessemer Limestone Co.
Clinton Paving Brick Co.
Mayer Brick Co., C. P.
McAvoy Vitrified Brick Co.
Metropolitan Paving Brick Co.
Murphysboro Paving Brick Co.
Natl. Pav. Brick Mfrs. Assn.
Purington Paving Brick Co.
Terre Haute Vit. Brick Co.
Shawmut Vit. Pav. Brick Wks.

### Brick Conveyors.
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.

### Brick and Tile Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Mchy. Co.
Chisholm, Boyd & White Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
International Clay Mach. Co.
Lakewood Engineering Co.
Manufacturers' Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Potts & Co., C. & A.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Soft Mud).
American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
International Clay Mach. Co.
Martin Brick Mch. Mfg. Co., H.
Potts & Co., The C. A.

### Brick Machines (Stiff Mud).
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., The
Chambers Bros. Co.
Fate & Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Brick Machines (Dry Press).
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
International Clay Mach. Co.
Manufacturers Equipment Co.
Mueller Bros.

### Brick Recutter.
International Clay Mach. Co.

### Brick Setting Machinery.
American Clay Machinery Co.

### Buffing Machinery.
American Clay Machinery Co.

### Burning and Drying Systems.
American Clay Machinery Co.
American Blower Co.
Boss, John C.
International Clay Mach. Co.
Koch, J. J.
Manufacturers Equipment Co.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Schaffer Eng. & Equip. Co.
Standard Dry Kiln Co.
Trautwein Drying & Engr. Co.
Yates, Alfred.

### Cars.
(See Dryer and Dumping Cars.)

### Castings.
American Clay Machinery Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate Co., The J. D.
Frost Mfg. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

### Ceramic Engineers.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Clay Crushers and Pulverizers.
American Clay Machinery Co.
American Pulverizer Co.
Brewer Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
International Clay Mach. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Clays.
American Clay Machinery Co.

### Clay Dryers.
American Process Co.
Schaffer Eng. & Equip. Co.

### Clay Feeders and Mixers.
American Clay Machinery Co.
Brewer & Co., H.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.
Taplin-Rice-Clerkin Co.

### Clay Gatherers.
(See Scrapers.)

### Clay Steamers.
American Clay Machinery Co.
International Clay Mach. Co.

### Clay Technologists.
American Clay Machinery Co.
Fate Co., The J. D.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

### Clutches.
(See Supplies.)

### Coloring Materials.
Chattanooga Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

### Cones.
Orton, Edward, Jr.

### Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.

### Continuous Kilns.
American Clay Machinery Co.
International Clay Mach. Co.

### Contracting Engineers.
Ceramic Supply & Con. Co.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. & Equip. Co.

### Couplings.
(See Supplies.)

### Cutting Tables (Brick & Tile).
American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Cutting Wires.
American Clay Machinery Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Mittler Wire Mfg. Co.
Webb Wire Works.

### Dampers.
(See Supplies.)

### Dies.
(See Supplies.)

### Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Drills.
Ceramic Supply & Con. Co.

### Drain Tile Machinery.
(See Brick & Tile Machinery.)

### Drums, Hoisting and Winding.
(See Supplies.)

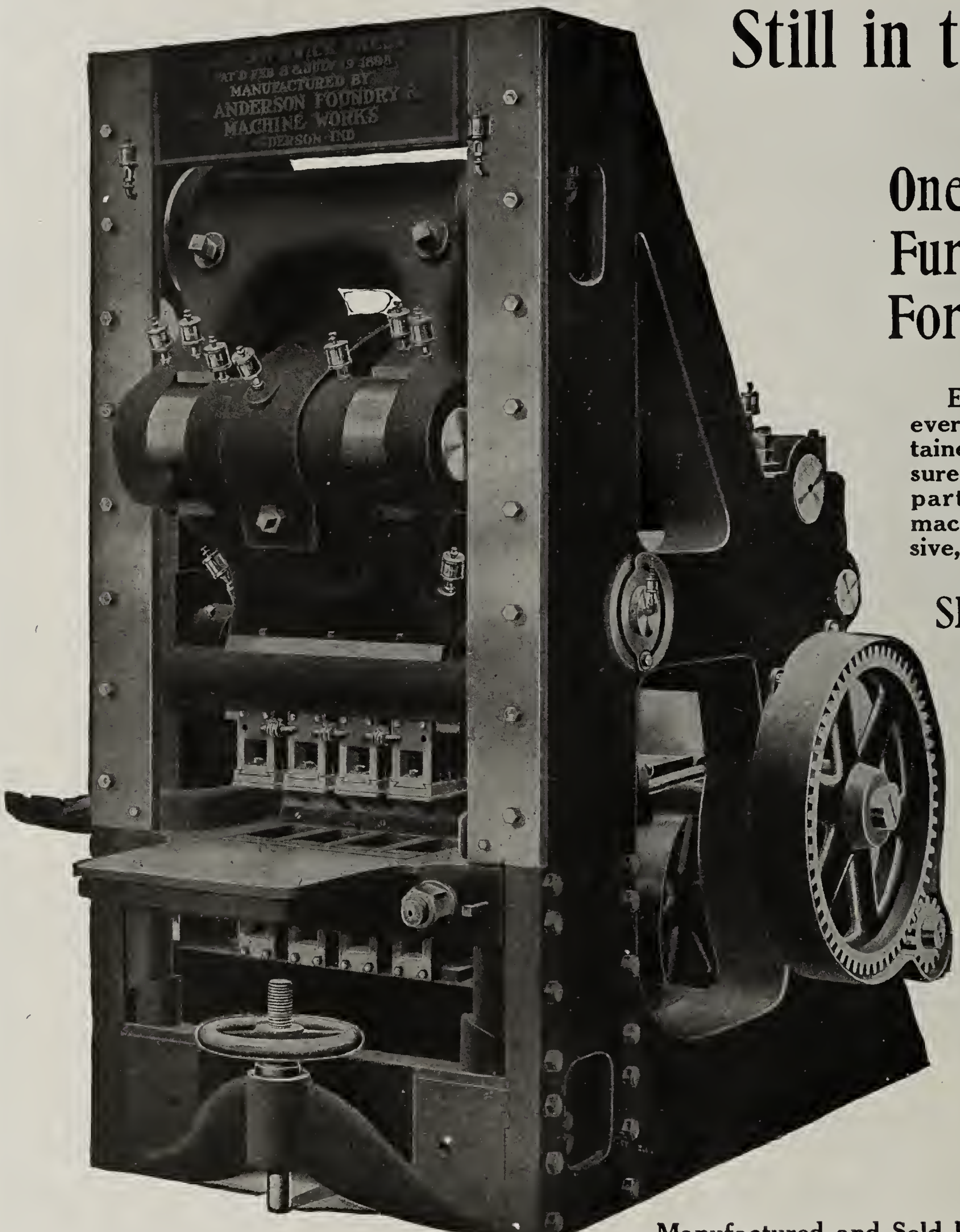
### Dryers.
American Blower Co.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Chambers Bros. Co.
Fate Co., The J. D.
International Clay Mach. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

### Dryer Cars.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Lakewood Engineering Co.
Potts & Co., C. & A.

(Continued on page 593.)

# NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



## Still in the Lead

and

## One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

**SHIPPED IN ONE PIECE.**

All Machines Are Equipped With

**CUT GEARING.**

Manufactured and Sold by

## THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.
Dayton, Ohio

ANDERSON, IND.

## Buyers Ready Reference List—Continued.

Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

### Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
International Clay Mach. Co.
Phillips & McLaren Co.
Taplin-Rice-Clerkin Co.

### Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Lakewood Engineering Co.
Potts & Co., C. & A.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.

### Electric Instruments.

Brown Instrument Co., The
Thwing Instrument Co.

### Electric Shovels.

Thew Automatic Shovel Co.

### Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

### Electrical Locomotives.

Atlas Car & Mfg. Co.

### Electrical Supplies.

American Clay Machinery Co.
International Clay Mach. Co.
Westinghouse Elec. & Mfg. Co.

### Elevating Equipment.

(See Conveyors.)

### Engines.

American Clay Machinery Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

### Engineers.

American Clay Machinery Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Schaffer Eng. & Equip. Co.
Trautwein Dryer & Engr. Co.

### Fans.

American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Filler (Paving).

Barrett Mfg. Co.

### Filter Presses.

American Clay Machinery Co.
International Clay Mach. Co.
Taplin-Rice-Clerkin Co.

### Fire Brick and Fire Clay.

Chicago Ret. & Fire Clay Co.
Parker-Russell M. & M. Co.

### Floor Tile.

Chicago Ret. & Fire Brick Co.

### Flower Pot Machinery.

Baird Machinery & Mfg. Co.
Rockwood Mfg. Co., The
Taplin-Rice-Clerkin Co.

### Friction Clutch Pulleys.

(See Supplies.)

### Furnaces.

Brown Instrument Co., The
International Clay Mach. Co.
Richardson-Lovejoy Engr. Co.

### Gas Fire Continuous Kilns.

Raymond Co., The C. W.

### Gears.

(See Supplies.)

### Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Grates.

American Clay Machinery Co.
Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.

### Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin-Rice-Clerkin Co.

### Gravity Haulage.

American Clay Machinery Co.

### Grouter.

Marsh-Capron Mfg. Co.

### Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Fate Co., The J. D.
International Clay Mach. Co.
Lakewood Engineering Co.
Mueller Bros.
Stevenson & Co.

### Hand Winch.

(See Supplies.)

### Hangers.

(See Supplies.)

### Hoists.

(See Supplies.)

### Hollow Brick Machinery.

American Clay Machinery Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Illustrators.

Lamb, J. & R.

### Insurance.

Mantel, Tile and Grate Monthly.

### Jacks.

(See Supplies.)

(Continued on page 595.)

MUELLER'S NEW AUGER BRICK MACHINERY

Auger Brick Machines of most advanced design, in capacity from 8,000 to 60,000 per day.

Horsepower Brick Machines, Hand Plunger Presses for drain tiles, hollow blocks, etc.

Smooth Roll Crushers, with two and three rolls, Break-roll Crushers for hard shale.

Pug Mills, single or double shaft, for any capacity, Automatic Feeders.

Automatic Brick, Block and Drain Tile Cutters.

Hand tables for all kinds of clay products, designers of special tables.

Complete equipment for making lockplate building blocks, coupling building blocks and other hollow wares.

ROOFING TILE MACHINERY

Revolving Presses, Trimming Presses, Hand Roofing-Tile Presses, molds in plaster or metal.
Special Double Shaft Auger Machines for roofing tiles, and mechanically lubricated dies.
Cutting tables for shingles, promenades, interlocking, Spanish tiles etc.

MUELLER BROS.

1436 Macklind Ave. (on Frisco Tracks) ST. LOUIS, MO.

# WE ARE PREPARED

to furnish you with anything you may require in the line of Clayworking Machinery, Dryers and Continuous Gas Fired Kilns.

We shall always have on hand any spare parts for machinery of our manufacture, and equipments needed or useful in connection with clayworking.

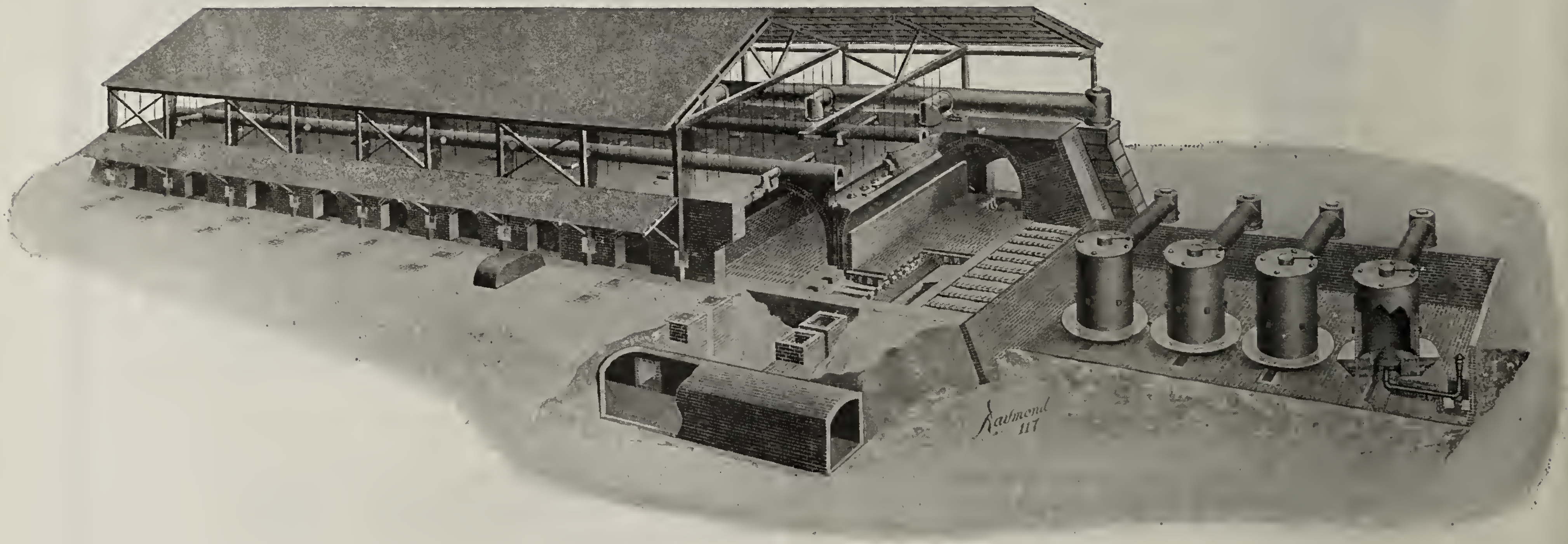
We are especially equipped with facilities for testing clay and telling you of its value for any purpose you may wish, and shall be pleased if you will avail yourselves of them.

We shall continue all the lines formerly handled by the C. W. Raymond Co., and add to them from time to time as improvements or additions are made.

We intend, by care, courtesy, efficiency and attention, to make ourselves valuable to you, and we solicit your inquiries.

**INTERNATIONAL CLAY MACHINERY CO.**
**Dayton, Ohio**

**Successors to**
**The C. W. Raymond Co.**



**The Producer Gas Fired Continuous Kiln.**

## Buyers Ready Reference List—Continued.

### Kilns.
American Clay Machinery Co.
Boss Co., John C.
Hook Patent Kiln Co.
International Clay Mach. Co.
Klose, A.
Manufacturers Equipment Co.
Richardson-Lovejoy Engr. Co.
Schaffer Eng. Equip. Co.
Smith Co., Claude.
Yates, Alfred

### Kilns, Doors, Castings and Frames
(See Supplies.)

### Kiln Floor Tile.
Chicago Ret. & Fire Brick Co.

### Knives.
(See Supplies.)

### Locomotives.
Davenport Locomotive Works.
Dewey Bros.
Fate Co., The J. D.

### Manganese.
(See Coloring Materials.)

### Mechanical Draft.
American Clay Machinery Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

### Mineral Paint.
(See Coloring Materials.)

### Molds (Brick).
American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
International Clay Mach. Co.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.

### Mold Sanders.
American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
International Clay Mach. Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Wallace Mfg. Co.

### Mortar Colors.
(See Coloring Materials.)

### Motor Trucks.
Fate Co., The J. D.

### Oil Burners.
Schurs Oil Burner Co.

### Paints.
(See Coloring Materials.)

### Pallets.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

### Pans (Dry and Wet).
(See Dry and Wet Pans.)

### Paving Brick or Block.
(See Brick.)

### Perforated Sheet Metal.
Caldwell & Sons, H. W.
Ceramic Supply & Con. Co.
Harrington & King Perf. Co.

### Pitch (Paving).
Barrett Mfg. Co.

### Plows.
(See Scrapers.)

### Poidometers.
Schaffer Eng. & Equip. Co.

### Portable Track.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
International Clay Mach. Co.
Lakewood Engineering Co.

### Pottery Machinery.
American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Fate Co., The J. D.
International Clay Mach. Co.
Rockwood Mfg. Co.
Taplin-Rice-Clerkin Co.

### Power Plant Equipment.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

### Presses.
(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

### Pug Mills.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Mueller Bros.
Potts & Co., C. & A.
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Pulleys.
(See Supplies.)

### Pulverizers.
American Clay Machinery Co.
American Pulverizer Co.
Fate Co., The J. D.
Taplin-Rice-Clerkin Co.

### Pumps.
Ceramic Supply & Con. Co.
Dean Bros. Steam Pump Wks.
Potts & Co., C. & A.

### Pyrometers.
Brown Instrument Co.
Ceramic Supply & Con. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

### Rails and Railway Equipment.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Ceramic Supply & Con. Co.
Davenport Locomotive Works.
Fate Co., The J. D.
Lakewood Engineering Co.

### Rattlers (Paving Brick).
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

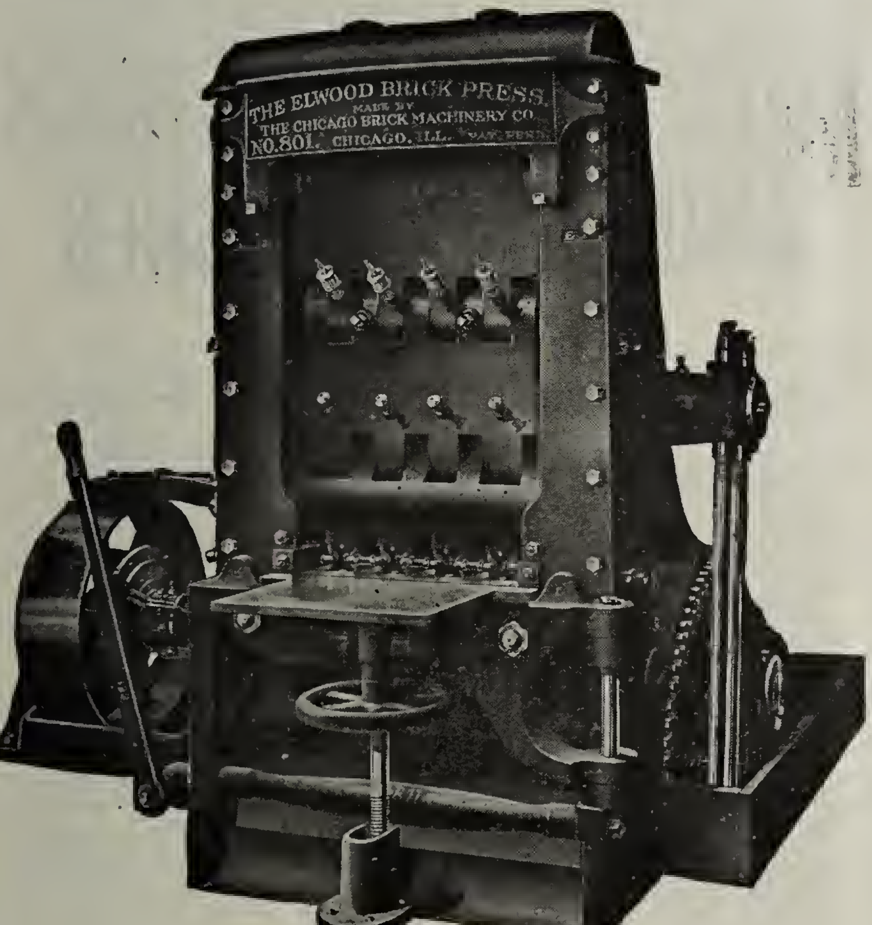
### Recording Gauges.
Brown Instrument Co.
Ceramic Supply & Con. Co.
Thwing Instrument Co.

### Represses.
American Clay Machinery Co.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mach. Co.
Lakewood Engineering Co.
Mueller Bros.
Taplin-Rice-Clerkin Co.

### Revolution Indicators.
Brown Instrument Co.
Ceramic Supply & Con. Co.

### Revolving Steam Shovels.
American Clay Machinery Co.
Thew Automatic Shovel Co.

(Continued on page 596.)



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BUILT FOR HEAVY DUTY.
ALWAYS MAKES GOOD.

WE ALSO HANDLE EVERYTHING USED ON A BRICKYARD.

CHICAGO BRICK MACHINERY CO.

Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

20 W. Jackson Blvd., Chicago

## Buyers Ready Reference List—Continued.

### Rock Crushers.
American Clay Machinery Co.
American Pulverizer Co.
Phillips & McLaren Co.

### Roofing Tile Machinery.
American Clay Machinery Co.
Fate Co., The J. D.
International Clay Mach. Co.
Mueller Bros.
Taplin-Rice-Clerkin Co.

### Rope.
(See Supplies.)

### Rotary Dryers.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
International Clay Mach. Co.
Potts & Co., C. & A.
Schaffer Eng. & Equip. Co.

### Sand Dryer and Sand Sieves.
American Clay Machinery Co.
Ceramic Supply & Con. Co.

### Sand Lime Brick Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Ceramic Supply & Con. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Lakewood Engineering Co.
Raymond Co., The C. W.

### School of Ceramics.
Illinois University.
New Jersey State School.
New York State School.
Ohio State University.

### Scrapers, Plows and Clay Gatherers.
Arbuckle & Co.
Lechtenberg Brothers.
Eagle Iron Works.

### Screens.
American Clay Machinery Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Harrington & King Perf. Co.
International Clay Mach. Co.
Lakewood Engineering Co.
Taplin-Rice-Clerkin Co.

### Sewer Pipe Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.

### Steam Gauges.
(See Supplies.)

### Steam Shovels.
American Clay Machinery Co.
Thew Automatic Shovel Co.

### Steam Specialties.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steam Traps.
American Clay Machinery Co.
American Blower Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

### Steel Pallets.
Ohio Galvanizing Co.
Lakewood Engineering Co.

### Supplies.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
International Clay Mach. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Steele & Sons.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

### Switches.
American Clay Machinery Co.
Atlas Car & Mfg. Co.
Lakewood Engineering Co.

### Tempering Wheels.
Carnell, Geo.
International Clay Mach. Co.

### Thermometers.
Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

### Tile Machines.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., H.
Brewer Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
International Clay Mach. Co.
Potts & Co., C. & A.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

### Time Recorders.
Brown Instrument Co.
Ceramic Supply & Engr. Co.
Thwing Instrument Co.

### Tracks and Switches.
(See Rails.)

### Transfer Cars and Turn Tables.
(See Supplies.)

### Turn Tables.
American Clay Machinery Co.
Fate Co., The J. D.

### Unloading Device for Pans.
American Clay Machinery Co.
Frost Mfg. Co.
International Clay Mach. Co.

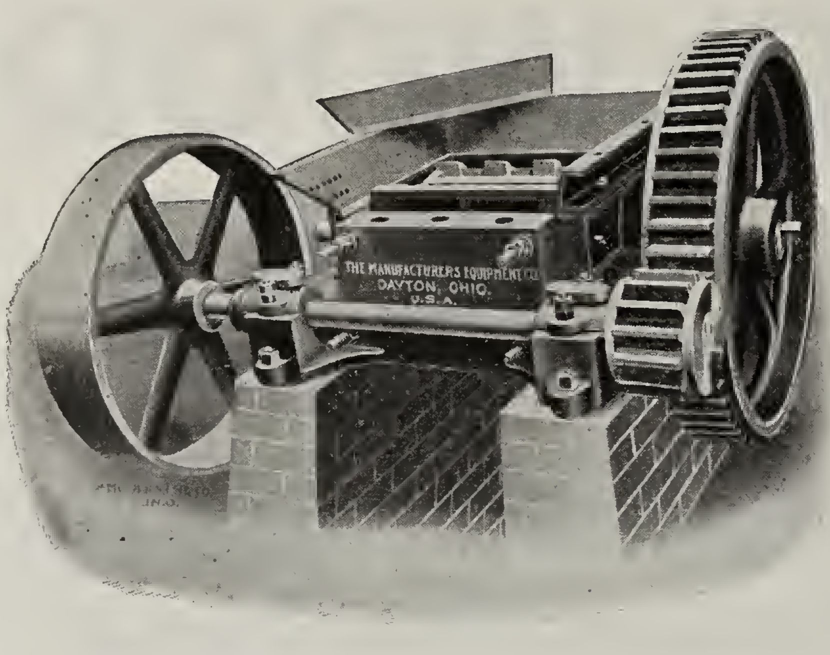
### Voltmeters.
Brown Instrument Co.

### Wheels and Axles.
(See Supplies.)

### Wheelbarrows.
(See Barrows.)

### Wet Pans.
(See Pans.)

### Wire.
(See Cutting Wire.)



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The Crusher Ideal for Every Desirable Performance

Crushes Hard Rock, Shale, Fire Clays, Vitrified Products, etc.

Unlike crushers of other types it crushes the material and is **FREE OF THE CLOGGING EVIL.**

Its capacity is wonderful for both the size of pieces it will handle and the amount of material it will crush.

It will prolong the life of dry and wet pans and materially reduce their cost of maintenance.

Upkeep is practically nothing and its power and labor requirements are negligible.

We have a size that will meet your condition and at a price that will be a temptation to buy.

A most interesting booklet telling all about the crusher is now being published. The issue contains a copy for you. May we send it to you? A postal reply is all that's necessary.

**The Manufacturers Equipment Co.**
Complete Clayworking Equipment
Dayton——Ohio——U. S. A.

# THE THEW SHOVEL

FULL CIRCLE SWING
THEW
HORIZONTAL CROWDING MOTION
STEAM SHOVELS

# Would You Like to Know Just What It Costs Others to Dig Clay and Shale?

The first Thew Shovel Built. Has been in service over 15 years Ask the Central Shale Brick Co., St. Louis, Mo., what they think of it.

Type 2 Brick Shovels owned by the Streator Paving Brick Company, Streator, Ill. The upper shovel is digging clay, and the lower one is digging hard shale.

Type 3 Thew Shovel in Geo. Gynn plant of Farr Brick Company, Cleveland, O. This shovel has been in use 14 years and has operated every day but three in the past four years.

## *THEN JUST ASK*

for Circular 22B. In it is compiled a record of actual results gathered from 55 different clay plants, many with conditions identical to your own. Cost per ton, per yard, and per thousand of brick are given, several photos of clay pits are shown and other information incorporated of a character that will interest all clayworkers.

The illustrations, which are taken from our latest booklet, represent three qualities of great advantage to clayworkers. They are a fair sample of the good results you may expect to get with a Thew Shovel.

## *THERE ARE NOW*

## *Over 300 Thew Shovels in The Clayworking Industry*

a fact which conclusively proves their great adaptability for the conditions peculiar to this work.

The Horizontal Crowding Motion and other Thew Features of particular advantage to this work are also fully described in this circular.

This is just another booklet such as business men are anxious to read in order to keep abreast of the times with reference to their industry.

Send for your copy today.

**Sign and Mail or Use for Memorandum**

**The Thew Automatic Shovel Co.**
**Lorain, Ohio**

Send at once Circular 22B containing material and facts about the Thew Shovel of interest to all clayworkers, as advertised in The Clay-Worker.

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Address ....................................

**THE THEW AUTOMATIC SHOVEL CO.** LORAIN OHIO

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To have your plant doing business all through 1915 you should have a TRAUTWEIN DRYER—so getting the

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Of Increased Capacity
Greatest Economy
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OUR DRYERS ACCOMPLISH THESE THINGS WITH EASE

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**Manufacturers=Engineers**
**417 South Dearborn Street Chicago**

# Another Large Manufacturer Uses SMITH STEEL SHELL KILNS

After Careful and Extended Investigation the MASON CITY BRICK AND TILE COMPANY has closed a contract for CLAUDE SMITH STEEL SHELL KILNS. This company operating six plants, is the largest single company in the west making hollow ware.

**Why Hesitate When Successful Men Use UP=TO=DATE METHODS**

A CARD TO US BRINGS FURTHER INFORMATION

**Claude Smith Company**
**KILN BUILDERS**
**Plymouth Building Chicago, Illinois**

# BOOKS FOR CLAYWORKERS.

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## These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

---

**The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price $2.00.**

**A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.**

**Modern Brickmaking, by Alfred B. Searle. Price $5.00.**

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

**Clay Glazes and Enamels, by Henry R. Griffen. Price $5.00.**

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

**Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price $5.00.**

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

**The Effect of Heat Upon Clays, by Prof. A. V. Bleininger. Price $2.00.**

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

**Bricklaying System, by Frank B. Gilbreth. Price $3.00.**

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

**Hollow Tile House, by Fred'k Squires. Price, $2.50.**

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

**Radford's Brick Houses and How to Build Them, by Wm. A. Radford. Price, $1.00.**

Replete with new and artistic designs for brick houses, apartments, stores, etc., together with instructions in the manufacture of brick and its practical uses as a building material.

**Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price $2.00.**

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

**Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price $2.00.**

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

**Engineering for Land Drainage, by C. G. Elliott. Price $2.00.**

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

**Practical Farm Drainage, by C. G. Elliott. Price $1.50.**

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

**Economies in Brickyard Construction and Operation, by Ellis Lovejoy, E. M. Price $1.00.**

Points out economical methods for every department of the business. Is practical and covers the field thoroughly.

**Scumming and Efflorescence, by Ellis Lovejoy, E. M. Price, 50 Cents.**

A book of authority, giving the cause and remedy of scum and efflorescence.

**Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.**

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, $2.50; in lots of 1,000, $20.00.

**Drying Brick, by W. D. Richardson. Price 25 Cents.**

A little booklet giving and explaining the various styles of dryers, etc.

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**The National Paving Brick Manufacturers' Association**

Will send you free, upon request, any or all of the following booklets:
"Directions for Laying Brick Street Pavements." "The Dependable Roadway."
"Vitrified Brick Pavements for City and Country."
Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

**SHAWMUT VITRIFIED PAVING BRICK WORKS**

Shawmut, Pa. Alfred Yates, Gen. Mgr.
Vitrified Shale and Fire Clay Paving Brick and Blocks.
Burned in Yates' Patent Kiln.
Samples and prices on application.

PAVING BUILDING · BRICK AND BLOCK · SIDEWALK FOUNDATION

**The Barr Clay Co.**

C. C. BARR, Pres., Streator, Ill.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

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Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
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Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
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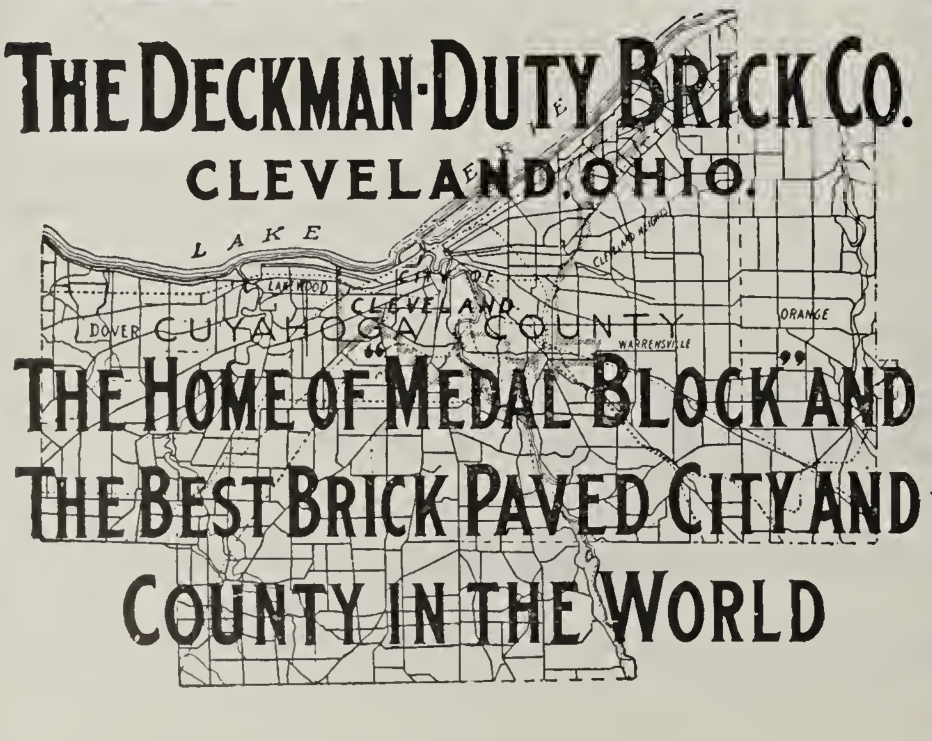
**THE DECKMAN-DUTY BRICK CO.**
CLEVELAND, OHIO.



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Repressed and Wire-Cut-Lug Block.
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The Danville Brick Company
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LET US QUOTE YOU PRICES.

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PHILADELPHIA, PA.
*"McAVOY BLOCK"*

**C. P. MAYER BRICK CO.**

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The MAYER BLOCK is Unequaled in Abrasion Test.

**"Best Paving Block Made"**

Daily Capacity
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The Metropolitan Paving Brick Co.
Canton, Ohio

SERVICE FIRST!

**IRONSTONE BLOCK**

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

**Terre Haute Vitrified Brick Co.**

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**Murphysboro Paving Brick Company**

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**EGYPTIAN PAVING BLOCK**

The Block That Stands the Test.

Prices and samples furnished
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MURPHYSBORO, ILL.

**VITRIFIED PAVING BRICK**

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second edition.

Mailed to any address on receipt of $2.00.

**T. A. Randall & Co. (Inc.) Publishers**
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**CLINTON PAVING BRICK CO.**

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Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

**Clinton Paving Brick Company**
Clinton, Indiana

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THE DEPENDABLE ROADWAY

**Bessemer Limestone Company**

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Manufacturers of

**BESSEMER BLOCK.**

The Most Uniform Shale Paver Made.

**PURINGTON PAVERS**

ARE MADE OF

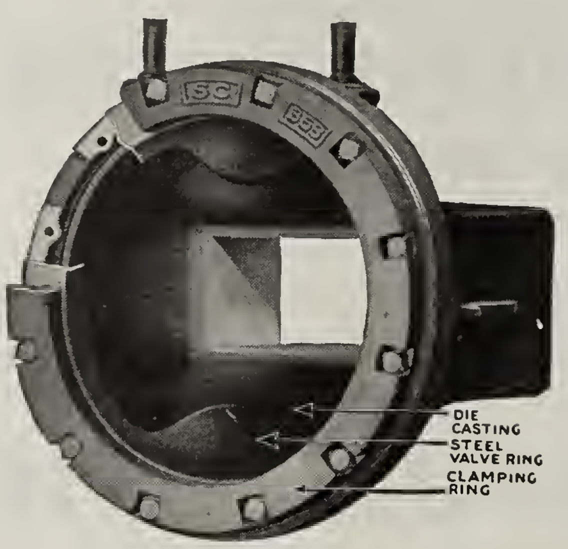
**GALESBURG SHALE**

**PURINGTON PAVING BRICK CO.**

GALESBURG, ILL.

# Chambers Brothers Co., Philadelphia, Pa.

## Brickmaking Machines and Appliances of the Better Kind.



**Lubricating Side-Cut Brick Die.**
(Patented Feb. 24, 1903.)

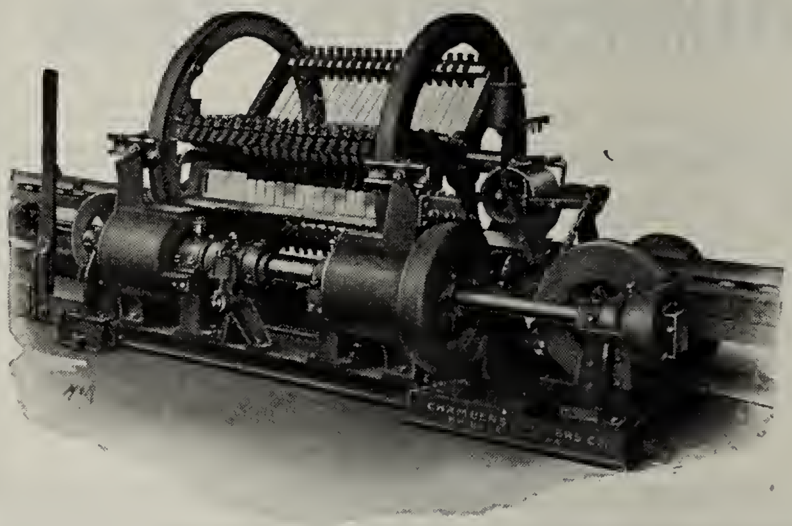
### The Chambers Lubricating Die Helps on the Rattler Test.

The lubricant is applied at the point of greatest resistance and is forced into the die under pressure. Contributes to a more uniform movement of clay bar. Gritty shales and fire clays possessing but little plasticity are molded more successfully with this die. Less power, less waste, better product. Used on various auger machines. Both side-cut and end-cut.

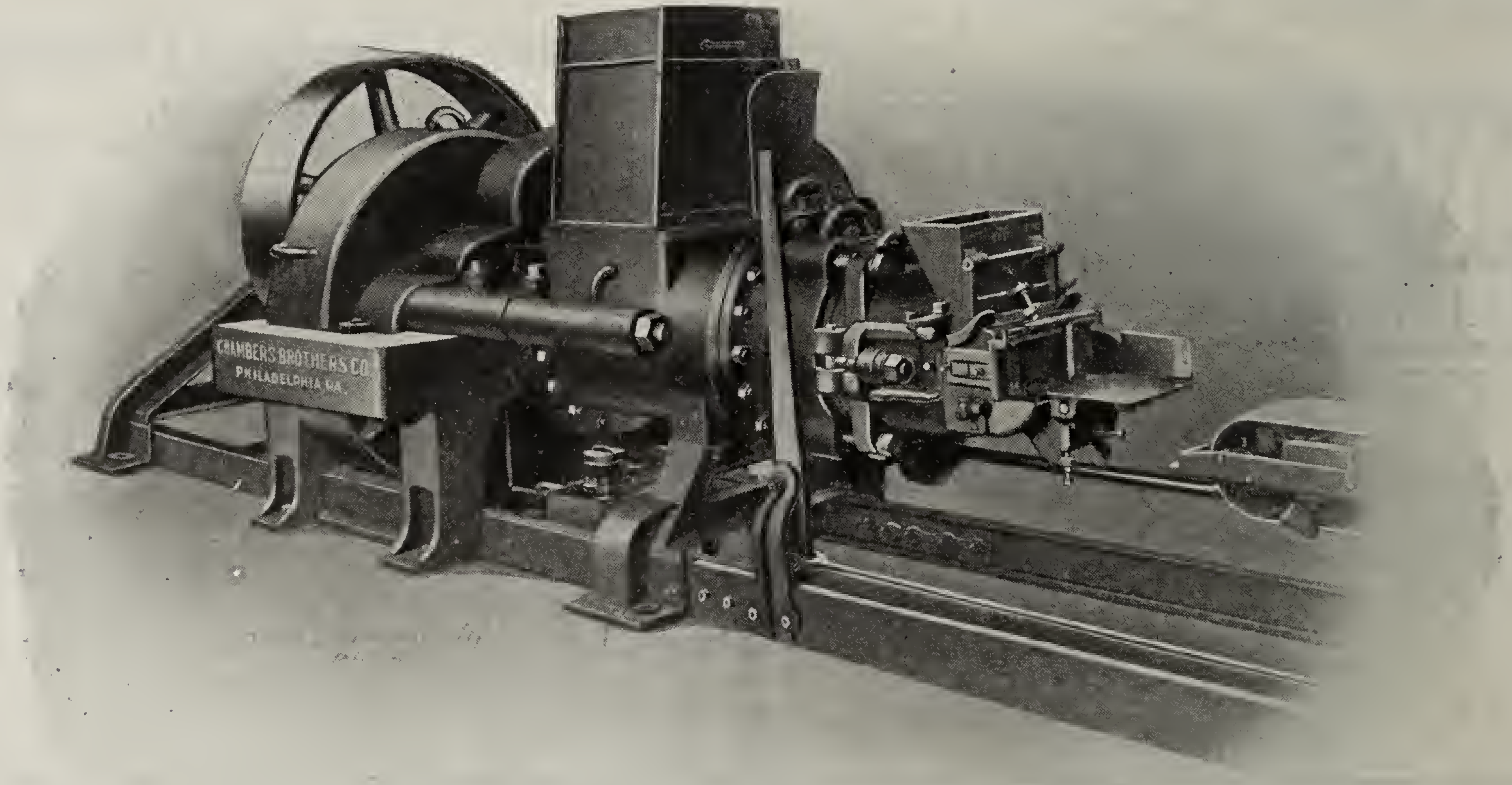
### A New Frictional Driven Side-Cutter for Brick or Block.

Works easily and accurately. Does not swell the clay bar.

### A FIRST-CLASS CUTTER FOR FIRST-CLASS PRODUCTS.



AUTOMATIC SIDE-CUTTER NO. 10.



### The Keystone Auger Machine--For End-Cut or Side-Cut Products.

Of great strength and large capacity. Single gear type. Gearing enclosed and running in oil. Journals lubricated by circulating oil system.

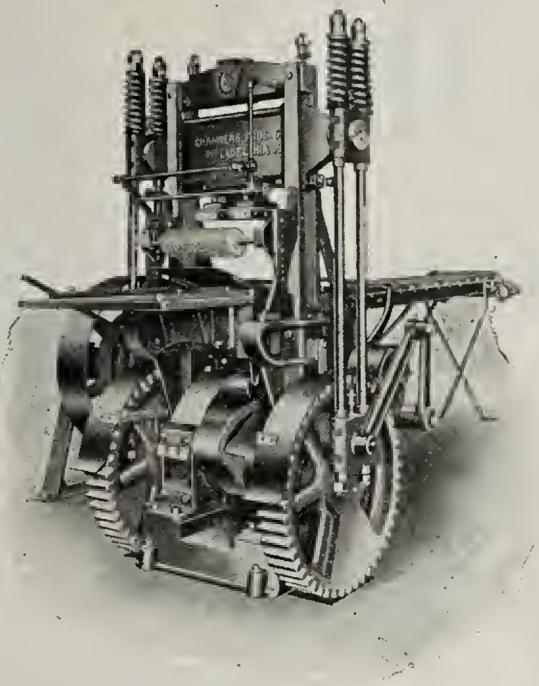
# Chambers Brothers Co., Philadelphia, Pa.

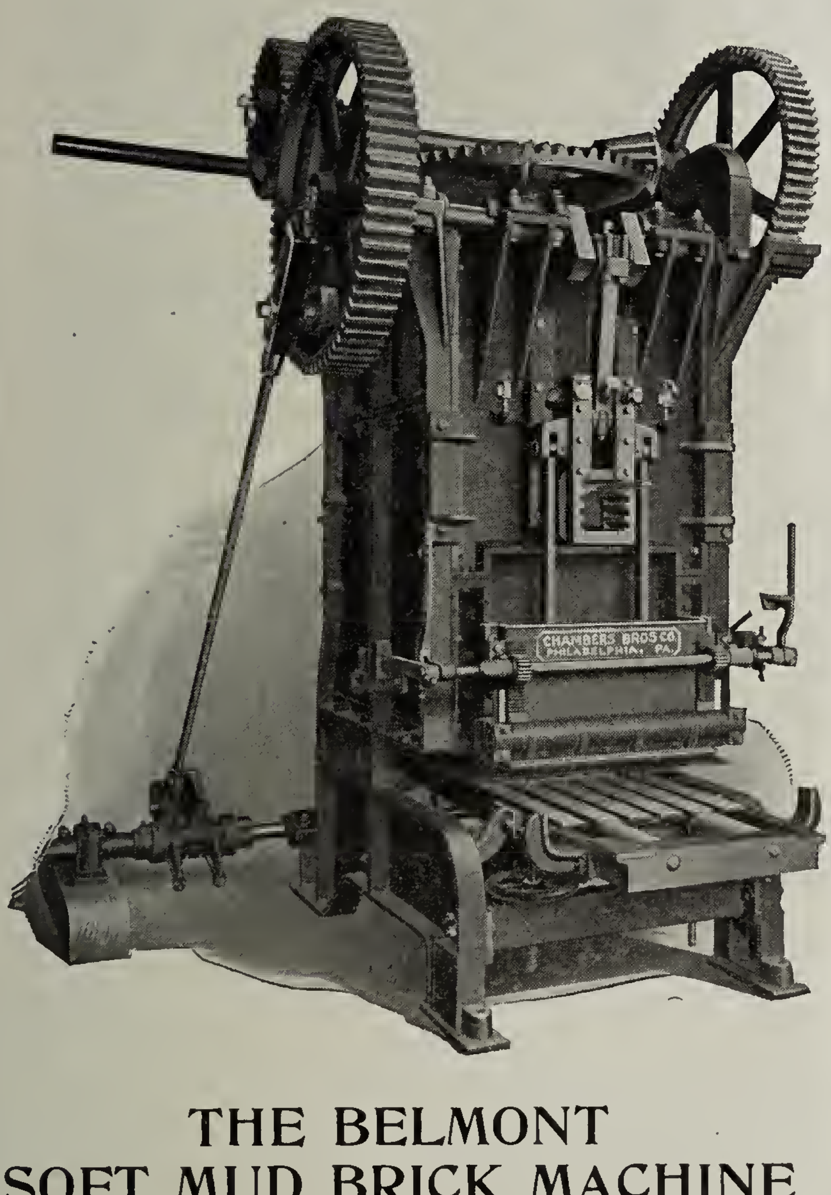
Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.

## THE KEYSTONE REPRESS

A strongly built Crank Press that has found favor with manufacturers of fire brick and furnace blocks. Closely built, with great stiffness in crank shaft.

All cross head slides of liberal dimensions. The feed mechanism is in perfect time and gives a smooth, easy movement to the finished product. Press built in four sizes for different classes of work.





THE BELMONT
SOFT MUD BRICK MACHINE

## THE BELMONT

### FOR BUILDING BRICK---FOR FIRE BRICK

A substantial machine constructed of iron and steel and designed along well established lines for machinery of this class.

Improved relief mechanism for mold pusher, located at rear of machine away from interference with operatives and from waste material.

Machine built for either right or left feeding.

Access to inside of main chamber through opening, 33 x 24 inches, covered by one piece of boiler plate, conveniently removable.

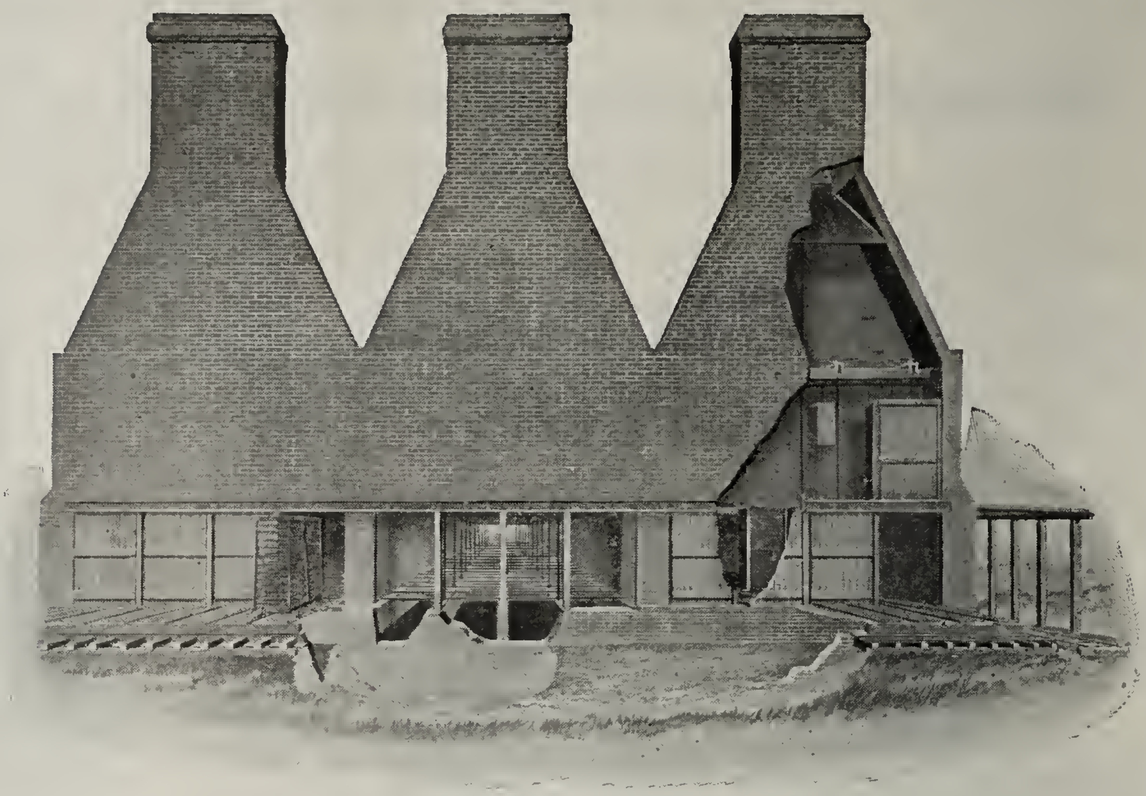
Nearly 19,000 pounds of carefully designed, well made, soft mud brick machinery.

One piece crank shaft of forged steel. Three journal bearings on crank shaft.

All gears of liberal face and substantial pitch; the crown gear being provided with vertical adjustment for maintaining correct mesh between gear and pinion. All large gears of semi-steel with driving pinion of cast steel. Crown gear and its pinion are both molded from cut metal patterns.

Molds sharp clean edge brick as stiff as can be dumped from the molds.

# What Drier is This?



It's the one that has been bringing clay products out *right* for over 25 years.

What varieties of clays? *Every* variety that's worth manufacturing.

The Standard Brick Drier knows no limitations. Perfect control of the drying elements makes it thoroughly adaptable for all clays.

Ask users. They'll tell you: "No checking---no cracking!"

List of users in the catalog. Write for it. Address: The Standard Dry Kiln Co., 1547 McCarty Street, Indianapolis, Ind.

# THE CLAY-WORKER

The Official Organ of the National Brick Manufacturers' Association of the United States of America.

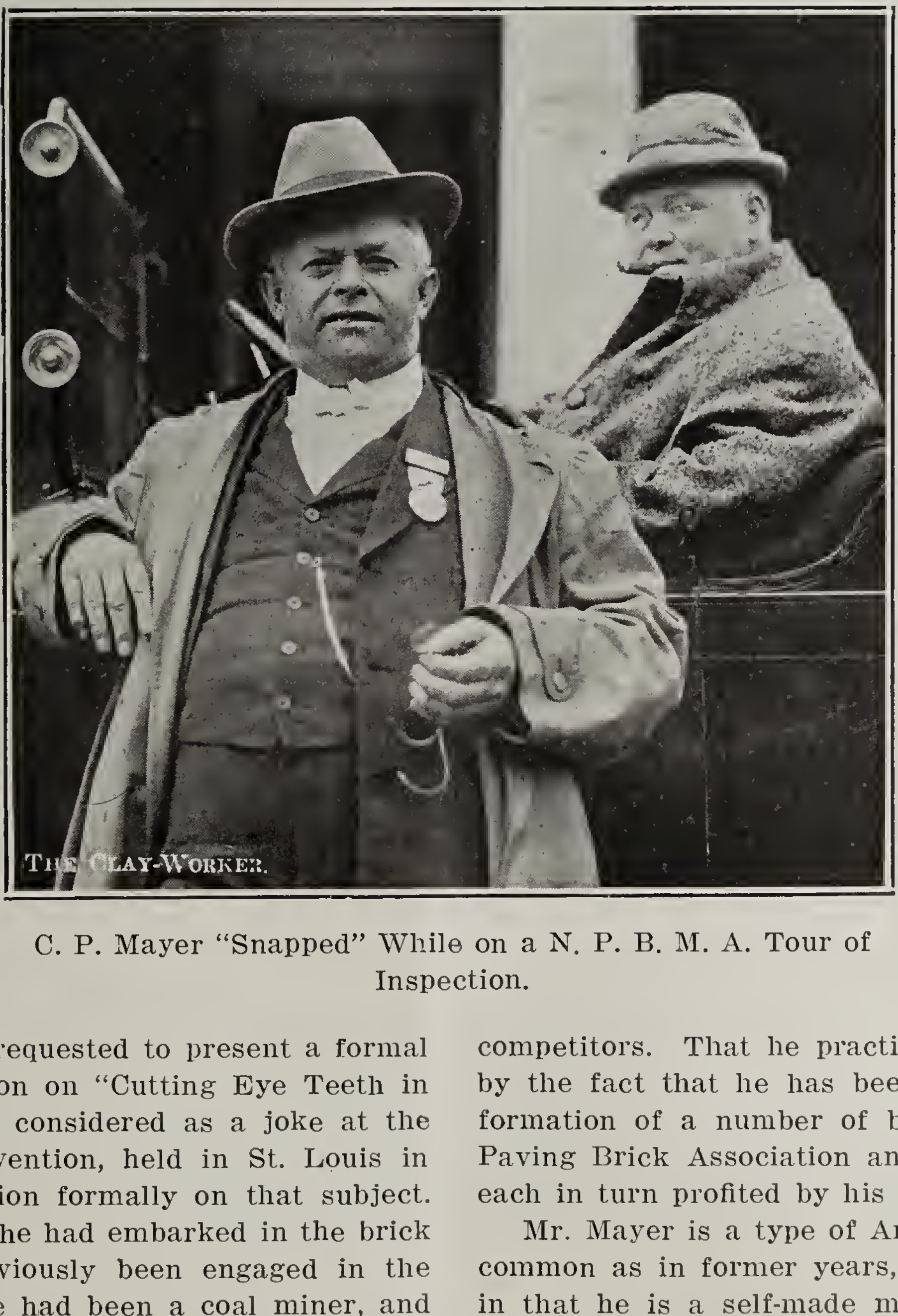
Vol. LXIV. INDIANAPOLIS, IND., DECEMBER, 1915. No. 6

WRITTEN for The Clay-Worker.

## C. P. MAYER AND HIS BRICK PLANT.

### A Persistent Booster of Brick Pavements and an Enthusiastic Promoter of All Clay Products.

AT THE TWENTIETH annual convention of the National Brick Manufacturers' Association, held at Philadelphia in 1906, a gentleman, who at the outset proclaimed he was young in the brick business, in discussing the commercial end of the brick industry, declared that he had but recently cut his first eye tooth as a brickmaker. He commented in a clever way on the intelligent appearance of those in the audience, and asked if it was a fact, as some one had stated, that brickmakers made it a practice to get the best price they could for their brick at home and then proceeded to unload their surplus product in the markets of their neighbor brickmakers at any price they could get. He made it clear that such practice was sure to boomerang on those who followed it, and urged a better and more rational policy in the marketing of brick, especially paving brick, that being the line in which he was engaged.


THE CLAY-WORKER.

C. P. Mayer "Snapped" While on a N. P. B. M. A. Tour of Inspection.

His remarks were so pertinent and forceful that it was suggested by someone in the audience that he be requested to present a formal paper at the following convention on "Cutting Eye Teeth in the Brick Business." This was considered as a joke at the time, but at the following convention, held in St. Louis in 1907, he addressed the convention formally on that subject. He stated in the beginning that he had embarked in the brick business in 1904. He had previously been engaged in the lumber business; before that he had been a coal miner, and so was familiar with the mineral deposits in the vicinity of Bridgeville, Pa. He acquired a large tract of land on which there were outcroppings of both coal and shale. The erection of the plant, its operation, and the establishment of the business made an interesting story; a series of chapters of experiences, all of which, being narrated in an original and forceful manner, made the narrator a marked man in the association membership.

The gentleman referred to is Casper P. Mayer, and he has taken an active part in every succeeding convention. A man of great force of character, it is not to be wondered at that he was called to executive office, and elected third vice-president in 1912, and promoted until, at the last convention, he was elected president. We are pleased to present a characteristic photo of Mr. Mayer, taken during a trip of inspection of brick paved highways at one of the paving brick conventions.

The appeal which he made for rational business methods previously mentioned has been followed consistently by him in the intervening years and he has proven an able advocate of consistent methods in the conduct of the brick business, both in his own district and in the paving brick markets throughout the East and central states. While he has not indulged in illegal combinations in restraint of trade, he has advocated a "live and let live" policy for all engaged in the industry which has born good fruit, and entitles Mr. Mayer to the respect and kindly consideration of his competitors. That he practices what he preaches is evident by the fact that he has been instrumental in aiding in the formation of a number of brick organizations; the Eastern Paving Brick Association and the Pittsburgh Clay Club has each in turn profited by his counsel and advice.

Mr. Mayer is a type of American that is not now quite so common as in former years, but instead is now rather rare, in that he is a self-made man. Born of humble parentage, he became a bread-winner at an age when most boys are still in school. His first trade was that of a coal miner. In time he became a mine manager, and afterward a merchant and lumber dealer, and finally the owner and manager of a successful paving brick plant.

A man of fine native ability and untiring energy, success has marked every step of his career, and today he is one of the prominent men in his own community. Indeed, he is known locally as the "Mayer" of Bridgeville, not because he has held office, for he has not, but because of his influence in all local matters. Naturally, he has been identified with political life, and in order to achieve certain reforms which he deemed desirable, he acquired the ownership of a weekly paper, the "South Hill News," which has been published under his direction for some years past, and has proven an effective medium for the advocacy of good roads and other needed reforms. What other enterprises he may engage in, time alone can tell. While he has no political aspirations, if his neighbors should send him to the halls of congress he will be equal to his opportunities there as elsewhere, and his compeers there will find him a fearless advocate of Democratic principles with the courage of his convictions.

THE CLAY-WORKER.

Three Generations of Mayers, Charles M. Jr., C. P. Jr., Charles M., Frank C., and C. P. Mayer.
The First Named Calls the Last "Granddad."

### Excellent Brick Paved Roads.

Mr. Mayer practices what he preaches in the matter of brick roads. Through his influence largely, the main streets of Bridgeville and several miles of country roads approaching same have been paved with brick, Mayer brick, of course, and are an effective object lesson on the economy and durability of brick highways. We picture a section of Washington avenue near Station street which has been down six years or more, and though subject to quite heavy traffic, is practically as good as new, showing relatively no wear at all. If we may judge from its present appearance, it will be a perfectly good street ten or twenty years hence, and that, too, without any cost for repairs. The advocates of good roads may well consider the economy of these permanent brick roadways.

Bridgeville lies ten miles west of Pittsburgh, and a good portion of the road connecting the two towns has already been paved with brick. Other improvements are contemplated, and it is a safe prophecy that within another year or two the entire trip may be made over smooth, clean brick paved roads. The writer recently made the trip with Mayer, Jr., in his car, in forty-five minutes, and considering that part of the way the roads were closed for repairs, requiring detours and careful driving, the reader may surmise that fast time was made on the sections of the road paved with brick.

### Plant of the Mayer Brick Co.

It is often said that no two brick plants are alike; in this respect, they are almost human. The Mayer plant is no exception and is peculiar in many ways. It is a combination coal mine and brick plant and in the beginning the site for the factory had to be carved out of the side of a hill, and on this account they are somewhat cramped for room. A branch of the Pennsylvania railroad affords excellent railroad facilities, the siding extending to within a few feet of the kilns, so that much of the loading is done from kiln to cars on decided down grade, the runways appearing something like toboggans. The plant also has a switch from the Wabash R. R.

The plant was erected in 1903, and now has an annual capacity of about 8,000,000 pavers, operating the year around. The clay and shale deposits are extensive, the average depth being about 60 feet. It overlies a coal measure, and the latter material is mined and used for burning, together with natural gas, of which there is still a goodly supply. The company owns seven gas wells and its own pipe line system. The raw material is hauled in cars to a large storage shed. From the latter it is taken on conveyor belts, passed through heavy service dry pans, one Stevenson and one American, and thence to an American stiff clay machine. The clay is formed into blocks by a Freese cutter and they are then taken on cars to tunnel dryers. The latter are heated by waste heat from cooling kilns. The brick are burned in square down draft kilns, of which there are six, each having a capacity of 100,000 blocks. The burning process requires about thirteen days, all told, two of which are devoted to water-smoking.

Washington Avenue, Bridgeville, Pa., Paved With Mayer Brick. The Two-Story Building on the Left is the Mayer Block

Birdseye View of the Plant of the C. P. Mayer Brick Co.

Practically all of the block made are repressed and measure 3½x4x8 inches. Frequent rattler tests made at the plant enable them to keep close tab on the quality of brick being turned out, and Mr. Mayer prides himself on the high grade of Mayer block, as demonstrated both by tests and actual use.

Two sons are associated with Mr. Mayer in the operation of the plant, and the third generation is coming on, as the reader may see by the accompanying group picture; three generations of Mayers, may their tribe multiply and their usefulness increase. Like many successful men, Mr. Mayer attributes much of his success to the helpful influence of his better half. Mrs. Mayer has always taken an active interest in the business and has been a regular attendant at the N. B. M. A. conventions for more than a decade, and expects to continue to participate in what she regards as a very pleasant annual outing.

## AMALGAMATING THEORY AND PRACTICE.

THAT THEORY is incomplete and insufficient without practice, and that practice is at wide variance with theory, are facts and that have been taken note of in the industrial world practically as far back as industry goes, and yet strange to say we often find the one striving to make its way alone without sufficient of the other. Moreover, it is theory that runs rampant and tries to lead the procession without sufficient practical alloy to make a good composition of it, while on the other hand in contrast to this we have the hardheaded practical man who is resentful of the ideas and ideals of the theorist and stands stolidly in his own light refusing to move when theory points the way to further progress. What we really need for the right kind of industrial progress in the clay manufacturing world, is for some of the theoretical efficiency experts to put in more of their time learning mechanical details and practical features and limitations, and for the practical men, those with lots of experience in the every day work of handling clay and operating machinery, to broaden their views and study more of the theoretical and of the relation of one thing to another in the chain of steps between the clay bank and the delivery of the finished product.

Let us not start off here now with the mistaken idea some people are following that the clayworking industry is asleep has been sleeping for several generations and needs a Moses to lead it to light or a thorough awakening. The clay-working industry, and makers of machinery and planners of plants who cater to it, is composed of live, wide awake people who have manifested as much enterprise and can show as much progress in the past few years as in any other industry. In other words, this industry does not need regenerating any more than any other industry, but here as elsewhere there is always room to improve and to make good things better. It is to this end and not

Upper Part of Mayer Clay Bank.

Taking Out Six-Foot Vein of Coal to Make Room for Six New Kilns.

Flash-Light Picture of Machine Room.

Storage Shed from Which the Shale Is Conveyed by Belt Carrier Under Railroad to the Dry Pans.

Mayer Block that Came Through the Rattler with a Loss of Only 16 Per Cent.

Flash-Light Picture of Setting Crew at Work in Kiln No. 5.

with the idea that clayworkers are following a blind, blundersome way that the suggestion is offered that further and better progress may be made by proper amalgamating of theory and practice.

The theorist is a good man and helps stir things up. The practical man is a good man and helps keep things going. What we need, therefore, to keep things stirred up and going in better shape, is a better spirit of co-operation between theory and practice and a full realization that neither theory nor practice alone constitutes the whole thing, but it requires a proper composition of both to get the best effects.

To illustrate specifically, the efficiency expert who is a theorist may come to the clayworking plant and point out errors in the general scheme of things, which, if corrected, would make for efficiency. Often the practical man in the plant feels resentful of the idea that he is not getting as good results as he should, therefore, when changes and alterations are made conforming to the idea of the theorist, he may refuse to lend the assistance of his practical knowledge with the result that following out the theorist's idea alone may result in such practical errors as will more than offset in one place any gains made in the other.

How much better it would be in a case of that kind if the theorist would begin by confessing lack of knowledge of and a desire to learn about practical points in many details of the work and would ask for and receive the co-operative assistance of the practical man in charge. Or taking it the other way around, if the practical man would broaden his horizon and welcome any suggestions coming from the other side, and voluntarily cooperate to the end of putting through and making a success of whatever looks good.

It would be better still, of course, if the theoretical expert would before starting out on his mission of counsel and progress finish off his own qualifications by several years of actual work in helping to make and operate clayworking machinery. This would give him a better idea of the practical points involved, it would perhaps take some of the zest and enthusiasm out of him but it would make his progress safer and his propositions sounder.

On the other hand, there is many a good practical man handling clayworking equipment who unconsciously retains too narrow a vision. He is so concerned with immediate, practical details that he does not give enough thought to the broader scope of the work and for this reason often fails to see opportunities for making improvement and progress.

It naturally follows, therefore, that it is unlikely that any one man can point a specific way to attain this end. It would require either an abundance of nerve or more wisdom than Solomon to undertake this. Still, if all of us will keep before us all the time, the importance of the proper amalgamation of theory and practice at real efforts of improvements and progress, we will certainly attain more and get the idea to working more in harmony and accomplish greater results.

Written for The Clay-Worker.

## BUTTON-HOLE TALKS.

### Beautiful Scenery Moves Gates to Poetry.

A PERFECT DAY, not a cloud in the sky and the bluest sky ever, a real Mediterranean blue. We wind in and out in the deep riven chasm of the Canadian Rockies, following a foaming mountain stream as a guide and, from the observation car, craning our necks at the sky-piercing peaks above. There is less verdure and more snow than when seen before, for now not only are the summits snow covered, but the snow extends down, though not so plentifully, to nearly where we are making our way. The rocky heights stand out strongly against the intense blue of the sky and, through the valleys, we catch glimpses of the distant peaks whose bases are clothed in softest azure and whose snowy tops stand out cloud-like in the sky, Banff and then Luggarn.

In memory, we climb again to Lake Louise, America's mountain jewel; an imaginary trip now, for we cannot stop, and, anyway, it is now too cold, even if we could stop. And then, having filled our eyes with magnificent visions all day, we give ourselves over to the mercy of the porter's shelf bunks, put a pillow in our ear, stretch out, bump our head, and begin the restless search for a comfortable position in the mattress that Pullman invented.

A wild rush from train to boat, through an enclosed shed, fits me to expand on a description of the city of Vancouver, but I refrain.

Good boats, efficient service, deep water, dotted with rocky islands and bordered afar with the snowy caps of the Olympic range, while Mount Baker stands afar off, stately and majestic, make the Sound trip ideal.

Victoria nestles at the end of her crooked, miniature harbor where the Empress hotel stands at the front to welcome us to its extravagant hospitality. All the rocky heights above are covered with homes, surrounded by verdure and bloom, the owners of which have a picture landscape of the city, the sound and the distant mountains, while all the rocky projecting fingers of the island, clinched down and digging and holding in the waters, are covered with bungalows, the owners of which listen to the music of the surf, and feel the spray of the storm.

To the beauties of the place there is added the cheery welcome of kind friends, prodigal in hospitality, who make us inclined to stay permanently.

A cloudy day down the sound, no sight of Mount Baker or Rainier. A rainy night and day in Seattle, the wonderful, give little sight of the town, except the hurrying crowds, unmindful of the rain, and the hospitable, whole-hearted friends who make us, too, unmindful of weather or storm.

On the trains, unable to tarry at Tacoma or Portland, we only glimpse a little of them in passing, just a little, the worst part, that we always see of a town from the train.

On the Shasta Limited we escape from the woman across the aisle, the one with the phonographic voice and always wound up, and go to the observation car. The skies have brightened; we have been running two-thirds of a mile up in the sky, and running in a cloud, but now we run out of it, and there stands Mount Shasta. I remember how Joaquin Miller used to write of it, and I remember that when I saw him and listened to him years ago, I associated him with the mountain, rugged and old, but with a charm of manner that won you and told of appreciation of beauty, and of honesty. And now that he has gone into the mist of the Great Unknown, and I see the mountain, it reminds me again of him who loved it, seeing in it beauties that escape the ordinary man, for those jagged rocks and chasms were to him not simply broken stone and gashed wounds on the mountain side, but filled a place of beauty and utility and just stood in their place and fulfilled what God had given them to do. They held their moss and they caught the shadows and while individually they were not much, still, collectively, they made a mass so beautiful that it won lasting admiration and filled the paths to it with crowds coming to admire.

Sitting right in front of me was the young man with the bulging forehead, who had been busy writing industriously. He had stopped writing, closed his eyes, buried his face in his hands and remained so, intent, while his manuscript slipped off the table and landed at my feet. I suppose it was wrong, but my curiosity was aroused, and I looked and read:

"Oh, Shasta, you beckon me to you
As you glow in your radiant sheen,
In your mantle of azure I woo you
And I haste to your valleys of green.

High up where your white crown of snow is,
Far above the rough rock at your feet,
I would bask in the light where the glow is
Or e'en bow myself low at your feet.

The storm cloud sweeps up at your summit
But pauses and stops as in fear—"

Just then the man with the fighting chin, who had been reading it, too, picked it up, scribbled on it, and replaced it where it had fallen and I read the added lines:

"My ideas are clean gone from me—dum it,
I'll chase myself off for some beer."

Not wishing to be a witness to what followed the recovery, I immediately went ahead to my reservation.

Here in San Francisco, I gather, I must be careful, for I judge they are pretty quick. As I had recklessly put my safety in the trunk instead of the grip, I had to seek the barber shop this morning, having the shaggy growth of moss from the days of travel removed. As the razor artist whirled my chair about and sat me up for the final touching up, prior to making his final touch, I saw sitting up in the chair across from me a grizzled old sport with his mustache in curl papers, preparing for a killing. Just then the manicure girl made her entrance prepared for the day's business. The old sport's eye brightened as he caught sight of her and he called out: "Hello, Blanche, I was in here Sunday morning ready for you to work on me, but you were not here." Just glancing over, one quick glance, she answered: "How unfortunate—well another six months' wait. Sorry you told me and made me sad."

GATES.

### A FLORAL TRIBUTE.

The curtain was rung up for the third time, and the leading lady stepped forward and responded to the prolonged acclamation of her admiring audience. She spoke with a graceful modesty that charmed, then gathered her floral tributes. Was it the intense excitement or the blinding array of footlights that dazzled and confused her? Quietly reposing on a lower box rail by the proscenium, she saw a magnificent bunch of violets—her favorite flower—ostensibly placed there for her by a sweet-faced, dark-haired lady behind them.

With applause still ringing in her ears, she leaned forward and took the lovely bouquet, acknowledging the gift by a pretty bow.

The sweet-faced, dark-haired lady reached after her with a strange and sudden haste.

"Give me back my hat," she cried, hysterically.

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Many a young man who starts out in life under the impression that he is a born leader, gets married and retires to the rear of the procession.

Written for The Clay-Worker.

## PACIFIC COAST NEWS.

A CONTINUANCE OF fair weather this season favored what building operations there are going on, and it is possible that an encouraging amount of new building work will be carried on during the winter. There is a decidedly better feeling in general business circles now, and it is evident that the prosperity in the East is beginning to affect the Pacific Coast. The market for clay products should be very brisk next season, as much contemplated building has been delayed in the past year. The weakness of the lumber market is thought to be a rather dubious consideration in the brick trade. Some say cheap lumber will stimulate the sale of brick, since usually a great deal of timber is used in conjunction with brick. The fire brick situation remains on a solid basis, and business this year seems to be up to the average. Very few fire brick are coming from England, and recent experiments with California fire brick show that this product can stand the most rigorous tests. Practically all the fire brick manufacturers will operate their plants all winter. Local paving brick is being used more and more in this vicinity, and with pretty good success. For paving between street car tracks and for use in the districts where the traffic is not the heaviest, it answers perfectly, and is more desirable than asphalt or other kinds of paving. Even some of the sections of downtown streets paved with local brick are standing up under the traffic much better than was expected. Local brick sells about ten dollars less a thousand than brick from outside. The terra cotta business is holding up reasonably well, considering the general lack of large building operations. The quantity of architectural terra cotta disposed of on small jobs makes a very respectable showing in the aggregate. Both terra cotta and roofing tile are sure to have widely extended markets on the Pacific Coast in sympathy with the styles of architecture which are most popular. Vitrified sewer pipe has lost none of its prestige as a model sanitary material for public work, but at present there is not a great deal of new sewer work going on. Stockton has just made provision for further sewer extensions, and additional work of the kind is reported from Stockton.

The board of trustees of the Cogswell Polytechnic College has let the contract for a new $10,000 school building, three stories and basement, at Folsom and Twenty-sixth streets. Brickwork and terra cotta partitions are called for. Contractors, Farrell & Reed.

Bids are now in for the brick and terra cotta work of the Redding grammar school on Pine and Larkin streets, San Francisco.

One of the latest sections to be paved with brick in San Francisco is the block on Sansome street, between Broadway and Pacific.

The Stockton Fire Brick Company will operate their plant all winter, as present business is very encouraging. The new dryer is now completed and ready for winter use. Eugene Corrigan, the San Francisco representative of the company, says business this season was fully up to expectations and that there is an increase over last year. Some large shipments of fire brick are now being made to Honolulu for the gas company there.

The Steiger Terra Cotta and Pottery Company are working a full force of men at their plant in South San Francisco. Business in the terra cotta department is fair, but not rushing, though a decided improvement in the terra cotta market is looked for, and being prepared for. Deliveries of architectural terra cotta for the Capitol National Bank at Sacramento are now being completed.

William D. Gates, of the American Terra Cotta and Ceramic Company of Chicago, and who is also secretary of the National Terra Cotta Society, was in San Francisco recently in the course of an extended western trip.

The average number of visitors at the Model Brick Home at the Exposition was about five hundred a day. Local brick dealers say this house was one of the best advertisements for brick construction in private residences that has ever been devised.

The Atlas Paving Brick Company, of San Francisco, is doing a very nice business in this vicinity, and in the past few months a number of San Francisco streets have been paved with their product. A great quantity of Atlas paving brick is used by the United Railroads for paving between the tracks. The company has a seventeen-acre tract within the city limits at Bay View, Hollister and Griffith streets. They have a splendid water frontage and an enormous hill of shale and clay suitable for high-grade paving brick. The capacity of the present plant is 300,000 brick a month. Louis A. Steiger is president of the company.

Gladding, McBean & Co. report an improvement in the terra cotta market. The largest contract they have closed in the past month is that of supplying architectural terra cotta for the two additional stories to be constructed on the local Standard Oil office building.

Mr. Berg, president of the Port Costa Brick Works, says business has averaged pretty fair this season. The company's volume of business is not much below last year's record. The plant is still in operation and will not be closed down until the weather makes this necessary.

N. Clark & Sons have just closed a contract to supply architectural terra cotta for the new Crane Company warehouse in Oakland. A large quantity of terra cotta will be needed on this building. The Clark Company also has the contract for furnishing pressed brick on the same job. Another large terra cotta contract just closed by the Clark people is that in connection with the Boyle Height Library, a new public library building in Los Angeles.

In order to manufacture on a more economical basis, the Los Angeles Pressed Brick Company has made arrangements to establish a new brick factory at Alberhill, about five miles from Elsinore, Cal. The new plant will be one of the chain of factories by the Los Angeles Pressed Brick Company, and the largest of all. Other factories are now operated at Los Angeles, Santa Monica and Richmond. The new plant is to be built in the heart of the company's vast clay deposits in southern California. A model village of hollow tile construction will be put up for the accommodation of the workers.

Tests of shale from the Balfing ranch near Gilroy, Cal., are being made at the clay works at Decoto. If the tests prove satisfactory, George D. Harrold will establish a plant for manufacturing clay products.

The Calexico Brick and Tile Company has been incorporated at Calexico, Cal. The capital stock is placed at $10,000, and the incorporators are: C. C. Buffington, Los Angeles; H. A. Pyles, Whittier; P. P. Anderson, P. E. Carr and P. Barnes, of Calexico.

Building contractors and architects of Sacramento held a meeting in November and organized the Builders' Exchange. The charter membership is about a hundred. The purpose of the exchange is to promote business harmony in the building trades. Officers will be elected, and by-laws submitted at another meeting.

The Superior Brick Company, Everett, Wash., has been incorporated by W. S. Russell, B. F. Castner and J. L. Lyon. Capital stock, $25,000.

San Francisco, Dec. 4. SUNSET.

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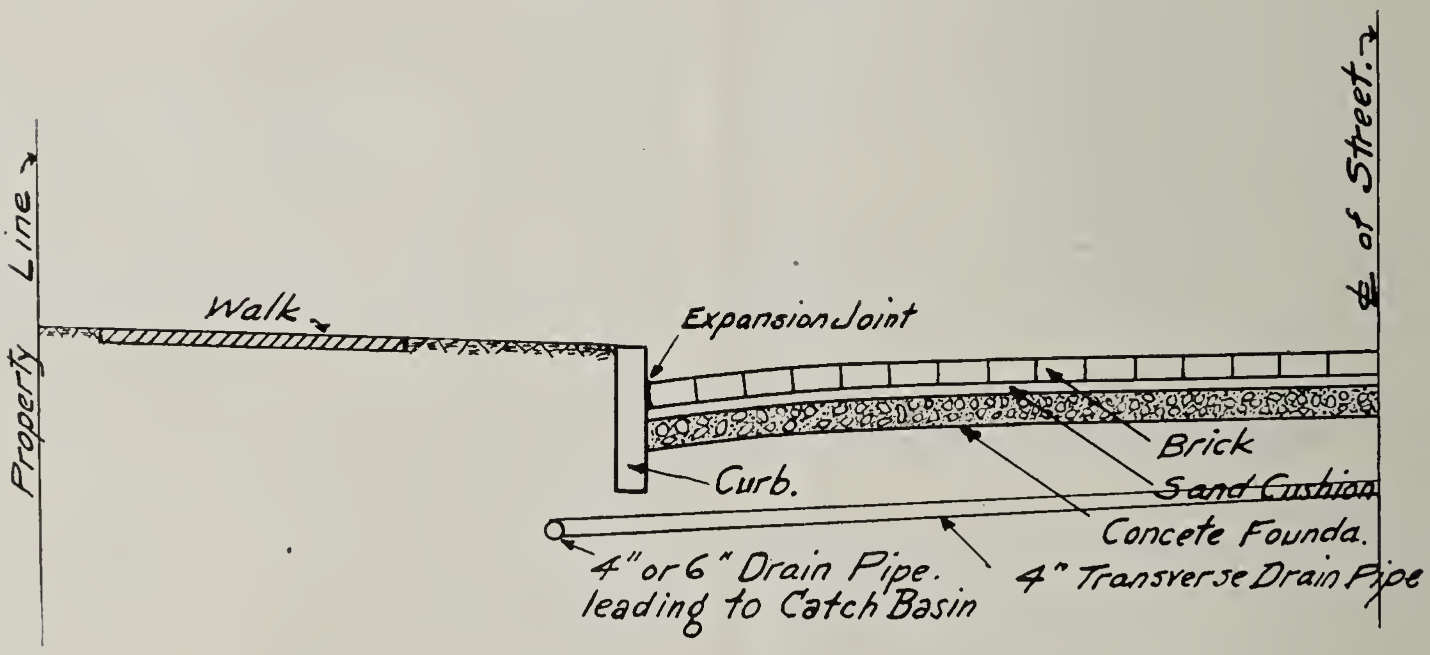
It saves time and cost when you can send brick right from the kiln out on to a job where they are to be used, but just the same it is a splendid idea to have a good stock carefully stored on hand with which to fill promptly any demand that may come at any time.

# A STUDY OF BRICK PAVEMENT CONSTRUCTION.*

## By Will P. Blair, Secretary of National Paving Brick Manufacturers' Association, Cleveland, Ohio.

THE AMERICAN Society of Municipal Improvements exists for the reason that municipal improvements are not made either as to plan or construction to meet best the needs for which the improvement is undertaken. There is no other way open for progress of the society's purpose than for each who is assigned a subject to lay before others what he believes to be for the best. Whether what is offered be accepted or not, matters not so much, if it is given fearlessly. Sometimes a very wrong or erroneous idea may of itself suggest the right. If no mistakes have been made, we have no need to be here, unless it might be to congratulate ourselves over the complete success of past efforts.

Building the Middle Springfield Road Out of Paris, Ill. The Concrete Foundation, the Mortar Cushion, the Laying of the Brick—a Simultaneous Operation—Shown on Left. Applying Cement Filler on Right.



All will freely admit that the most serious trouble affecting municipal improvements, common to all, lies in the difficulty of getting done what should be done—non-compliance with the directions found in the plans and specifications, due to visible and invisible influences which the engineer has been unable to control in all places. The hindrances for betterment in this respect, though as harmfully standing in the way of securing the best in brick streets as any other class of municipal improvements, will not be dealt with in this paper. Rather, we shall look into some phases of construction that should be properly dealt with in the specifications.

Much discussion of late has been directed toward the troubles, ending in disputes and law suits, that arise out of a lack of preciseness and exactness of statement and explanation by tautologic effort which but confuses—one prominent critic saying that the accepted axiom that "there is a law suit in every contract and specification" has not been put out of use, and another states that with all that has been said and written, there are still to be found many specifications, the terms of which might be said to be veiled in mysticism.

If there is even less of truth than of fact in these statements that result in expensive law suits, how much more of bad results are to be found in the quality of work itself, regardless of the so-called overhead vexations that are entirely due to that which is neither found in the specifications at all or due to lack of clearness and definite statement.

Whether the National Paving Brick Manufacturers' Association, in its general specifications, has covered what is sought to be accomplished as specifically as it should or not, we do know that in altogether too many instances important details are disregarded and dissatisfaction results. On the other hand, we know that a full and complete compliance results in most satisfactory lasting and durable pavements. What, therefore, of extreme importance that is suggested in our general specifications or which may have been insufficiently stated or of doubtful interpretation or perchance omitted altogether, we at least know that much has failed to get into the pavement.

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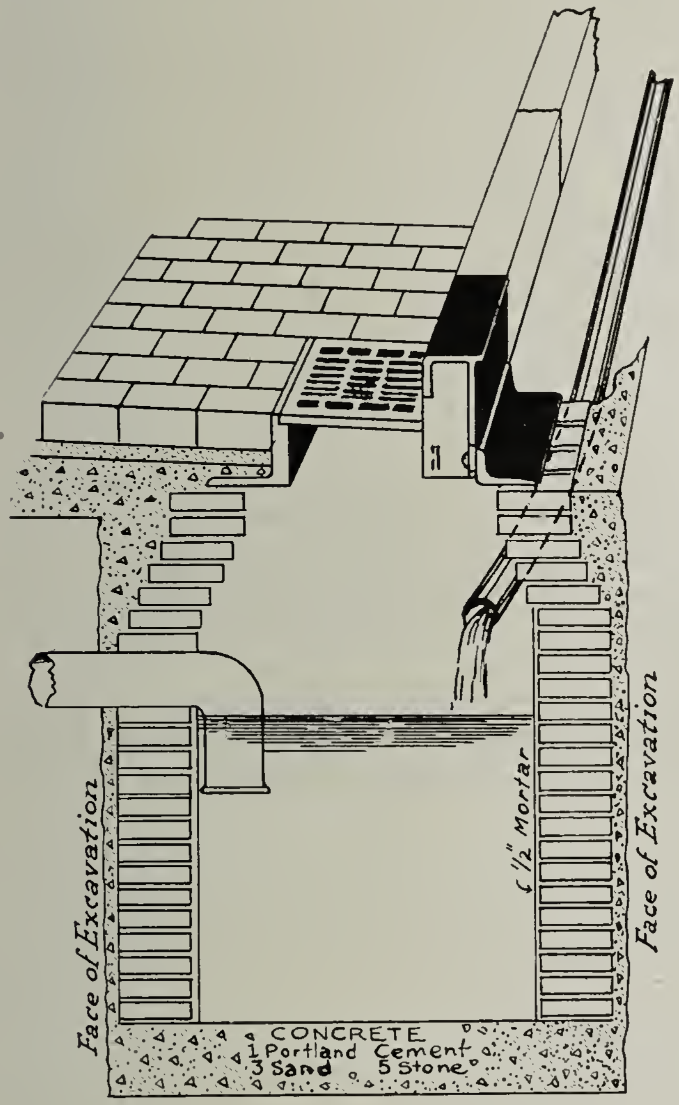
* Paper read before the convention of The American Society of Municipal Improvements, held in Dayton, O., October 11-15, 1915.

Section 5 of our general specification reads: "Drainage should be provided sufficient to rapidly remove all water from the roadway to a depth of not less than eighteen (18) inches below its finished surface, and the engineer shall examine the location and provide ample plans and specifications to accomplish this result."

How few road beds are really ever drained at all in a way to rapidly remove all water from the roadway. Soil condition, location, the possible water supply, where, and how it must be carried to its disposition away from the road bed is given altogether too little consideration.

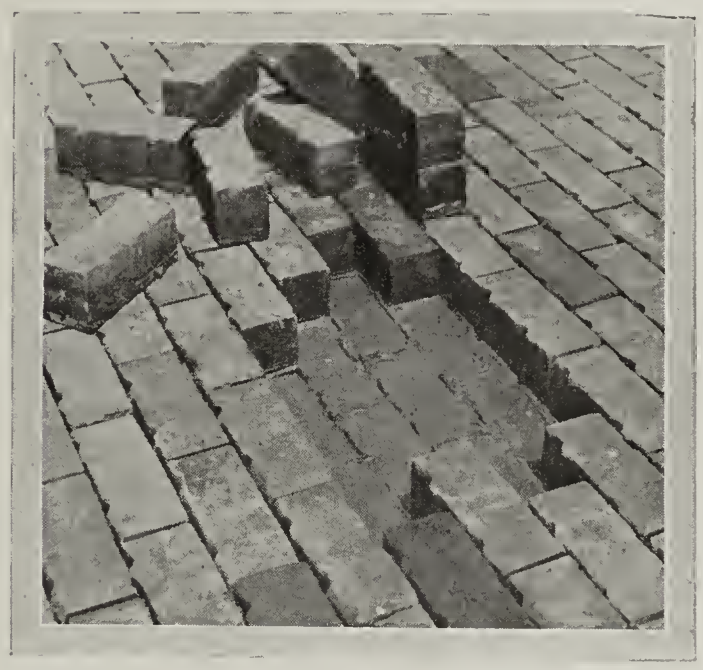
A system of drainage like that here illustrated will, we believe, most nearly satisfactorily accomplish the results in moist soils. The usual way of laying a tile drain underneath the curb is well nigh useless; to conduct the water through a drain tile any great distance along and underneath the roadway is worse than useless—in northern climates a great positive injury. Take the water from underneath the roadway through the drain tiles to a disposal line outside the roadway leading to the nearest catch basin; this is the method which will most nearly keep the roadway dry. Accurate information of the nature and character of the soil, rainfall, etc., so that the underneath drain may be properly planned is as essential for properly designing the improvement of a street and road as for preparing the plans for a sewer system. In fact, it is far more difficult to care for water after it once gets underneath the surface than to care for it as mere surface water, and I may add that it is just as important.



Most specifications provide for compressing the sub-grade and establishing a surface corresponding with the grade of the finished street, but few, however, provide in express terms that the grade shall so remain or if used in any way for travel, some provision for its protection is set forth in express terms. The consequence is that 75 per cent. of the pavements are constructed upon a sub-grade wholly out of keeping with the spirit and intention of the requirements.

If the foundation is to be of either gravel or broken stone, no adequate specification for the rolling and compression is in writing and it is, therefore, not adequately done. There has been a great improvement in making and spreading of a concrete foundation. No longer do we hear that you are obliged to make the foundation rough because it cannot be

Rolling the brick surface of the morning's work, with a hand roller.



Illustrating the concrete foundation, the mortar bed, the very slight flow of mortar after the brick have been rolled, the mortar bed still being entirely wet.

Showing the face edge of the pavement after the form is taken away, against which no curbing will be provided. Only the berm and dirt roadside will be brought to grade alongside, thus eliminating the expense of the curb.

otherwise. A smooth foundation for a brick pavement is usually specified and obtained.

One of the things seldom accomplished is proper compression of the sand cushion. It is so difficult to get it done that many are willing to hazard sufficient resiliency for protection of the pavement by leaving it out altogether. It has but one function and only one, that is, to relieve the shock due to impact in the use of the pavement and to furnish a uniform support to the overlying monolith. A requirement to fill up and roll and refill for at least three times is a necessity in order to obtain a uniform and sufficient support.

The quality of the cement filler suffers in the greatest degree, in its preparation and application. Few specifications state definitely just how this all important feature of brick pavement construction shall be executed. It is often left to the inconsiderate judgment of the foreman in charge.

That the proportion of one to one, sand and cement shall be first mixed dry; that it is necessary that the water be applied to this mixture slowly, mixing a mortar and then diluting to the required consistency; that this mixture shall be applied so that the proportions shall be maintained in place; that the sides and edges of the brick must be thoroughly wet to secure a proper adhesion, are not given sufficient weight to influence their observance.

Other matters might be mentioned which contribute greatly to the value of the pavement, but enough is here given to illustrate the meaning of the writer. There should be stated in the specifications exactly and precisely what is to be done. It is assumed in these suggestions that the quality of the material used in the improvement is such that, if properly used, will produce entire satisfaction in the improvement but we believe that specifications have been altogether too lax in specific requirements. We have not been so lax in the matter of providing against the use of materials of poor quality.

In fact, a few days ago, while making inspection with an engineer of large experience, of a street that had manifestly been badly constructed, the engineer truly remarked that "we have gone testing mad and construction wild."

James E. Howard, who has given much time to the study of thermal and traffic effects on street pavements, states that "methods of construction outweigh in importance some of the requirements of current specifications under which the brick are accepted. It is the engineering and not the manufacturing to which attention is now most needed."

We do not mean to be understood as reflecting in any way against what has been done to perfect methods of testing. We mean to suggest that engineering methods have not kept pace with the methods of testing material.

The writer has always given considerable weight to the importance of the resiliency of the sand cushion in brick and stone pavements because of its relief against the shock effect from impact. We have, however, been greatly interested in watching the behavior of brick streets constructed in monolithic form including the foundation. Some twenty-five years ago a street constructed in this manner in Cincinnati did not give promise of value. A small section of brick street was laid in like manner in the downtown district of Chicago to which but little notice was given. About eighteen years ago, the brick gutters on Washington street, in Indianapolis, Ind., were so constructed. At the same time, some of the gutter on Ohio street, in Terre Haute, was laid in like manner. The first two examples did not remain long in existence. The second two examples, being in the gutters, scarcely afforded a condition of traffic upon which to base judgment. The most interesting example with which the writer is acquainted is a small alleyway leading to a freight yard and warehouse in the rear of Hulman & Company's wholesale establishment, in Terre Haute. This construction was by laying the brick upon the green mortar bed of concrete made with seven parts of coarse aggregate, the one part of cement. The brick surface was made smooth by the use of a rammer upon a board placed upon the pavement. The joints were then filled with a one-to-one cement filler as provided in our present specifications. This pavement has been subject to frequent as well as heavy traffic for more than ten years. It is in almost perfect condition and shows no impairment whatever either from thermal, traffic, humidity or frost effect.

While it is true that hundreds of brick pavements have been built in accordance with our present specifications and which show an endurance without repair covering a period from fifteen to twenty-five years, still the difficulties about which we have refrained from speaking, which result in the construction of brick pavements that are not ideal, leads us to question whether or not there may be a manner and method of constructing brick pavements that will insure less hazard in these respects, providing, of course, that we may be sure of equally good or possibly a better pavement.

Just now, very many brick pavements are being laid over the country, uniting the foundation and wearing surface in a single monolith. The writer has been deeply interested in the process, by which this form of pavement is laid, as developed and at present in use by Engineer W. T. Blackburn, of Paris, Ill., and a contractor of that city, Mr. Allan J. Parish. Spending an entire day with these gentlemen, observing the process used by them, we are firmly of the opinion that in such a process much of the hazard which endangers a compliance with specifications is eliminated. It is a process or manner and method of construction that can be clearly and definitely outlined in a specification. The implements to secure the results can be definitely stated with as much advantage, may I remark, as that enjoyed in this particular respect by the owners and promoters of patented pavements, which are illustrated and explained by accompanying halftones.

Really, one of the best things that can be said of this manner and method of construction is that you cannot do it at all, unless your equipment for doing the work is complete. This disposes of make-shifts which are ruinous to pavements; it means, dropping upon the mortar cushion the brick with the best edge uppermost in the first instance. It means a careful and expert dropping of the brick. It means a systematic, steady clock-working movement in all its parts. The prepared bed must be steadily in advance of the dropper. Every step of the work must proceed in an orderly co-ordinate manner; all this means economy in construction. It means perfect work.

Mr. James E. Howard found that the resiliency of grouted brick pavements laid on a sand cushion ranged from .0003 to .0100. With such resiliency, no brick were noticed to have been broken. No brick have been broken or shattered so far as observed at present in the ten-year-old monolithic structure in Terre Haute. Just how much less resiliency may be afforded in a street, monolithic, which includes a 4-inch wearing surface and a 4-inch concrete base, has not yet been ascertained by comparison; but we are firmly of the conclusion that enough still remains to protect against an extreme shock effect.

Upon the data obtained by Mr. Howard in his study of the thermal effects on brick pavements in the cities of Cleveland and Kansas City, he lays greatest stress upon the ability of pavements to resist thermal effects by compression. He also concludes that traffic effects on a well grouted brick pavement are but slight indeed, as compared with the thermal effects. Therefore, may we not conclude that the character of a brick pavement which is able to maintain itself by a greater compressive strength and which invites even greater relief and protection from both humidity and frost action and with all involving a greater economy in original construction that it is well worthy of most serious consideration?

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Fresh ideas are almost as important to industrial progress as fresh food is to human health.

# COMPARATIVE COST OF FRAME AND BRICK HOMES.

## A Careful Analysis Proves That Brick Has a First Cost of Only 10 Per Cent. Over Frame, Which Makes the Brick House Cheapest in the End by Great Odds.

THE QUESTION of cost is one of the first questions brought up when the builder of the average home is approached with the idea of using brick, and this question is so important in a campaign for brick that it is essential to have specific data to show exactly what may be done and how economical it is to build with brick as compared to the cheapest building material.

The difference in cost between a house built with brick walls and one with frame walls and lumber is simply the difference in cost in the wall construction as between brick and frame. This varies in different localities and with different types of brick used. The main variance, however, is between localities where the relative prices of lumber and brick differ. Near the supply of lumber, where it is cheap, if brick happens to be scarce and dear, the comparison runs differently from other localities where lumber must be shipped in from a long distance and brick may be had nearby.

The actual figures of difference in cost range from 5 per cent. to perhaps as high as 20 per cent. in some cases, though the general average is about 10 per cent. That is, one may figure that in bungalow construction or in the erecting of any ordinary brick home the cost would be 10 per cent. higher than erecting the same home with lumber.

For the cheaper house, these figures are made on a basis of common brick. It may be argued, therefore, that to build a more expensive home and use face brick will increase the cost. It does, too; but it does not alter the per cent. of cost of using brick as compared to using lumber very greatly, because the total value of the house is raised. For example, if, instead of a man spending $3,000 for a house finished with pine, he should conclude to spend $5,000 and use hardwood finish as well as hardwood floors, then if he changes from common brick to some fancy face brick, the cost of his outside wall will be increased, but the percentage as compared to the total cost of the whole would remain practically the same.

Carrying this matter farther, if a man should build a home costing $20,000 or $25,000, he would very likely use face brick costing twice the price of common brick, and this would add materially to the cost of his walls; but, in figuring the percentage of cost of brick as compared to lumber in the building of these walls, the results would be practically the same.

A very good plan to follow in getting at comparative cost is to take the estimate for different materials for a square foot of wall. With these before you, you can figure out the number of square feet of wall surface involved in any building, and by figuring it for the different materials, you can get at the exact figures of the difference in cost, and then, by taking the cost of the entire house, easily demonstrate what percentage of the total cost is represented by the differences.

Taking Chicago as a basis, J. Norman Jensen, architectural engineer of the building department of the city of Chicago, made up some figures of comparative cost for the lumber people. Naturally, the lumber people were seeking to make a favorable showing for lumber by these figures, so that in using them they may appear more favorable to lumber than other figures compiled; but they present an argument that certainly cannot be disputed by the lumber people, since the figures were primarily given publicity by themselves.

According to these figures, the cost of labor and materials in the walls of small buildings, exclusive of the plastering, runs about as follows:

**Frame.**

| | |
|---|---|
| 2x4-inch, 16-inch centers, yellow pine studding | 5c |
| 1x6-inch sheathing and one layer of paper | 5c |
| Cypress drop siding | 6c |
| Painting | 2c |
| Total | 18c |

**Brick.**

| | |
|---|---|
| 8-inch common brick side wall | 21c to 22c |
| 4-inch face brick and 8-inch common brick front wall | 45c to 50c |

**Stucco.**

| | |
|---|---|
| 2x4-inch, 16-inch centers, yellow pine studding | 5c |
| 1x6-inch sheathing and one layer of paper | 5c |
| Stucco on galvanized wire cloth | 12c |
| Total | 22c |

It will be observed that the plastering is omitted from this, perhaps on the assumption that the plastering costs the same. It does, too, on the cross-walls, if they are made of studding and lath; but the brick side walls do not require lath, and should offer some advantage there. However, the comparison, as it stands, makes a good showing for brick, especially when we consider that they figure in this that common brick costs $16 to $17 per thousand, laid in the wall.

In connection with the above estimates on wall costs per surface foot, actual contractors' figures were obtained for a number of modest priced houses in Chicago, on a basis of their erection with lumber and with brick. In each case the building was the same as to interior finish, etc., but there was a difference in the roof specifications, the frame buildings calling for a shingle roof, while the brick buildings had specified a non-combustible roof.

The average bids on these buildings were as follows:

| | Frame | Brick |
|---|---|---|
| One-story cottage, 22x30 feet | $1,719 | $1,823 |
| One-story cottage, 20x36 feet | 2,394 | 2,684 |
| One-story cottage, 21x48 feet | 3,419 | 3,906 |
| Two-story flat, 24x34 feet | 4,185 | 4,564 |

These figures show that the cost of the frame buildings was practically 10 per cent. less than the brick buildings. In other words, that there is only 10 per cent. additional in first cost in building with brick, and, as is well known, the first cost is only one element, and the brick soon pays for itself in saving in depreciation, saving in repairs, painting, etc. It is a safe calculation that at the end of five years or less the brick house is the cheapest. It is the best, and the safest home, first, last and all the time.

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The Engineering School of the University of Detroit has lately constructed a fine new brick and stone building for its class room and laboratory purposes. Alumni and citizens of Detroit are joining in the furnishing of the laboratories and other necessaries. Among the gifts made was one to the library of the Engineering School by the Detroit Brick Dealers' and Manufacturers' Association in the form of the complete technical and engineering literature of clayworking. The gift has been appropriately recognized by the trustees of the university.

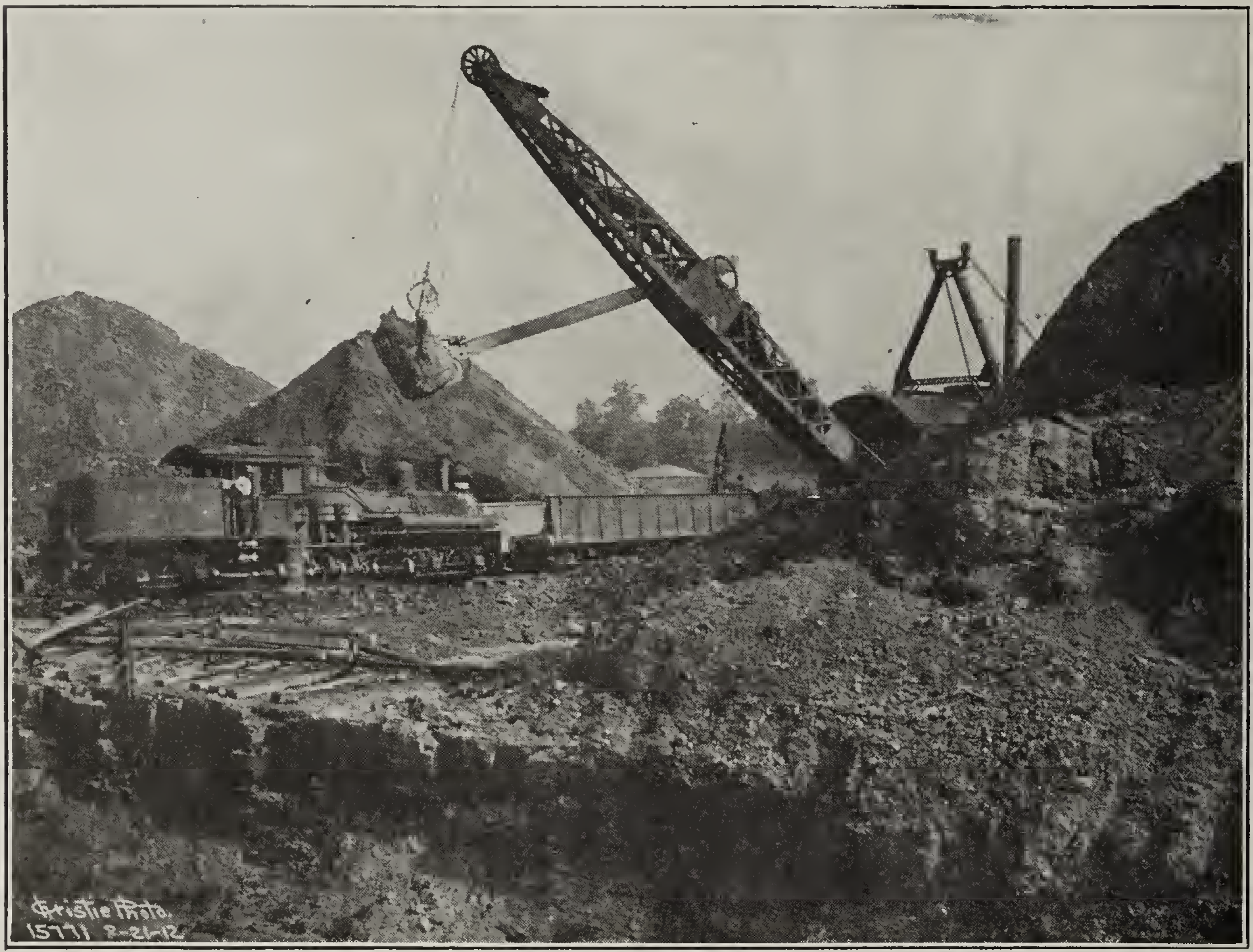
The University of Illinois is erecting an ideal feeding plant. The Sheldon Brick and Building Supply Company, of Champaign and Urbana, has just completed a 16x60 brick silo, with 4-inch brick walls for the above.

# A $1,000,000 CLAY PRODUCTS FACTORY.

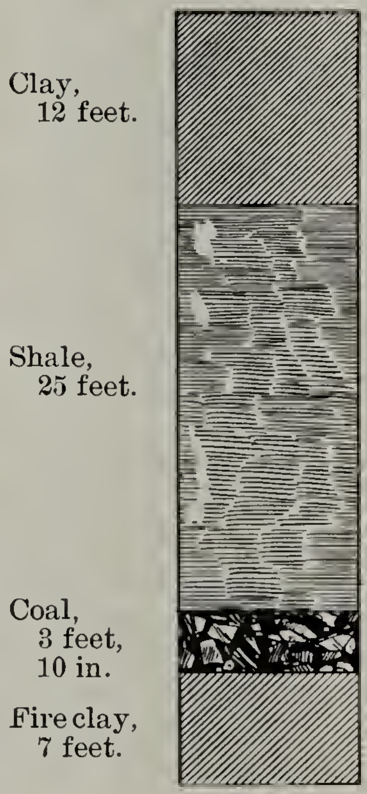
## The Clay Products Co., Brazil, Ind., to Enlarge Present Fine Plant and Erect a Second for the Manufacture of Paving Brick, Builders, Denison Interlocking Tile and Electrical Conduits.

THE GREATEST EVENT in the clay industry this year, a stupendous proposition, was chronicled recently by the announcement of the Clay Products Co., of Brazil, Ind., that they had increased their capital stock to $2,000,000, and would spend a million dollars in erecting a mammoth plant within a stone's throw of their original plant, which is to be enlarged at the same time.

The Clay Products Co., which for ten years has been manufacturing hollow ware, including conduits, Denison interlocking tile and materials of like grade, has determined on this great expansion to supply the growing demand for their products and to find use for a great amount of shale they are now stripping and piling up for future use.



The Immense Pit of the Clay Products Company. Note the Exposures of Surface Clay, Shale, Coal and Fire Clay.



The above sketch gives graphically the stratas of material in the Clay Product Co.'s pit.

The company owns an immense deposit of raw materials, consisting of surface clay, shale, coal and fire clay. The present plant requires 240 tons of clay a day, while many tons are sold to manufacturing concerns. This is not a "drop in the bucket," however, to the great quantity of raw material mined daily. The high hills of shale and valleys made by the steam shovels resemble a Panama Canal cut in miniature. This shale could not be used in the manufacture of their electrical conduits and was thrown to one side in the stripping of the bank to open up the coal and fire clay deposits. Since this is a high-grade shale, well adapted to the manufacture of paving brick, builders or hollow tile, a large plant for producing these products was a natural sequence.

The present factory of the Clay Products Co. was described and illustrated in the August issue of The Clay-Worker, so there is no need of going into details concerning same at this time. Let us just remind our readers that this plant is the largest producer of conduits in the world, with the record of producing one-third of the entire output of the conduits in the United States in 1912. This shows the importance of this company to the clayworking world today.

So great has been the demand on this company for their splendid products that this plant of necessity had to be enlarged. Eight round down-draft kilns will be added to their battery of twelve kilns, and a Rodgers dryer will be built to give the drying capacity needed. The present line of machinery, including two Fate Premier machines, is sufficient to produce the additional ware.

The company has purchased 320 acres of ground in the vicinity of the present plant which contains rich deposits of raw material. This will not be used for the present, however, the recently purchased ground is to be used for the site of the new factory. This new factory will consist of two complete lines of machinery not as yet determined upon, one having sufficient capacity to produce 100,000 paving brick per day, and the other an equal amount in weight of hollow ware, a single grinding, screening and storage plant, two L. E. Rodger's Engineering Company's dryers and four 15-chamber producer gas fired kilns. The L. E. Rodgers Engineering Company, Zanesville, Ohio, recognized authorities in plant construction and operation, have full charge of the engineering work. No expense will be spared to make the dryers, the continuous kilns and the equipment in accordance with the most modern methods of handling clay in process.

The completion of these two units, together with the increase in the present hollow ware plant, will produce between 1,000 and 1,100 tons daily.

Flexibility is the keynote of the company. There is flexibility in the material, there will be flexibility in the manufacture and flexibility in the selling end. The new plant will be so constructed as to permit of the operation of the entire plant on any one product or as many of the products as the demand requires. In other words, the company will not be hindered in their work by dull markets. If the demand is slight for one product, that field will be neglected temporarily and the products greatest in demand will be made.

With flexibility in the raw materials and flexibility in the manufacture, this plant will be ideal and a great producer of good substantial dividends. The company has already created a necessary flexibility in the selling end. Three different methods of distribution being used, first by sales force direct to consumer, second by men whose only business is to develop the building supply game, and third by the jobber.

*H. H. Titsworth, President of The Clay Products Co., Brazil, Ind. A man of keen business judgment and high standard of private life.*

*C. F Shannon, Secretary The Clay Products Co., Brazil, Ind. His knowledge of plant management has been one of the chief assets of the company.*

Panoramic View of Clay Products Company's Plant, Brazil, Ind.

The selling end of this company will be an important one but not difficult, for the products will range from electrical conduits, Denison interlocking tile, hollow ware, silo block, paving brick, builders, and ultimately, face brick. In passing, we wish to state that the Clay Products Co. recently booked an order for 12,500 tons of silo block. This branch of their business has but recently been developed.

The corporation has been enlarged to $2,000,000 capital stock. Definite arrangements have been made through the R. L. Dollings Company, of Indiana, to dispose of a sufficient amount of securities to take care of the present plans for expansion. The capital is also sufficient to furnish necessary funds for later growth. The R. L. Dollings Co., investment bankers, are well known in the ceramic world. Their Ohio branch recently acted as financial agents to the Burton-Townsend Company, of Zanesville, Ohio, one of the largest paving brick concerns in the United States. Mr. R. C. Burton, president of the Burton-Townsend Company, is vice president of the Clay Products Co.

Mr. H. H. Titsworth, the president and general manager, has been the backbone of the Clay Products Co. Through his untiring efforts and good business judgment, their fine plant at Brazil grew from a small factory in the beginning to the leading clay products plant in the state of Indiana, and the greatest producer of electrical conduits in the world. Mr. Titsworth is a recognized authority in the manufacture of hollow ware, having contributed materially to the improvements used in the manufacture of same. His keen business judgment and high standard of private life have been valuable assets.

Mr. C. F. Shannon, the secretary of the company, has been identified with the clayworking industry for many years. He has had charge of this plant from the beginning, and his general supervision has assisted materially in the company's success.

The treasurer is Mr. J. R. Jones, a man of broad financial experience and excellent engineering knowledge, being a graduate of the Massachusetts Institute of Technology, and for several years in the service of the central group of the Bell Telephone Companies as assistant construction engineer.

The above-named gentlemen, together with Mr. R. L. Dollings, president of the R. L. Dollings Company, and Mr. Ward H. Watson, a prominent banker of Indianapolis, constitute the board of directors.

The company will open attractive offices in Indianapolis soon, where splendid facilities are afforded for carrying on the business of the company from the most central location in the United States.

In closing, we wish to make mention of one fact that shows the progressiveness of this concern. A splendid laboratory will be included in the equipment of the new plant for the constant testing of their materials and the finished product, for the making of such improvements as are desired from time to time, to sustain the high standard of their products. The wares they produce will be guaranteed to equal any in the market.

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Written for The Clay-Worker.

## NORTHWESTERN OHIO BRICK AND BUILDING NEWS.

JUST NOW THERE IS a little slowing down noticeable in the brick trade in Toledo. The trade throughout the year, however, has been highly satisfactory. There was a slow start in the spring, but the summer and fall trade has been very good, the demand being strong, not only in the city, but throughout this section, including Michigan and southern Ohio.

The Collingwood, Hydraulic and Ohio brickyards are still in operation, the remaining yards having been closed for the winter. There is a fair stock of brick on hand, probably enough to carry the demand in good shape, although there is no over-supply.

The demand for building brick has been extremely good in Toledo this season. The Willys-Overland Automobile Company used 5,000,000 in building operations and are still planning other structures. An equal amount of brick was used on school buildings this summer. Many other factory structures were erected this summer, and a good many business blocks, all of which called heavily for brick. Pressed brick are being used almost exclusively for above-ground foundations for houses. Tile has been extensively tried out here for foundations below ground, which, for a time, retarded the sale of brick and is responsible for the low prices which have prevailed here this summer on common brick. The builders, however, are inclined to come back to brick, and much more brick and less tile is being used in the later construction, as tile has been found very unsatisfactory. It has been found very difficult to get a tight joint in the use of tile below ground. When laying the tile, a bit of mortar may drop off, leaving an opening, which, of course, lets in the water. Tile does not hold up well, either, when the ground settles, and dissatisfaction is the result. The price of building brick delivered in the city is $7.50 for common.

Paving brick manufacturers report conditions good. There has been a good call for brick, and a $16,000 contract was recently let in Toledo for the paving of Bancroft street with this material. There is a tendency just now to make a good many country roads of cement, but these roads are not holding up to the standard set by brick, so that contractors are coming back to their first love.

Several brick sewer contracts were recently awarded by the Toledo Board of Control, the amount involved being about $10,000. A couple of alleys were also ordered paved with brick and the contract awarded to Peter H. Watters for $3,428.20.

A couple of weeks ago there was a decided car shortage which greatly retarded shipments of brick, and as about two-thirds of Toledo's output is shipped out of the city, it made a bad situation. This condition has been remedied, however, and shipments are being made with a fair degree of promptness.

A $50,000 sewer contract was awarded to Breyman & O'Neill recently. The sewer will be seven miles long and extend through the Home Acres addition to the city.

The Findlay (Ohio) county commissioners have purchased 175,000 brick for the new infirmary buildings, which are to be erected in Hancock county next summer. The price paid per thousand was $12.25.

The Van Cleave Clay Company, of West Mansfield, has secured the contract for the construction of the Paul ditch at Kenton, Ohio.

J. A. Hehring & Son, brick and tile manufacturers, of Napoleon, Ohio, are extending their plant in order to keep up with the demand. A three-story brick building, 50x90 feet, is being added, and all the machinery replaced by the latest self-fed devices. They will have a fine plant when completed. T. O. D.

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## HEARD IN NEW ENGLAND.

A RECENT RUN through a considerable proportion of western New England disclosed a degree of prosperity seldom seen there, at least not for years. Not since the railroad troubles began there have so many workmen been employed. All through Connecticut and Massachusetts, mills and factories are running overtime, and building operations are extensive. In Bridgeport, Conn., alone a dozen new factories and additions are in process of construction, and with them must go a large number of new dwellings to accommodate the employes. Next year looks very promising for the brickmaker in that vicinity.

The Stiles Brick Company, North Haven, Conn., was still burning, November 20. Each one of its sheds was full, with one exception, and in that the burning had ceased and the firm was shipping; a dozen cars stood on a siding loading for immediate shipment. They were mostly destined for Connecticut cities. The extension of the fall season beyond the usual time allowed at least another month of business for makers beyond what they generally have.

The North Haven Brick Company, nearby, has increased its facilities and still finds it almost impossible to keep up with its orders. When seen, the last burning for the year was in the arches. Fortunately the season was extended, otherwise it would have had difficulty in filling its orders. The situation is very favorable for next year, and makers expect a grand business all through. "Prices are advancing," was the reply of a gentleman connected with the firm, "and we are certain to get a much higher price for what we have to offer than we do ordinarily at this season. Further, we are looking forward to a continuation of the same good business next year."

Dyer Brothers, at Greenfield, Mass., have had a good year. They are done burning, but a number of cars were loading for immediate shipment. New factories and additions in Greenfield and vicinity created a great demand this year. Three new factories are in process of erection in Greenfield alone, and the town is now so overcrowded it is impossible to secure a place to live without waiting a long time. Evidently brick men are coming into their own in that vicinity.

A considerable proportion of the drying racks were full. A share of these were round-cornered brick, and nearly all were ready to lay up in arches for burning. The company is using one Eastern machine, made by the Eastern Machine Company, New Haven, Conn. They have a full equipment of Wellington barrows and Studebaker carts.

The firm is preparing to do much more business next season. It obtains its clay on the surface and plowed up its beds this fall to allow the frost to break up the clay before spring. It is only a short distance from the beds to the yards, and, inasmuch as they are on the top of a knoll, no expense is incurred keeping water out of the pits. A side track permits loading almost direct from the arches.

HIRAM.

Written for The Clay-Worker.

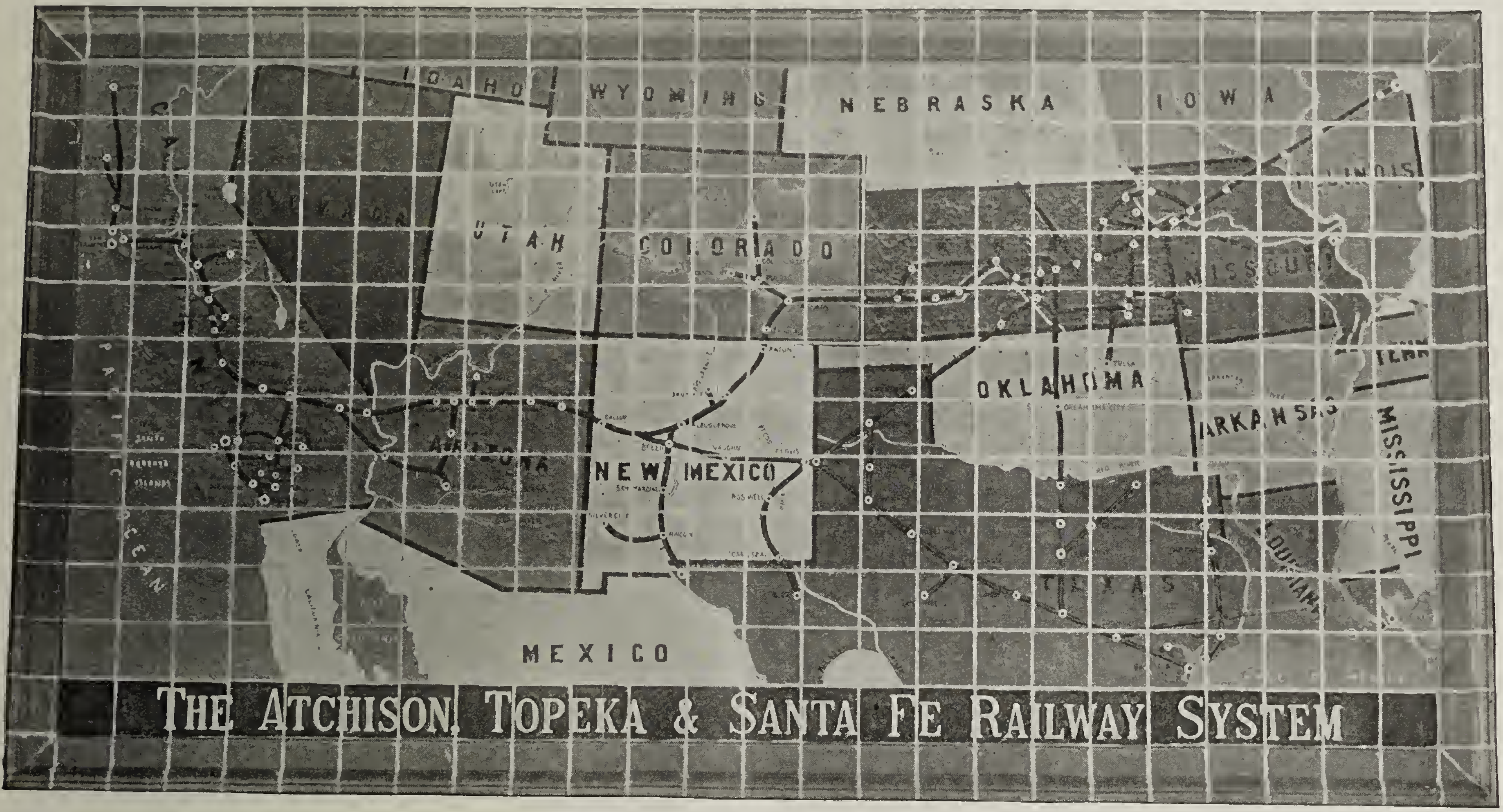
## FAIENCE TILE MAP IN THE SANTA FE DEPOT, SAN DIEGO, CAL.

THE PHOTOGRAPH here reproduced illustrates a unique example of the wide adaptability of faience tile to various purposes of utility, decoration and publicity. This map, showing the Atchison, Topeka and Santa Fe Railway lines, has been installed in the new Santa Fe station at San Diego, Cal., and is attracting much attention from the traveling public by its beauty and unusual character. It was executed in matte glaze faience tile by the California China Products Company, of National City, Cal., from drawings furnished by the Santa Fe Railway Company, and is now in place in an outdoor arcade surrounding the patio of the station.

This tile work is of the sort usually designated as outline work in color, the various colors being painted on the tile by hand in compartments bounded by infusible outline, and the whole given a final burn to develop the colors desired. The tile units are 6x6 inches in size, and the large size of the complete map may be judged by the photograph here reproduced. The various states are worked out in harmonious shades of lavender gray, sage gray, dark and light green, buff and tan, so that each state stands out distinctly, yet in harmony with its neighbors. State boundaries are in dark seal brown, rivers and lakes in light blue, and ocean in dark ultramarine blue, while the railway lines are in matte black. The principal cities are indicated by red dots surrounded by a large white ring, and the towns by a black dot surrounded by a smaller white ring. The legend below is in cream white on a background of gunmetal-black matte glaze.

Owing to the peculiar velvety surface of the glaze employed for this map, there is no flare or flash of high light from any angle from which it may be viewed, and the details thus are always clearly visible. The attention which the map continues to attract significantly indicates the desirable qualities of faience tile, where beautiful and striking effects in color for signs, maps and permanent advertising work of any character are desirable.

The new Santa Fe station at San Diego is from the design of Messrs. Bakewell and Brown, of San Francisco, and is considered one of the most pleasing and beautiful of the modern types of railroad stations. Clay products have been largely employed throughout, as in the bricked patio, the red tile roof, and the beautiful wainscot of Moorish type glazed tile, from the kilns of the California China Products Company, of National City, which surrounds the main waiting room and Harvey dining hall. The non-slip quarry floors throughout are furnished by the same company.



A Railroad Map Done in Colored Matte Glazed Tile (6-inch units) by the California China Products Company, for Santa Fe Station, San Diego, Cal.

### SOMETHING IN A NAME.

The bard of Avon issued a literary gem three centuries ago, stating that there is nothing in a name; but, if he were living today, he would have to amend this statement.

In road building, there is quite a lot in a name. No sooner had the name "Lincoln Highway" been stamped upon the map of this country than people in different sections adopted names for grand trunk highways which would appeal to the people. The Dixie Highway has met with great approval; and the last name suggested by the people of the southern states is the "Jackson Highway."

The name Jackson has a certain amount of inspiration about it. "Old Hickory" was a man of strong will and heroic determination. If the people along the line of the proposed road are of strong will and determination, they will have a highway which will become popular and historic.

Really, in a good name there is an inspiration.—Greensburg (Pa.) Tribune.

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When we read the reports of so much gold coming into this country and are informed that this is now the financial center of the world we have a little spell of wondering why it is that collections are so slow, and folks generally so backward about investing money and making things hum.

Written for The Clay-Worker.

## BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

THE PAST MONTH has been prolific in the development of big projects in building for the winter and spring. Several million dollars worth of large warehouses and other buildings have been announced for early construction in the Twin Cities. It is notable the difference that exists as compared with a year ago, when there was almost nothing in sight for the new season, aside from one or two structures which had been under consideration previously. Now it appears that a real building boom is developing, and if something does not intervene to stop it, the year 1916 will be the biggest building year which the Northwest has ever seen. The new work in sight is private work—not public structures, such as often give a fictitious appearance of activity where private enterprise furnishes little or nothing. The indications are that commerce in various lines is looking forward to a big impetus which will call for more space in which to operate. New warehouses, new factories, new stores and new office buildings are all included in the contemplated improvements. Some are already being planned. Others will be planned during the winter, and will not be started until spring or later.

This means that there will be a big demand for brick, and the suggestion of a month ago, that it might prove the stocks on hand for the spring work would be inadequate, seems in a fair way to be confirmed. The stocks of brick carried over after the common brick plants of the Northwest closed down were only fair—sufficient for a moderate demand, not large enough to handle any boom. If even a fair amount of the large work contemplated shall go ahead in the spring in the Twin Cities, it is more than likely that stocks will be exhausted before it is possible to resume burning in the spring.

The Hennepin Holding Company, of Minneapolis, is having plans prepared for the erection of a twelve-story store, theater and office building at Seventh street and Hennepin avenue. The building is to be of vitrified brick above the first two stories which will be of granite, with terra cotta cornice and trimming. It will be steel frame construction, and will cost complete $1,000,000.

The Dunwoody Institute of Minneapolis has selected a site of about six blocks at Superior avenue and Laurel, on which a series of buildings are to be erected of brick. There will be an administration building and shops for the various trades to be taught.

F. E. Halden, architect of Minneapolis, is preparing plans for a modern consolidated school building to be erected at Mound, Minn., on Lake Minnetonka, to cost $60,000.

A brick passenger station is to be erected at once at 32 to 46 Holden street, Minneapolis, for the Electric Short Line. L. & L. D. Libby have the general contract for the building, which will cost about $25,000.

The Nicollet Hotel, Minneapolis, one of the oldest hotels in the city, seems likely to be replaced by a fourteen-story structure during the coming season.

The general contract for the State Historical building and quarters for the Supreme Court in St. Paul has been let to the George J. Grant Construction Company, of St. Paul, at $397,000. While this building will have granite exterior walls, there will be considerable brick and tile used.

Fred C. Norlander, of St. Paul, received the general contract for the erection of the stores, hotel and theater building at Seventh and Wabash streets, St. Paul, for George Benz & Sons. The building will be four stories, 150x300 feet in size.

The Brown, Blodgett & Sperry Company, of St. Paul, will have plans out about January 1 for the erection of a printing plant at University avenue and Fairview, to cost $50,000.

R. J. Cheney & Co., of Minneapolis, have the general contract to erect a three-story brick store and office building at 3001 Hennepin avenue, for Nick Geankopolous. Cost about $30,000.

Victorson & Johnson, of Minneapolis, received the general contract to erect a factory and warehouse building, two-story, brick, mill construction, at University avenue and Pelham street, for the Twin City Four Wheel Drive Company. Cost, $51,000.

The St. Paul Academy is having plans completed for a modern school for boys, to cost about $40,000. It will be brick, fireproof construction, and will be located at Underwood and Randolph streets.

E. L. Masqueray, architect, St. Paul, has plans under way for a rather elaborate brick church for the Catholic parish of Cresco, Iowa. The work will be ready to figure about January 1.

The Chevrolet Motor Company has bought a building tract on the boundary line between Minneapolis and St. Paul, on which it will erect a large assembling plant. The Overland Company is just completing a similar plant nearby, which is about 200x400 feet in size, four stories high, and cost $500,000.

Efforts are being made before the state railroad and warehouse commission of Minnesota to approve plans for a proposed union passenger station for Minneapolis, which would have to be built under a special law, passed by the legislature to provide for such work. The railroads refuse to join in a single station, and it is now proposed to condemn property and provide such a station, into which all railroads would be required to run. T. WIN.

## A CASE IN POINT WHICH PROVES CLAIM THAT BRICK HOME IS THE BEST INVESTMENT.

The Hydraulic Brick Co., with headquarters in St. Louis, Mo., has done some excellent work in this matter of demonstrating the comparative cost of brick and frame houses.

To get at the real facts of the matter and to settle all questions of argument they took the case of a brick home built in St. Louis of somewhat pretentious type, costing complete, $9,875, faced with Hytex No. 508 and roofed with green tile.

To find out just how much cheaper this house could have been built with frame, they secured contract bids from a number of contractors on the same building with frame walls or rather on frame walls for the same building. They were not content to use merely the figures of St. Louis contractors, but submitted plans to contractors in Indianapolis, Philadelphia, Cleveland and Minneapolis.

After comparing the figures received, they found that the cheapest offer they had for a frame wall would reduce the cost of the house only 8.6 per cent., while the highest figure on frame only showed a saving of 4.4 per cent., while the average was 6.9 per cent.

In other words, here is an actual demonstration of a somewhat pretentious home where the addition to the cost from using brick was less than 10 per cent. of the total. It included the use of a good face brick, too, and therein bears out the argument previously advanced that where more elaborate and expensive houses are built and fancy face brick used in the walls cost more, the percentage of additional cost from using brick as compared to the total cost of the home remains very near the same, no matter whether one is building a modest bungalow with a nine-inch wall or a palatial home that runs into big figures.

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When a man who knows a whole lot about his business gets possessed with the idea that he knows it all, he is fixing himself to miss something.

# THE COMPLETE BUILDING SHOW.

A Few of the Many Unusual Exhibits that Will Attract Thousands to Cleveland, February 16 to 26, 1916.

ART WILL have a prominent place in the make-up of the Complete Building Show, to be held in Cleveland, February 16 to 26. Not only will statuary and paintings be exhibited, but many articles of household and building art will be shown in the making.

Mural paintings, art glass and tiles, sculptures and bronzes, art stones and terra cottas will be among the art products shown. The exhibits will cover every phase of these arts, from the modest burned clay panel over the living room grate to the decoration of the most expensive public building.

The Art Association of Cleveland is sponsor for the art exhibit. It numbers among its members some of the Sixth City's most influential citizens, so that nothing in the way of expense or co-operative effort on the part of the patrons of art will be spared to make this exhibit a real feature of the show.

The gallery of mural paintings will contain work of some of the best of Cleveland's artists. These will include original sketches of many famous murals, as well as a number of finished canvases.

The desire to "see the artist at work" will be gratified, also. A number of students of the Cleveland Art School will paint and model before visitors, while others work with tiles and pottery.

A part of the decorative scheme of the show will be a number of bronzes, the exhibit of one of the large firms of copper-smiths in New York. While some of these will be miniatures for the home, most of them will be life-size for garden and lawn decoration. The work of some of the country's most famous sculptors will form a part of this exhibit.

The placing of these bronzes will be a feature of the decorative scheme of the coliseum. At the end of each aisle, one or a group of these will be placed, in proper surroundings. Thus a pleasing vista will greet the eye, wherever turned.

It will be seen that even in this art exhibit, burned clay products have a prominent place. With the various brick and tile displays already provided, the clayworkers are assured a position as one of the leading classes of exhibitors.

**WANTED**

**$50,000,000.00 worth of Building Materials:**

The undersigned will spend during 1916, the above amount for new buildings—not counting an equal amount for equipment, furnishings and decorations.

We are going to—

THE FIRST AMERICAN
**COMPLETE BUILDING SHOW**
CLEVELAND, FEB. 16 TO 26,

for information that will influence our buying.

Do you want our business?

(Signed) MEN-ABOUT-TO-BUILD
In Cleveland and Northern Ohio

Write for information
EXECUTIVE COMMITTEE
COMPLETE BUILDING SHOW
356 Leader-News Building, CLEVELAND, O.

This Ideal "Santa Claus" will fill the Empty Stockings.

# CLAY PRODUCTS AS AN ENGINEERING MATERIAL.*

By A. V. Bleininger, Bureau of Standards, U. S. Dept. of Commerce, Pittsburgh, Pa., U. S. A.

## GENERAL CONDITIONS.

### (a) Factors Governing the Properties of Clay Products.

IN THE DISCUSSION of the strength of burned clay, two points of view suggest themselves. One involves the intrinsic strength of the material for different degrees of hardness, i. e., with the progress of vitrification; the other, the strength of clay when fabricated into various shapes. The first case concerns itself with the fundamental properties of the material; the latter, with the structural aspect.

The treatment of the first case makes necessary, as much as possible, the elimination of all extraneous factors, such as unsymmetrical shape and molding structure. In the second case, the element of the shape of the product is introduced, as well as the molding structure, which is unavoidable and which may prove an important factor.

A. V. Bleininger.

From the structural standpoint clay products cannot be studied as a material, but must be taken up according to the kind of product, whether solid or perforated bricks, building tile, architectural terra cotta, sewer pipe, fire brick, conduits, etc.

The physical properties of clay products depend primarily upon the kind of clay from which they are manufactured. Since clays differ widely in chemical composition, in plasticity, fineness of grain, shrinkage, burning behavior, refractoriness, color, etc., according to their mineral structure and geological origin, the products made from them are likewise subject to wide variations as to their properties and appearance.

### (b) Classification of Clays.

From the industrial standpoint, clays may be roughly divided into six classes:

1. Primary kaolins, usually white burning, very refractory, and of low plasticity and strength.

2. Plastic kaolins, not as white burning as primary clays. May be very plastic.

3. Clays of the fire clay type, ranging from materials of high refractoriness to those inferior in this respect. Certain highly refractory clays, called flint clays, are almost lacking in plasticity. Very plastic clays, called ball clays.

4. Shales. Fine-grained, hard clays, showing well-defined cleavage and often slate-like in appearance. They differ widely as to composition. Many ferruginous shales are sources of best paving brick. Shales, as a rule, are uniform over comparatively large areas, and hence have great industrial importance.

5. Alluvial clays. Of recent geological origin and found principally in old and new river valleys. Vary widely in composition and physical behavior, from clays of excellent plasticity to very sandy materials. As a rule, unsuitable for paving brick. Usually burn to a red color.

6. Glacial clays. Heterogeneous mixture of clay with various rock debris. Frequently calcareous, causing clay to burn to a cream or buff color. As a class, difficult to work and hence suitable only for crude products.

7. Loess clays. Wind-blown deposits, usually silicious and hence of low plasticity. Used only for common brick.

From the structural standpoint, the No. 2 fire clays, shales and alluvial clays are of greatest importance.

### (c) Classification of Clay Products.

For the purpose of the present paper eight groups of clay products may be considered, as follows:

1. Building brick.
2. Paving brick.
3. Hollow building tile and fire proofing.
4. Architectural terra cotta.
5. Sewer pipe and drain tile.
6. Refractories.
7. Floor, wall and roofing tile, glazed brick.
8. Sanitary ware.

According to the particular use of each class of product, certain requirements must be emphasized, which suppose the predominance of definite physical qualities and the minor consideration of others. These various physical properties might be summarized as follows:

1. Compressive strength.
2. Transverse strength.
3. Modulus of elasticity.
4. Resistance to shear.
5. Hardness and toughness.
6. Porosity and resistance to weathering and corrosion.
7. Resistance to high temperatures and sudden temperature changes.
8. Thermal conductivity, specific heat and thermal expansion.
9. Sanitary aspect.

The subject can be treated most expeditiously by taking up the various clay products in the order named above.

## Building Brick.

### (a) Relation Between Intrinsic and Structural Strength.

The principal requirements with reference to building brick are compressive strength and resistance to transverse rupture, and porosity, together with durability, i. e., resistance to weathering influences. It must be realized, however, that from the very nature of the material the stresses to which it is subjected in structures are but a small fraction of the intrinsic strength. This is due to the fact that the mortar is an important factor. Thus, no matter how hard and strong the bricks may be, if, for instance, lime mortar is used, the compression strength of the structure will not exceed a certain limit. The stronger the mortar, the more will the strength of the walls or piers approach that of the individual brick.

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* By permission of the Director, Bureau of Standards.

This has been shown very conclusively by the pier tests made at the Watertown Arsenal and the Bureau of Standards.

### (b) Intrinsic Compressive Strength of Clays.

The intrinsic strength of clays has been recently determined at the Bureau of Standards for 3.5-inch clay cubes, made from typical clay deposits and burned to several temperatures. These results are shown graphically in the diagram of Fig. 1, from which it will be seen that with some clays the rate of increase in strength, from the point of maximum porosity, is quite marked at the beginning and then remains practically stationary for a considerable interval. Others show a steady increase. The state of vitrification is characterized, as a rule, by a decided rate of gain in strength. This is due principally to the gain in the inherent, mechanical strength of the solid vitrified clay and only secondarily to the decrease in pore space. Overburning, with its accompanying vesiscular structure, is at once indicated by a drop in strength. The porosity, per se, affords a good index of the quality of the brick made from a given clay, but cannot be used as a general criterion for all kinds of clays. This is shown by the following results, which give the porosity of six clays at the point at which all showed a compressive strength of 5,000 pounds per square inch:

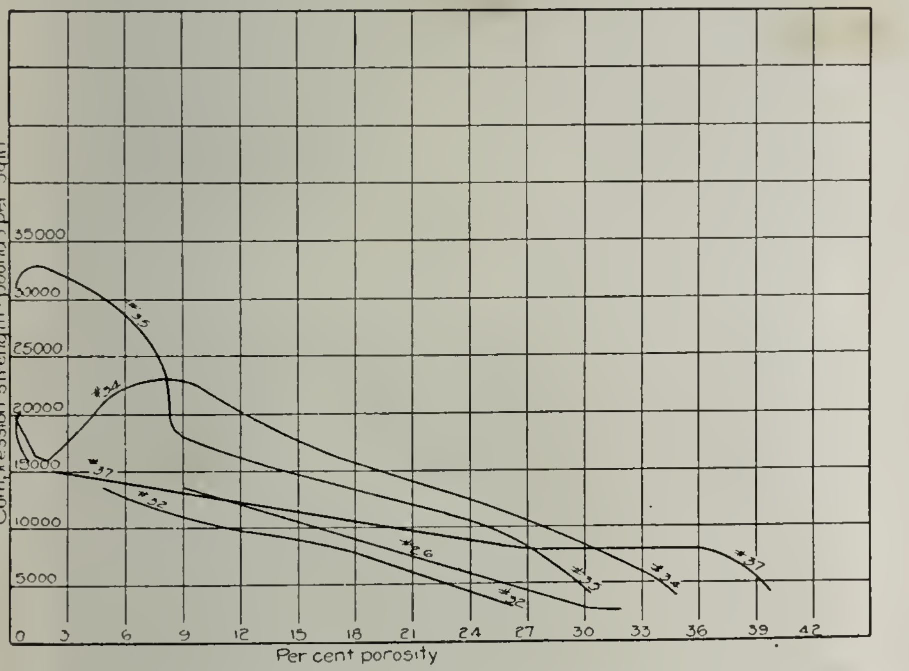


Fig. 1. Variation of Compressive Strength with Porosity—Bureau of Standards Tests.

| | | | |
|---|---|---|---|
| Sample No. | 32 | 26 | 33 |
| Kind of clay.......... | Fire clay | Ferruginous surface clay | No. 2 fire clay |
| Per cent. porosity..... | 23 | 25 | 26.5 |
| Sample No. | 35 | 34 | 37 |
| Kind of clay.......... | Shale | Shale | Calcareous surface clay |
| Per cent. porosity..... | 29.5 | 33.5 | 40 |

The porosity, in these examples, represents the percentage of the actual pore space in terms of the volume of the specimen. Usually, the porosity is estimated by means of the absorption test, which is made by immersing half-bricks in water for twenty-four hours and boiling them for four hours. The difference between the weights of the dry and the saturated specimens (weighed cold), computed in per cent. of the dry weight, gives the absorption. Approximately, per cent. porosity corresponds to twice the absorption values.

The compressive strength reached necessarily varies with the kinds of clay. Shales, as a rule, result in the greatest strengths; calcareous glacial clays (not vitrified), in the lowest. Hard-fired, red-burning, alluvial clays are about equivalent in this respect to the corresponding grade of building brick made from the semi-refractory fire clays.

The results of the compressive strength-porosity relations are compiled in Table I.

Table I.

| No. of clay | Firing temperature in cones | Per cent. porosity | Average compression strength, lbs. per sq. in. | Av. per cent. deviation from mean crushing strength |
|---|---|---|---|---|
| 26 | 08 | 30.94 | 2,281 | 8.10 |
| | 06 | 31.86 | 2,944 | 9.54 |
| | 04 | 27.37 | 4,085 | 14.48 |
| | 1 | 20.56 | 7,467 | 7.91 |
| | 3 | 21.47 | 8,101 | 16.57 |
| | 5 | 9.13 | 13,368 | 3.25 |
| 32 | 08 | 26.23 | 3,014 | 10.02 |
| | 06 | 24.11 | 4,217 | 15.64 |
| | 02 | 16.00 | 8,485 | 6.13 |
| | 3 | 16.08 | 9,205 | 11.49 |
| | 5 | 10.29 | 10,339 | 8.83 |
| | 7 | 4.79 | 13,424 | 18.10 |
| 33 | 08 | 27.23 | 4,139 | 11.61 |
| | 06 | 25.95 | 4,883 | 8.72 |
| | 04 | 22.28 | 9,335 | 5 32 |
| | 02 | 21.74 | 9,318 | 8.45 |
| | 1 | 20.74 | 10,555 | 14.25 |
| | 5 | 14.47 | 9,751 | 22.37 |
| | 7 | 12.12 | 15,353 | 12.69 |
| 34 | 08 | 34.74 | 3,949 | 10.69 |
| | 06 | 33.34 | 5,795 | 12.74 |
| | 04 | 21.95 | 13,538 | 8.55 |
| | 02 | 16.74 | 16.368 | 8.38 |
| | 1 | 15.22 | 17,340 | 11.33 |
| | 3 | 6.45 | 22,583 | 9.50 |
| | 5 | 1.41 | 15,491 | 27.45 |
| | 7 | 0.30 | 19,362 | 9.19 |
| 35 | 08 | 30.31 | 4,111 | 14.10 |
| | 06 | 26.42 | 8,967 | 14.50 |
| | 04 | 17.69 | 13,989 | 15.00 |
| | 02 | 8.53 | 18,511 | 7.50 |
| | 1 | 7.94 | 24,399 | 14.36 |
| | 3 | 0.66 | 32,341 | 19 48 |
| | 5 | 0.16 | 30,342 | 17.08 |
| 37 | 06 | 40.51 | 4,136 | 7.79 |
| | 02 | 38.14 | 6,668 | 6.77 |
| | 1 | 35.26 | 7,887 | 8.41 |
| | 3 | 27.22 | 7,887 | 16.89 |
| | 5 | 0.42 | 16,895 | 15.56 |
| | 7 | 0.26 | 20,283 | 8.04 |

### (c) Compressive Strength of Brick.

With reference to the compressive strength of commercial brick, it must be realized that the strength is not uniform in all directions. According to the method of manufacture, it will be greater along one plane than along any others, according to the direction of the flow of the material in the plastic state. In addition, the question of such structure as auger lamination enters as an important factor. It is a well-known fact that structure is produced, in shaping the brick, by means of the auger machine, both by the action of the auger and by the differential flow of the clay through the die. The clay is delivered from the auger wings in helical strands, and in this condition is forced through the die. The strands of the clay may be imperfectly welded, thus giving a structure similar to the twisted strands of a rope. On the other hand, the friction of the clay against the iron surface of the die causes the clay to flow at a greater speed at the center of the stream, resulting in a structure resembling overlapping cones. This is called differential lamination.

Dry-pressed brick, when hard burned, result in the greatest compression values, owing to their density. In well-burned building brick, lamination structure, unless very excessive, has no special practical importance. It does, however, contribute towards the variable results obtained in testing. In this respect, the shape of the test specimen is of primary importance. Theoretical considerations show that the cube, or still better, the prism of square cross section, the height of which is one and one-half times the breadth, gives best results, which is shown by the symmetry of the fracture planes. If a brick is tested flatwise, in which position the ratio $b_1 \div h = 2$, the resulting compressive strength will be 22 per cent. greater than that of a cube made from the same ma-

(Continued on page 676.)

# PROCEEDINGS FOURTH ANNUAL MEETING OF THE AMERICAN FACE BRICK ASSOCIATION HELD AT OLD POINT COMFORT, VA.

PROTECTED BY THE BIG GUNS of Fortress Monroe and the battleships of the Atlantic squadron, the delegates to the annual convention of the American Face Brick Manufacturers' Association and the American Face Brick Dealers' Association met and discussed methods of trade "preparedness" at Old Point Comfort, from December 8 to 10, inclusive.

Preparedness, to the brick manufacturer and dealer, means protection against the many evils that confront the industry, and according to the papers and discussions given at the twin meetings, the enemies are numerous and formidable.

In selecting the stamping ground of Captain John Smith for the convention, the American Face Brick Manufacturers' Association follows its usual custom of getting as far as possible from the maddening crowd. The dealers' organization followed, as it is in the habit of doing, and both conventions were well attended, considering the distance necessary for a majority of the delegates to travel. The Hotel Chamberlin gave the delegates every accommodation, and, with the many attractions of the hotel and its surroundings, the joint event will live long in the memory of those who attended. It was a delightful place to spend the week, and one suited to closest concentration upon the objects of the meeting.

For the manufacturers it was a meeting of unusual profit. There were several important papers which led to earnest discussion of vital problems of the trade, and the manufacturers returned to their plants better prepared to take advantage of the great wave of prosperity and the year of active building that all believe are at hand. While there are admittedly many unsatisfactory conditions existing in the business, there were present none so pessimistic as to doubt that there is a rapidly increasing demand for permanent building materials, among which clay products take first rank.

The presidency of the manufacturers' organization moved from Michigan to Ohio, Paul R. Belden, of the Belden Brick Company, Canton, succeeding H. W. Holmes, of Detroit. The active officer of the organization, who is unanimously credited with giving the association its present important standing in the trade, is R. D. T. Hollowell, and he will continue as secretary-treasurer, with headquarters at Pittsburgh.

As usual on such occasions, the secretary's coat-tails were at an angle of forty-five degrees from an upright position throughout the convention. He was not idle for a second, and the machinery of the convention moved with the ease and precision of the disappearing guns at the nearby fortress.

The opening session of the manufacturers was held on Wednesday morning and adjournment taken until 2 p. m., when the reports of the president and the secretary were given and unanimously adopted. These reports, with those of the various committees, reflected a busy year's work, with a good number of definite accomplishments for the benefit of the association membership.

The first paper at the Thursday morning session brought out a heated discussion. "Foresight and Hindsight" was the title of an argument prepared by T. P. Cuthbert, Pittsburgh, to prove that all the ills of the face brick business could be traced to the rough texture brick. The speaker argued that the introduction of the roughs opened the way for many cheap bricks which could not compete for popularity with the smooth surface brick. Mr. Cuthbert held that the rough brick were being used in many places to which they are not suited, to the determent of the entire brick industry. His remarks struck a responsive chord in that part of the delegation making only smooth brick, but it was vigorously contested by J. Parker B. Fiske, of New York, who led the discussion following the paper.

Mr. Fiske was accused of having "pushed" the sale of rough brick to such an extent that in certain centers the builder would accept no other. Some who stood up to defend Mr. Cuthbert's contention put a note of condemnation in their report of the activities of Mr. Fiske with his advertising campaign "all over the country."

Mr. Fiske frankly stated that rough brick were not suited to use in downtown buildings in a smoky city, and that they were first promoted for suburban and country homes only.

"I am willing to assume the responsibility of having put the rough texture brick upon the market, if I am so accused," said Mr. Fiske. In answering the references to his aggressive publicity campaign, he simply said that he did not have a carload of brick upon his yards. This was strongly in contrast with those who reported over-production, and the impression was left that there is some connection between progressive methods and a demand for one's product.

Mr. Fiske did not agree with Mr. Cuthbert as to the cause of the manufacturers' troubles, but held that it could be attributed to a lack of aggression and a failure to keep the product upon the highest plane.

The next period of the Thursday session was given to consideration of the first American Complete Building Show, to be held at Cleveland February 16 to 26. Mr. McM. Everhard, Massillon, Ohio, chairman of a committee of the Ohio Face Brick Manufacturers' Association, reported the activities of his committee in connection with the show, and called upon P. R. Belden to outline a plan that had been considered. Mr. Belden asked the convention to co-operate in the matter of making a suitable exhibit at the show and publish literature for distribution at the show. It was estimated that about $5,000 would be necessary to carry this project through. The plan contemplated the circulation of 50,000 books containing fifteen small house plans, each accompanied by at least three actual bids from reliable contractors.

Paul B. Belden, newly elected President American Face Brick Association.

Mr. Belden asked R. P. Stoddard, general secretary of the Complete Building Show, to explain the scope and purposes of the exposition to the convention. Mr. Stoddard told of the many national and state conventions that will meet in Cleveland during the ten days of the show, and of the broad scope of the publicity and the exhibits giving the show a national aspect.

He reported the reservation of large spaces by the lumber interests, the hollow tile, common brick, stone, gypsum, metal lath and other materials, and asked the convention if it felt it could afford not to have face brick represented there.

A plan for an exhibit prepared by Architect George W. Ritchie, Cleveland, with several small house lans by the same architect, were exhibited.

Following Mr. Stoddard's report, Mr. Fiske took the floor and strongly argued for the co-operation of the association in the matter of the exhibit. Mr. Fiske offered a resolution that the association make an assessment of one cent per thousand to meet the expense of the display. This was seconded by Mr. Black. It was Mr. Fiske's request that the motion be not voted on until the next morning, when all delegates might be in attendance, and the resolution was laid on the table.

The discussion that followed Friday morning resulted in the loss of the motion made by Mr. Fiske. J. M. Adams, Columbus, led the opposition to the movement, while Mr. Fiske argued strongly for the display.

After the Fiske resolution had been lost, the Ohio manufacturers present immediately took the matter in hand, and before the close of the convention had assurance of a good portion of the necessary amount for the Cleveland demonstration. It is expected that the plans of Mr. Belden will be carried out and that there will be a creditable face brick display in the show, with the publication of the most valuable literature that the trade ever has had to be used in connection with it.

Other papers given at the convention that were of particular value to the manufacturer were: "How Far Does the Manufacturer's Responsibility Extend in Rejections by Jobbers' Customers?" by H. R. Beegle, general manager of Beaver Clay Manufacturing Company, New Galilee, Pa.; "Getting Brick Squarely Before the Small House Builder," by George W. Ritchie, architect, Cleveland; "Costs—the Basis of All Business," by Clay Herrick, Ernst & Ernst, Cleveland; "What Margin of Profit Should a Manufacturer of Face Brick Figure on First Quality Stock in Order to Pay a Reasonable Profit on Money Invested?" written by W. H. Hoagland and delivered, in his absence, by E. C. Howard, Claycraft Mining Company, Columbus.

The papers of Mr. Ritchie and Mr. Herrick were given at a joint meeting of manufacturers and dealers Thursday afternoon. Mr. Ritchie exhibited a number of small brick house plans that he had taken bids upon, and the range of price was from $3,200 to $4,000. He announced himself as a convert to the low cost brick house through the efforts of the S-A-F-E, and said that, like a large majority of architects throughout the country, he always had believed that a brick house could not be built for less than $6,000, until the S-A-F-E converted him. Now he is specializing in small brick houses, and reports that they may be built at practically the same cost as frame.

The paper of Mr. Hoagland was greeted with enthusiastic approval, and was so well thought of that a resolution was passed authorizing the publication of the paper for circulation. Mr. Hoagland put a great amount of study upon his subject and proved conclusively that the manufacture of face brick is not a get-rich-quick proposition, but one that requires the closest business application to show a balance on the right side of the books.

The joint banquet was held Thursday evening and was attended by all the delegates present and many ladies. There was a colored orchestra to soothe the diners with the plaintive Southern melodies, and the dinner was of the typical Hotel Chamberlin type. There were two addresses at the banquet, both of the most entertaining kind, yet in perfect accord with the spirit of the meeting. President Holmes turned over to Captain Robert E. Queisser, Cleveland, secretary of the Dealers' Association, the duties of toastmaster, and the captain contributed to the brilliancy of the occasion with gracious and witty introduction of the speakers.

D. M. Barrett, editor of Salesmanship, Detroit, was the first speaker. He told of the opportunities opening for the progressive business man in America. It might not be unkind to say that his remarks were particularly applicable to the brick industry, or that portion of it that has not yet found it necessary to put real aggression into their trade. Mr. Barrett said that fortune would not force itself upon the one who stands still, because there are too many live ones willing to go after fortune.

The second speaker was Franklin H. Wentworth, secretary of the National Fire Protection Association, Boston, always an entertainer and an instructor. Mr. Wentworth traced the connection between the country's great fire loss and the use of inflammable materials, and showed the brick man his opportunity in fire prevention work. As usual, Mr. Wentworth handled fire figures without making them dry, and he held the closest attention of his audience to the close.

The last business of the convention was the election of the following officers: President, Paul R. Belden, Canton; vice-presidents, E. C. Clark, Pittsburgh, and J. M. Adams, Columbus; three new directors were named for three-year terms, being T. P. Cuthbert, Pittsburgh, and B. W. Ballou, Kansas City, and Ralph Simpkins, St. Louis.

**American Face Brick Manufacturers' Association Register.**

J. M. Adams, Columbus, Ohio, the Ironclay Brick Co.
R. D. T. Hollowell, Pittsburgh, Pa., American Face Brick Association.
H. W. Holmes, Detroit, Mich.
P. B. Belden, Canton, Ohio, the Belden Brick Co.
R. W. Hasting, Canton, Ohio, the Belden Brick Co.
H. O. Hamilton, McArthur, Ohio, the McArthur Brick Co.
E. C. Clark, Pittsburgh, Pa., Kittanning Brick and Fire Clay Co.
J. Parker B. Fiske, New York City, Fiske & Co., Inc.
H. R. Beegle, New Galilee, Pa., Beaver Clay Mfg. Co.
M. McM. Everhard, Massillon, Ohio, the Everhard Co.
Chas. C. Stratton, Bradford, Pa., Alumina Shale Brick Co.
E. A. Stewart, Canton, Ohio, the Stark Brick Co.
R. L. Frindlay, New York City, Hay-Walker Brick Co.
R. L. Wilson, Pittsburgh, Pa., Fallston Fire Clay Co.
A. L. Humphrey, Pittsburgh, Pa., Fallston Fire Clay Co.
C. A. Gardner, New York City, American En. Brick and Tile Co.
J. W. Morrison, Detroit, Mich., Puritan Brick Co.
Clyde C. Murray, Reynoldsville, Pa., Reynoldsville Brick and Tile Co.
C. R. Van Ormer, Pittsburgh, Pa., Pittsburgh Callery Brick Co.
Joseph Degenbart, Buffalo, N. Y., Jewettville Brick Co.
J. Francis Booraem, New York, American En. Brick and Tile Co.
E. F. Dartnell, Montreal, Can.
J. B. Nicholson, Toronto, Ohio, the Toronto Fire Clay Co.
C. B. McFadden, Toronto, Ohio, the Toronto Fire Clay Co.
J. N. Moulding, Chicago, Ill., the Thomas Moulding Brick Co.
Thomas C. Moulding, Chicago, Ill., the Thomas Moulding Brick Co.
F. W. Donahoe, Chicago, Ill., Brick and Clay Record.
E. C. Howard, Columbus, Ohio, Claycraft Brick Co.
S. C. Martin, Pittsburgh, Pa., Kittanning Brick and Fire Clay Co.
A. E. Davis, Indianapolis, Ind., Western Brick Co.
L. W. Sprague, McArthur, Ohio, the McArthur Brick Co.

## MEETING OF THE FACE BRICK DEALERS' ASSOCIATION.

In the dealers' convention there was reflected a closer cooperation between the manufacturer and dealer than has previously been shown. Two joint resolutions were passed by both bodies, the first pledging the members of each organization to work for members of the other association. This means that the dealer will urge the manufacturers he deals with to become members of the manufacturers' organization, and the manufacturers are in turn to urge their dealers to join the other association.

There also was passed a joint resolution requiring the committees of both organizations to confer upon plans for both the mid-summer and the annual meetings. This joint committee will arrange for the time and place of the meeting and suggest topics for discussion.

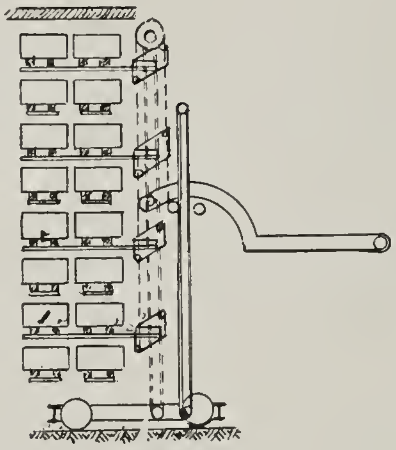
The dealers' organization contributed to the joint events, both business and social, during convention week. Clay Herrick, of Ernst & Ernst, Cleveland accountants, who spoke at the joint meeting, was the guest of the dealers, as was also D. M. Barrett, of Detroit, who gave an eloquent address at the banquet.

Following are the officers elected by the Dealers' Association: President, A. S. Reid, Newark, N. J.; secretary-treasurer, R. L. Queisser, Cleveland, Ohio. Executive Committee, H. L. Matz, Chicago; F. Lawson Moores, Cincinnati; R. L. Queisser, Cleveland; A. S. Reid, Newark, N. J.; W. G. Thomas, Detroit.

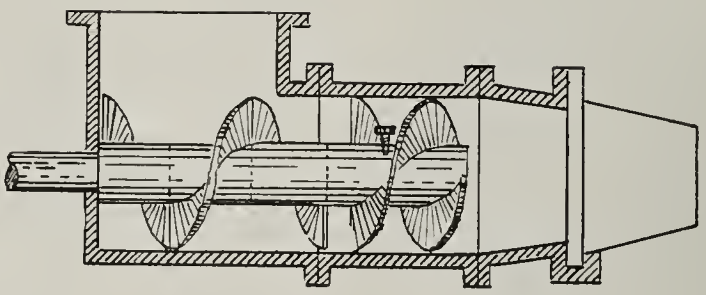
**German Patent.**—Raymond C.. Penfield, of New York, has been granted German Patent Number 282,905 on an automatic setting and handling machine for brick.—Deut. Toph. & Z. Z., No. 78, 1915.

**Vitrification in Clay Products.**—When it is impossible to increase the burning temperature to attain vitrification, the addition of some fluxing materials can be used to advantage. The addition of from two to eight per cent. of fluorspar, and also the addition of lime and feldspar will bring desired results.—Keramische Rundschau, No. 34, 1915.

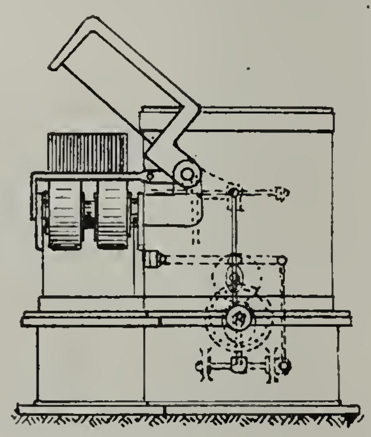
**New Style Brick Cutting Table.**—In order to cut square brick C. Keller & Co., in Laggenbeck, in Westfalen, have patented a brick cutting machine which works entirely independent of the clay column. It has two large bows which work with the necessary mechanism so that it will cut direct through the brick and in that way all brick will be cut square, and every brick is cut alternately. The German patent number is 281,126.—Deut. Topf & Z. Z., No. 64, 1915.



Rack Car for Pallets.



Auger Arrangement with Forced Feed.



New Style Brick Cutting Table.

**Hoffmann or Zigzag Continuous Kiln.**—When the yearly production is less than a million brick the zigzag kiln is the better of the two. It will burn brick more uniform in color and in texture. It is easier to handle than the large Hoffmann kiln, and it cost very considerable less to build and to operate. It can be used for the burning of roofing tile and hollow ware and, in fact, it gives good results all around. The burning chamber of such a zigzag kiln which must have at least 135 feet length, and the width can be 4 feet. The chambers can be arranged, however, to suit any daily capacity. Therefore is this style kiln more adopted for small yards than the large Hoffmann continuous kiln.—Tonind. Zeitung, No. 104, 1915.

**Auger Arrangement With Forced Feed.**—In most augers the clay will feed back if the resistance through the die is such that all clay cannot be forced through the same. The trouble with these augers is that they leave too much opening in making the full circle and do not close off the clay barrel opening, and thereby give the clay an opportunity to work back of the auger arrangement. The present idea is to make the front auger or propellor in such a way that it will close the barrel off entirely in one revolution of the propellor. The propellor has two leaves and is so arranged that the end of the auger blade is at least one-quarter turn back of the point where the propellor starts. This auger has been worked out practical by the Kleemanns Clayworks, of Oberturkheim, and has been granted German Patent Number 281,396.—Deut. Topf & Z. Z., No. 64, 1915.

**Rack Car for Pallets.**—The great trouble which has been experienced with automatic rack cars is the fact that they try to take too many pallets at once, and the present invention relates that it takes only half the pallets from a rack at one time. Mr. Frederick Herrmann, in Habelscherdt, has secured a German patent on this new system car. The cut herewith shown will make the proposition plain.—Deut. Topf & Z. Z., No. 78, 1915.

**The Best Arch for a Continuous Kiln.**—In a continuous kiln is the half circle arch the best for all purposes? The weight of the half circle arch will press vertical on the outside walls, while with a flat arch, it has a tendency to spread the walls. Further, a half circle arch will lower itself while under fire, and a flat arch will always raise in the center. The advantages of the half circle arch is, therefore, a greater stability, while the disadvantages are a smaller area. The fire holes in a half circle arch construction must be made of different height, and the amount of coal to be used must also be gauged accordingly. However, this is a matter which can be easily regulated, and the race canals should be built accordingly also, that is those close to the out, and inside should be smaller than those in the middle.—Tonind., Z. No. 97, 1915.

**Practice in Kiln Firing.**—In firing kilns in general it is much better to fire every other firebox than to fire all fireboxes at the same time. Every fresh firing, cleaning of the grates and putting on fresh coal disturbs the regular operation of the kiln, so in these operations a considerable amount of fresh air is admitted which is not necessary, and which causes a considerable amount of smoke to generate. It stands to reason that if a kiln has ten fireboxes and all these fireboxes are cleaned at once, that the operation of the kiln as to its condition is suddenly changed and, of course, this is not very profitable for the ware and clay products which the kiln contains. When, however, two or three fireboxes are cleaned and attended to at a time, then the changes are far less perceptible and the operation of the kiln is more uniform. —Sprechsaal, No. 32, 1915.

One good sign of the times that indicates returning prosperity is to be found in the steady increase in our export trade to South America. At the beginning of the year it was about seven million dollars a month, while at the end of the first six months of the year it was practically double that, being in round numbers $13,700,000.

# CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

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## Sold Machinery Through The Clay-Worker.

Editor Clay-Worker:

Enclosed find check for subscription to The Clay-Worker. We dismantled a tile plant here and through your paper have been able to dispose of considerable second hand machinery, and will have some more to offer before long.

Thanking you for all your courtesies, we are

Yours truly,

Rolfe, Iowa. THOMPSON BROS.

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## Landscape Artist Wants Information Relative to Brick for Garden Walks.

Editor Clay-Worker:

I am constantly called on to suggest something different from concrete or flag for garden walks, and find the desire for brick walks for gardens is increasing steadily, I would like to get some information in regard to brick for laying walks, steps, etc. The brick should be buff, brown or dark red in color, of uniform finish on all six sides, medium rough, and hard enough not to absorb water and should measure as nearly 2x4x8 inches as possible, so as to lay either herring bone, straight or fancy designs.

Yours truly,

M. G. MERRITT.

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## The Complete Building Show a Means of Boosting Building Brick and All Clay Products.

Editor The Clay-Worker:

I have just returned from the office of the Complete Building Show Company. While there Mr. Stoddard showed me a plat of the Building Show to be held at the Coliseum next February. I am enclosing a copy of same, on which is desinated the space already taken by the lumber people of this city, and the space which has been optioned by the Ohio Face Brick Manufacturers' Association. Words fail me in my desire to express the great disappointment, and I might also state disgust, at the action of the brick manufacturers of this and surrounding cities.

I remember attending a meeting with Mr. Stoddard several months ago at Indianapolis with a purpose of discussing a proposition on brick. At this meeting the advisability of the National Brick Manufacturers' Association holding their convention in Cleveland next February was touched upon, and one of the leading brick manufacturers of the country declared, very dramatically: "If face brick does not predominate at the Complete Building Show, I will do everything in my power to prevent the National Brick Manufacturers' Association selecting Cleveland as its next meeting place."

Since then practically all of the space has either been sold or reserved. The lumber people contributing to the success of the show very generously consented to our building the exterior of the prize house, which is to be given in connection with the show, out of face brick.

If Cleveland keeps up to its present record of building it will spend in the next three years one hundred million dollars in new construction. It is practically a virgin field for the face brick men to work in, yet of all building materials they are the only ones not to recognize the opportunity for effectual educational work at this show.

We estimate, at the very lowest, an attendance in excess of 200,000 people during the ten days of the show. Several conventions will be held in Cleveland during this period. Such an aggregation of persons directly and indirectly interested in fireproof construction has never been assembled at one time.

Up to date the only space taken by a face brick manufacturer is one measuring 10x10 feet, taken by the Kansas City Buff Brick Company—("More power to them, may they always prosper").

Mr. Stoddard, secretary of the S-A-F-E, realizing the unfortunate effect upon safe-building that might result from the indifference of the face brick manufacturers stirred the Ohio Face Brick Manufacturers' Association to action, and a committee was appointed. Upon his own responsibility Mr. Stoddard is holding a space costing about $700, pending action of the face brick manufacturers.

The final taking of the space, we are informed, will depend on the action of the American Face Brick Manufacturers' Association at its convention at Old Point Comfort. The lumber people of this city alone have taken $3,500 worth of space, and are anxious to take all the remaining space that is open. The common brick manufacturers of Cleveland have taken a space exceeding that being held for the face brick manufacturers of the United States.

The whole thing to me appears like an absolute disgrace to the brick men of this country. The show is counted to be a big success, and it now looks as though the face brick men are going to permit the lumber men to run away with the honors. I ask, "Where are those leading lights in the brick industry, who by their own words are willing to make any sacrifice to do anything in their power in the interest of clay products?" All I can say is that I am ashamed of them.

Yours very truly,

Cleveland, Ohio. ROBT. C. MITCHELL.

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## Good Demand for Drain Tile in the Far Northwest.

Editor Clay-Worker:

As it is seldom you have anything from this neck of the woods, I decided I might tell you something about what we are doing. I have installed a very nice clay products plant and manufacture mostly drain tile, but we also turn out a goodly quantity of building brick, hollow brick and building block. I have made quite a change recently by enlarging our tunnel dryer and also built a new twenty-eight-foot down draft kiln and will soon build a thirty-two-foot down draft kiln.

The drain tile business in this section is as yet in its infancy; factories are very scarce and the demand for drain tile increasing all the time. My plant is located on the waters of Puget Sound, and there are thousands of acres to be tiled in this immediate vicinity. I burned three kilns this fall, and had none to ship as the farmers came to the plant and hauled them away and paid me a good price. This is a beautiful country, flowers bloom nearly all the year and the climate is certainly great.

I look forward to the arrival of The Clay-Worker every month and could not get along without it.

Yours truly,

C. B. MAYHUGH,

General Manager Star Brick & Tile Co.

Bay View, Wash.

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**Fine Grinding of Clay Bodies.** A very interesting article by Dr. W. Pukall, of the Clayworking School at Bunzlau, shows he comes to the conclusion that all mixtures of bodies should be done in as fine a state as possible. The mixing of any clay bodies of two or more clays will produce a chemical action in burning, and it is therefore essential that such mixtures should be as fine as possible, n order to give the desired results.—Sprechsaal No. 13-20, 1915.

*Delegates Waiting for the Taxicabs to Take Them to the Ford Plant.*

*Delegates Wallace, Smith, Kanengeiser and Weaver at the Entrance to the Ford Plant.*

*Delegates to Paving Brick Institute Ready to Take the Taxies Back to the Statler.*

## THE DETROIT STATLER AGAIN PLAYS HOST TO VISITING BRICKMAKERS.

THE INSTITUTE OF PAVING BRICK MANUFACTURERS held its fourth quarterly meeting at Detroit, December 8, and the members again enjoyed the hospitality of the Statler Hotel. The newness, which was so noticeable during the N. B. M. A. convention, has worn off, and the service has been perfected in every department of the immense hostelry, making even a temporary sojourn there a pleasurable event.

Most of those in attendance were the young, live wires in the paving brick game, one of the few exceptions was C. C. Barr, treasurer of the N. P. B. M. A., and he seemed to have renewed his youth. Perhaps it was the environment and association with "the boys" that gave this impression. Even so, the veterans in the paving brick business will do well to attend these quarterly meetings regularly and imbibe the spirit of enthusiasm and good cheer which makes one oblivious of the flight of years.

The rank and file of the members are seeking information in regard to mechanical improvement, and so it was thought that a trip through the great Ford automobile plant, made in a leisurely way that would permit of a close inspection, would prove beneficial, consequently the delegates made that the first point of attack. They were welcomed cordially and were shown every detail of the establishment in which they were especially interested.

Returning to the Statler, they enjoyed an informal official family luncheon and then proceeded to elect officers, which resulted in the choice of Fred Kanengeiser, of Bessemer, Pa., for president; D. E. Humphrey, Cleveland, Ohio, vice-president; D. C. Wilcox, Alliance, Ohio, secretary; O. W. Renkert, Canton, Ohio, treasurer.

After considerable discussion, it was decided to hold the next quarterly meeting at Portsmouth, Ohio, April 12, at which time the principal topic of discussion will be cost keeping.

In the evening a more pretentious dinner was served, after which the convention was addressed by R. T. Stull, who spoke on dies and lamination, illustrating his discourse by lantern slides. The general discussion following indicated that the subject is one on which the members are now well informed, and Mr. Stull was tendered a vote of thanks for his contribution to the Institute's fund of knowledge.

Those in attendance were Fred Kanengeiser, Bessemer, Pa.; Messrs. Wallace and Aubrey, Youngstown, Ohio; P. A. Kanengeiser, Bessemer, Pa.; Harry L. Meyer, Alton, Ill.; O. W. Renkert, Canton, Ohio; R. B. Keplinger, Canton, Ohio; W. G. D. Ohr, Galesburg, Ill.; Spencr M. Duty, Cleveland; S. C. Peebles, Portsmouth, Ohio; F. L. Manning, Portsmouth, Ohio; D. E. Humphrey, Cleveland; Louis A. Smith, New Brighton, Pa.; A. B. Kline and J. C. Kline, Wickliffe, Ohio; G. C. Carlyle, Portsmouth, Ohio; D. C. Wilcox, Alliance, Ohio; R. P. Stull, Conneaut, Ohio; F. E. Schultz; C. C. Barr, Streator, Ill., and T. A. Randall, Indianapolis.

## OHIO PAVING BRICK COMPANIES CONSOLIDATE.

Plans have been completed by the Deckman-Duty Company, of Cleveland, Ohio, for the absorption of the Wooster Shale Brick Company at Wooster, Ohio. The Deckman-Duty Company will increase its capital stock to $1,000,000, and the name will be changed to the Medal Paving Brick Company, "Medal" having been the brand name of the Deckman-Duty brick for many years. "Medal Block," both repressed and wire-cut-lug, will be manufactured at the Wooster plant, as well as the old plants of the company located at Cleveland, Malvern and Carrolton, the four plants giving the company an annual output of 50,000,000 brick. The present officers of the Deckman-Duty Company, Spencer M. Duty, Charles J. Deckman and Herbert C. Moatz, will be officers of the new company, together with W. R. Barnhart, Jr., the president of the Wooster Shale Brick Company.

## CHAS. T. HARRIS RE-ELECTED SECRETARY HOLLOW TILE ASSOCIATION.

At the recent annual meeting of the Hollow Building Tile Association, held at Hotel Henry, Pittsburgh, Pa., plans were laid for carrying on the work of the Association along progressive and aggressive lines, and also to make a campaign for an enlarged membership. Chas. T. Harris, of Cleveland, who has served the Association so efficiently as secretary ever since its organization, was re-elected. The Association voted to hold its next meeting in New York City January 25.

## BREAKING UP A HABIT.

About the only logical way to break up a habit is to get people to thinking about it, that particular habit and where it leads to. When you can make them see clearly that it is leading them where they don't want to go, they will wake up and show a tendency to break away from it.

Sometimes it is comparatively easy to awaken people to the fact that they are following a habit in the wrong direction, while at other times it is somewhat difficult and takes persistent hammering and a long campaign of education.

In promoting the use of brick and breaking people from the habit of flimsy and less satisfactory construction that they might take up with the other and better habit of permanent building of satisfactory nature, we have been hammering and banging around in many directions for quite a number of years, but finally we have struck 13, or sounded the keynote, or whatever you want to call it, with the slogan, "Build With Brick."

## A LITTLE NONSENSE.

### Undiscovered Countries.

A ten-year-old Chambersburg (Pa.) boy, who has a stamp album, recently received a small box full of foreign stamps. The little fellow thanked his benefactor in the following letter: "Dear Chester—Thank you for the stamps. I like the Belgium and Bavarian ones, all those from Europe, because after this war is over I will have stamps from some countries that ain't."—Exchange.

### The Form Letter.

John Phillips, the magazine editor, has a suspicion that form letters are sometimes dangerous. Not long ago he wrote a letter of complaint to a Western railroad, explaining in detail why he had preferred to sit up all night in a smoking compartment rather than share his berth with a fine line of bugs that are not called by their first name in polite society. The letter of apology that he received was so much of an apology and so reasonable an explanation that Mr. Phillips felt perhaps he had been unreasonable in filing his complaint when he happened to notice that his original letter, through error, had been returned with the letter of apology. Looking at it he saw scrawled across the top this blue-pencil indorsement:

"Send this guy the bedbug letter."—Everybody's.

### The Thing She Never Learned.

She was a dainty little thing, a truly charming chit,
  Whose presence made the heart of youth go pitty-patty-pit;
But she was very knowing, and she kept the cubs at bay;
  Her mama had instructed her just what to do and say.
That she could walk demurely there was not a shred of doubt,
  But—she always
Quit the trolley car
  The wrong way about.

# OFFICIAL ANNOUNCEMENT.

**Thirtieth Annual Convention of the National Brick Manufacturers' Association and Allied Organizations, to Be Held at the Statler Hotel, Cleveland, Ohio, February 20 to 26, 1916.**

## The National Paving Brick Manufacturers' Association Will Meet at the Statler Hotel, Beginning Monday, February 21.

## The American Ceramic Society Will Hold Its Eighteenth Annual Convention at Cleveland, Beginning Monday, February 21.

## ☞Reduced Railroad Rates Have Been Granted by the Central Passenger Association.☜

IT IS GENERALLY CONCEDED that the two most prosperous cities in America today are Detroit and Cleveland. Remembering the splendid convention in the former city last winter, the members of the N. B. M. A. and allied associations will be glad to learn that it has been decided to accept the urgent invitation of the Cleveland members to hold the next national convention in that city, February 20 to 26, 1916.

### The First Complete Building Show.

At that time, there will be a great exposition of brick and other building materials in that city, the first American **Complete Building Show.** The chief purpose of the Building Show is to demonstrate to the prospective builders of the nation the importance of building incombustible structures. The exhibits of materials entering into the construction of such buildings will afford an object lesson that can but impress the beholders with the advantages of building permanent, safe and unburnable homes and commercial structures. Hence, such displays must inevitably prove of great material value to the manufacturers of clay products for structural purposes, for brick, tile and terra cotta are unquestionably the best and safest building materials.

For years past American churches and school houses have, as a rule, been built of brick. When such buildings are contemplated, permanency and low cost of maintenance are always considered as elements of first importance. The same should be equally true of our homes and business buildings, for when built of incombustible materials, they afford protection against fire and loss of life, as well as against loss of property.

### Matters of Great Importance to Brickmakers.

These facts should be brought home to the masses, and the Building Show will be an effective means to that end. Clay products for structural purposes being the most durable and in the long run the most economical building materials, brick, tile and terra cotta will naturally play an important part in the Building Show.

No other building material has been improved in both form and color to the same degree of perfection as have brick and tile in the past decade. A building show which will demonstrate this fact will surely be of advantage to the clay craft in general and members of the N. B. M. A. in particular, as the latter have in the past pioneered the way in the march of progress, hence a meeting at Cleveland at this time is desirable.

### Reduced Railroad Rates Granted by the Central Passenger Association.

Delegates to the convention, and those accompanying them, can secure round trip tickets on a basis of two cents per mile, this concession having been granted by the Central Passenger Association, which includes the territory west of Pittsburgh and Buffalo, east of the Mississippi River, and north of the Ohio, extending to Chicago and Detroit. It is anticipated that other traffic associations will concur in this concession so that round trip tickets can be purchased from all points east, south and west. The tickets may be purchased February 19, 20 and 22, and will be good returning March 1, 1916.

Main Convention and Banquet Hall, Hotel Statler, Cleveland.

### Cleveland a Popular Convention City—Hotel Statler Again Headquarters.

The Ohio metropolis is very near the center of the great clayworking industries, and so is conveniently get-at-able to a large majority of our members. It may properly be termed the home of the great paving brick industry, and its vast manufacturing and commercial interests make it a most attractive place of meeting for business men.

Last, but not least, one of the essentials of a great convention is ample hotel accommodations, and these will be afforded by Hotel Statler, which will be headquarters during the convention and will provide unsurpassed conveniences and comforts for the delegates and those who will accompany them. An addition to the hotel is now being erected, which will make the Statler one of the largest as well as one of the finest hotels in the land. As our members know from past experience, the same reasonable rates will prevail during the convention as at other periods, for the Statler hotels do not raise their rates during conventions.

An appropriate program will be arranged covering the various important phases of the industry, which may be considered with pleasure and profit by the members. Clayworkers desiring any particular feature of the business included on the program are invited to communicate with the secretary in regard to same. Those desiring information as to requisite of membership, etc., are requested to write to the secretary at Indianapolis, Ind.

THE EXECUTIVE COMMITTEE,
C. P. Mayer, President.
Theo. A. Randall, Secretary.

## CONVENTION DATES.

The Canadian National Clay Products Association,
King Edward Hotel, Toronto, Ont., Canada, Jan. 18, 19, 20.
Wisconsin Clay Manufacturers' Association,
Republican House, Milwaukee, Wis. Jan. 27 and 28.
The Iowa Clay Products Manufacturers Association,
Iowa State College, Ames, Iowa. Feb. 3 and 4.
The Illinois Clay Manufacturers' Association,
Hotel Jefferson, Peoria, Ill. Feb. 8, 9 and 10.
The National Builders' Supply Association,
Hotel Statler, Cleveland, Ohio. Feb. 17, 18 and 19.
The American Ceramic Society,
Cleveland, Ohio. Feb. 21, 22, and 23.
The National Paving Brick Manufacturers' Association,
Hotel Statler, Cleveland, Ohio. Feb. 21 and 22.
The National Brick Manufacturers' Association,
Hotel Statler, Cleveland, Ohio. Feb. 23, 24, and 25.
The National Clay Machinery Manufacturers' Association,
Hotel Statler, Cleveland, Ohio. Feb. 22.

## WISCONSIN ASSOCIATION TO MEET IN MILWAUKEE.

The Sixteenth Annual Convention of the Wisconsin Clay Manufacturers' Association will be held in Milwaukee, January 27 and 28, 1916, with headquarters at the Republican House.

A program of much interest is being arranged by the Secretary, S. Weidman, of Milwaukee, Wis., a copy of which will be sent to you about January 20. Various topics by good speakers relating to methods of manufacture, market conditions, testing of clays and clay products, present tendencies in brick styles and brick architecture will be discussed. A round table talk will be arranged at which various questions of special interest to the manufacturer will be presented and fully discussed. If you have any questions in mind, bring them up for discussion.

The officers are planning to make our next annual meeting one of the best in the history of the association. Wisconsin clayworkers should plan to attend the convention, for it should be the duty, as well as the pleasure of every manufacturer to attend the annual meetings of those engaged in his line of business. A special appeal is made to those manufacturers who are not members of the association or who are not in the habit of attending every meeting, to be present this year and get acquainted with their associates, and partake more fully of the benefits of the organization.

A. W. Hilker, of Racine, is president of the association and Samuel Weidman, Madison, Wis., is secretary.

## CLAY-WORKER SHORT COURSE AT ILLINOIS UNIVERSITY.

The short industrial course in ceramic engineering of the University of Illinois, Urbana, Illinois, will be held from January 10 to 22, 1916. The course will be given in a similar manner as in preceeding years. Some changes, however, have been made, and the instructors and lecturers have been augmented by several men well known in ceramic circles. Thus, Professor H. F. Staley, of Iowa State College, will assist in giving instruction in "The Chemistry of Clayworking," while Professor C. B. Harrop, of the Ohio State University, has consented to speak upon "Kiln Construction," a subject which he is eminently qualified to handle, owing to his long experience in this line. Those responsible for this course, have also been fortunate to secure Mr. G. H. Brown, of the Bureau of Standards, Pittsburgh, Pa., to talk upon "The Properties and the Testing of Fire Brick and Similar Products." The work has, as a whole, been strengthened considerably and the course will be carried on as usual, in a spirit of mutual cooperation, keeping in mind the needs of the practical man, which are quite well understood by this time. The course has been primarily designed for the average worker in clay who is possessed only of a common school education.

Besides the regular instructors in clayworking and ceramics, such eminent engineering authorities as Dean W. F. M. Goss, Professor C. R. Richards, S. W. Parr, and others are cooperating in this work. It will be the aim of those in charge of the work to arouse the interest of the men in pointing out to them the real essentials underlying the clayworking processes.

No fees or charge of any kind will be made. The program for the short course will be out in several days and will be sent to any one free, upon application. All those thinking of taking part in this two weeks course are urged to write at once to the Department of Ceramic Engineering, University of Illinois.

## FAIENCE TILE FOR DECORATIVE PURPOSES.

THE ILLUSTRATION which is published on page 675 of this issue is a view of the new cafe of the Phoenix Hotel in Lexington, Ky., for which the architects were Richards, McCarty & Bulford, of Columbus, Ohio.

For this room the Rookwood Pottery Company of Cincinnati worked out an unusual tile treatment for the walls and floors. While the photograph shows the general design of the scheme in its pleasant proportions, it naturally gives no idea of color, though it does indicate something of the agreeable values of light and dark which distinguish the room. Any one familiar with the rich texture of these mat glazes and with their softness of color, can supplement the impression given by the photograph. The color scheme is—the base, stiles and trims in a rich brown; the panels in moss green with small bands of deep blue and gray; the floor is made up of two tones of gray with borders of rich brown, green and gray. The shield inserts and the lighting fixtures are in a soft gray decorated in several harmonizing colors. It was a novelty making these lighting fixtures of Rookwood instead of metal.

It makes as a whole, a very complete and interesting room with a decoration that is absolutely permanent and cleanable at any time. Naturally the sanitary conditions are of the very best in this thoroughly modern dining room.

## A CORRECTION.

On page 396 of the October Clay-Worker, there appeared an item from our foreign correspondent describing a method of making rough texture brick. Inadvertently these brick were referred to as "tapestry." Inasmuch as "tapestry" is trade mark, and the exclusive property of Fiske & Co., Inc., New York City, we are pleased to make correction of this item which should have been headed "Method of Making Rough Texture Brick."

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Somehow, regardless of the question of the merits of national preparedness for military defense, we have a sort of inner feeling that as a result of this propaganda there is going to be a pretty good size pork barrel framed up, unless unusual diligence is exerted to prevent it.

THE CLAY-WORKER

*Entered at the Indianapolis postoffice as second class matter.*

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

*THIRTY-SECOND YEAR OF PUBLICATION.*

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXIV. DECEMBER, 1915. No. 6.

## CURRENT COMMENT.

Ring up 1916.

* * *

A Merry Christmas and a Happy New Year to our readers, one and all.

* * *

The Jinx is buried; now let us forget the word pessimism and push prosperity.

* * *

If you have an idea that you think is a good thing for the brickmaking fraternity bring it up to Cleveland with you and let us hear about it.

* * *

See that the Build with Brick slogan is put upon whatever calendars or other souvenirs you send out at the end of the year carrying the firm name.

* * *

The coming year is full of promise for the building brick industry and we hope to see not only a much bigger volume of business but also much better prices for brick in some sections.

* * *

Let your first New Year resolution take on the form of a declaration that you are going to attend the N. B. M. A. convention and the great building show at Cleveland, February 20-26.

* * *

Those who have advertised brick extensively and intelligently during the year have profited thereby. All who have hesitated should go forth in the new year to do likewise, and begin by becoming associated with the Building Brick Bureau.

* * *

One bit of good logical advice that is being given us now is that to maintain our industrial and financial supremacy we should hold in check tendencies to personal luxury and wastefulness extravagance for pleasure and spend time and money in the upbuilding of trade. As a supplement to this we want to add the encouraging of more and better home building.

* * *

Do you want to see brick homes all along those great highways that are being developed? If you do, join in and help us inspire their building.

* * *

No man can study the proceedings of last year's N. B. M. A. annual recently issued in book form without being impressed with the thought that every brick manufacturer should attend the coming meeting to get the full benefit of the papers and discussions.

* * *

Not only is the American dollar now the standard by which the finances of the world are measured, but the authorities tell us we now have the biggest gold reserve on record, all of which should make every citizen of the United States feel mighty glad that he is.

* * *

Everybody seems to agree that our ocean-going shipping needs to be encouraged, and that we require a much greater merchant marine. Let us not overlook in all this the fact that our inland waterway transportation is also an important factor that merits its share of attention.

* * *

The latest peace movement idea, if reports are correct, is fostered by Henry Ford, of auto fame, who is one of the greatest figures of the age in publicity exploitation. Also he has a habit of carrying through whatever he undertakes, which fact makes the new peace movement sound like it really means something.

## AN OPPORTUNE TIME TO BOOST BRICK.

The lumber market has shown enough improvement lately that lumber prices are inclined to go a bit wild, like war order stocks and things of that kind. If the lumber market runs away with itself, it will mean that next year in most parts of the country the first cost of building a brick house will not exceed that of building with lumber. So, if the brick manufacturers do enough active boosting they ought to be able to materially enlarge the use of brick in building operations.

## TESTING OUT HOLLOW TILE.

The Bureau of Standards at Washington is conducting a series of tests for manufacturers of hollow tile, which includes the testing of hollow clay floor slabs. Several tests have already been made of hollow tile walls, and when the series is completed there will be available some interesting data that will have the advantage of being fresh and authoritative about hollow clay tile and its structural uses.

## WHERE DRAIN TILE NEEDS BOOSTING.

There is some pretty good evidence coming to hand that the burned clay drain tile industry needs some boosting in the western states, especially in those territories where there is alkali in the soil and water. Some time ago, attention was called to the fact that ordinary concrete drain tile would not stand up well in alkali soil. The Bureau of Standards has experimented and found that a mixture stronger in cement will stand up better under alkali conditions, and as result reports are in hand of two large contracts in Utah let for concrete tile, one calling for 200 miles and the other for 68 miles. Now, while concrete tile can be improved to stand up better under such conditions, there is nothing that will stand up equal to burned clay, and since a stronger cement mixture is required, it increases the cost of the concrete tile, and it should make a splendid opportunity to push clay tile in competition with it. Surely by proper exploitation there should be room for a much more extensive trade in clay tile in that western country.

## THE YULETIDE SPIRIT.

The natural spirit of Yuletide, which has clung to and been manifested by humanity through generations running back into the dark ages of history, is to give, forgive, to rejoice with our fellowmen and to plan for the conquest of the coming year. Sometimes the idea of the Yuletide spirit is set forth in more specific form than in others, and sometimes it is dressed up in different garb; but the same fundamental spirit has been with humanity as far back as the records of history go, and that is farther into the past, considerably, than the birth of Christ, for whom Christmas is now observed in commemoration.

Sometimes our sentiment and philosophy may get mixed and at considerable variance during the year, but generally when the Yuletide season rolls around the old-time spirit manifests itself in some form or other, regardless of contrary philosophy and adverse teachings.

We are reminded strongly of the futility of agnostic teaching and contrasting philosophies to the Christmas spirit this year, because of the coming into prominence of the philosophy of Nietzsche, a German philosopher, whose writings have attained some prominence this year, because he happened to prophesy that the twentieth century would see a great war in Europe.

According to the philosophy and reasoning of Nietzsche, the greatest crime in life is sympathy, and he contends that sympathy does not serve any purpose, except that of increasing the amount of suffering on earth without adding to its beauty; that sympathy does not help him to whom it is proffered, but drags down him who proffers it to the level of others, and so on. Also, this line of philosophy teaches that the greatness of a man is to be measured by his capacity to inflict suffering.

Perhaps one thing that inspired an expression of philosophy of this kind was an antagonism to Christianity, as it is preached and practiced today. Entirely aside from the merits of this philosophy and antagonism to modern Christianity there remains the fact that the true Yuletide spirit goes back to Christianity itself, and exemplifies a beautiful manifestation of faith, which naturally begets good will among men and makes for peace on earth.

The story has been told in these columns heretofore about how, back in the old days of northern Europe, people gathered together in the mid-winter season to feast, and rejoice that they had lived and prospered. Those who had garnered more of the necessities and luxuries of life divided with those less fortunate, as a means of expressing their faith that the sun would return again to warm up the earth and make it produce for their needs and comforts. Call it sympathy, call it good will, or whatever you may, the fact remains that it was a beautiful spirit and has been through all ages the true foundation of Yuletide, which later was given the name of Christmas. The teachers of Christianity recognized the beauty in this spirit, and simply sought to clothe it with some form of Christianity and to help perpetuate it as an institution of mankind.

In this great country of ours today we have special cause for an unusual outpouring of the Yuletide spirit. We have been more blessed than other nations of people in many ways. Peace and plenty have continued with us while much of the world is engaged in conflict and suffering. Moreover, we have faith that peace and plenty will continue with us, and as a manifestation of this faith we may well divide liberally with those less fortunate at home, and extend a liberal helping hand to the sufferings abroad.

In the business world, the contemplation of the year before us should beget enthusiasm as well as give cause for rejoicing, for we are apparently entering into a year that gives promise of great prosperity in all lines of effort. The past year was trying in the early months, but conditions brightened as the year advanced, until in the end industry is humming, the greatest crops on record have been harvested and the surplus marketed at a profitable price. So that as a nation of people we are today among the most favored on earth, and therefore should enthusiastically practice as well as preach liberal giving and the doctrine of peace and good will.

## THE BRITISH POTTERY TRADE.

For the current year, up to October, the British pottery trade seems to be doing very well, considering the difficulties under which it is laboring, and in addition to caring for the domestic needs is doing a fair export business. Heretofore, Great Britain has imported four or five million dollars worth of pottery a year. During the present year this has been cut down to less than a million, and the British potteries are not only supplying this, but have exported during the ten months ending with October, 1915, $8,250,000 worth. This is considerably below their exports in times of peace, but it is a good showing under the circumstances, when we consider that they are supplying much of the domestic needs that heretofore was imported.

## A CASE FOR ROOFING TILE.

Not long ago, Consul C. Donaldson reported that some new roofing material is needed at Port Limon, Costa Rica. The report stated that iron and steel roofing is generally used in that vicinity, but that it is rapidly destroyed by the action of the climate. The salt sea air and the smoke seem to get away with all kinds of metal roofing, and what is wanted is something that will resist the elements and stay on the job. This is plainly a case for tile roofing, because it is an established fact, well known, that properly burned clay roofing tile will stand the test of time better than anything else.

## EXPLOITING CHIMNEY LININGS.

A good example of exploitation of chimney linings is furnished by the International Clay Products Bureau, New York Life Building, Kansas City, Mo. This organization some time ago issued a pamphlet, "How to Build a Safe Chimney," and this has been sent to retail lumber dealers and others handling and using building material over quite a section of the country. If other cities in other parts of the country will do something of the same thing it should help enlarge materially the field of this line of fire clay products.

## BRICK FACTORY AND WAREHOUSE BUILDINGS.

Careful study of the building situation readily gives the impression that one of the places where competition is sharp and brick may be replaced to a considerable extent by reinforced concrete, if the brick men are not alive to the needs of the occasion, is in factory and warehouse buildings.

In the erection of big office buildings the reinforced concrete may replace steel, but face brick commonly enters for the outside finish, and the loss there is not so great as in factory and warehouse buildings, unless we go back for comparison to the old days when the big business buildings were erected of solid brick walls, the days prior to the introduction of the steel frame.

What is known as mill construction in the erection of warehouses and factory buildings consists essentially of brick walls with interior girders and posts of timber. At the present time there is sharp competition between this type of construction and reinforced concrete construction. Incidentally here is one point, too, upon which the brick interests and the lumber interests are in harmony and can to quite an extent work together.

The lumber people, in presenting some tabulated figures on the comparative cost of building material, make a feature of this matter of mill construction and take the figures from some actual work done or to be done.

An example is cited of a building of five stories and a basement, 100 by 100 feet, designed to carry 280 pounds of live load per square foot. The panels in the standard mill design were 14 feet by 16 feet, with brick bearing walls used throughout. The concrete design for the same building was laid out for the most economical type of flat slab concrete skeleton construction. The actual bid on the mill construction was $65,100 and for the concrete type $72,200.

This is taken to fairly illustrate the difference in actual cost between a brick structure with wooden beam posts, and reinforced concrete structure. Figures in different instances will vary somewhat, depending upon details; for example, upon whether wooden floors are used or some type of fire-proof floor, and upon the span lengths and the load to be carried. The estimate of J. Norman Jensen, architectural engineer of the building department of Chicago, is that with columns spacing not exceeding 16 feet, mill-constructed buildings, constructed for 100 pounds live load, cost 20 per cent. less than concrete buildings; for 150 pounds live load, 15 per cent. less, and for 200 pounds live load, about 10 per cent. less. When the live-load requirement goes over 350 pounds, it is figured that the cost is in favor of the concrete structure.

From all this we may deduce that for ordinary warehouses and factory buildings it is more economical in the first cost to use brick bearing walls and the wooden beams. Also, it seems that the brick walls are preferred as bearings for wooden beams and posts, to concrete, because concrete tends to induce decay.

That the brick fraternity should be alive to its opportunities there is no question. A whole lot of trade has been lost to brick because concrete has been very actively exploited, while the brick man has kept still and rested on the knowledge that he had the best building material going. It is up to the trade to drive home the fact that brick is the best building material going, and the most economical in the end, always, as well as often the most economical in first cost itself. There is a big block of trade here that the brick fraternity may have or may lose, depending directly upon their own efforts, for it seems to be only a matter of proper, persistent effort to hold the bulk of this trade for brick.

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## THE WIMMIN!

Girls of bygone days wore hats!
Think of it—the stupid flats!
Styles so simple and so crude
We have hurled to desuetude.
Nowadays, upon their heads
Women carry feather-beds,
Footballs, flower-pots, laundry-bags,
Bales of feathers or of rags,
Helmets, pie-plates, butter-tubs,
Jungle growths of trees and shrubs,
Dishpans, saucepans, jardinieres,
Sofa cushions, flights of stairs,
Baskets, green and pink and brown,
Right-side up and upside down,
Pyramids and Eiffel towers
Garden plots of gorgeous flowers,
Buckets, barrels, hives for bees,
Boxes meant for fruits or cheese,
Drying frames with wires and slats—
Anything, in short, but hats!

The above clever verse appeared in the November-December issue of The Book of Smiles, together with many other laugh and smile producing jokes and sayings. There is some real good advice, too, about drying and the Standard Dry Kiln. Better write the Standard Dry Kiln Company, Indianapolis, Ind., and have them send The Book of Smiles to you regularly.

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**"GETTING THE MOST FOR A DOLLAR,"**
has been given as a definition of good engineering such as is done by
**The Richardson-Lovejoy Engineering Company.**
[See page 679.]

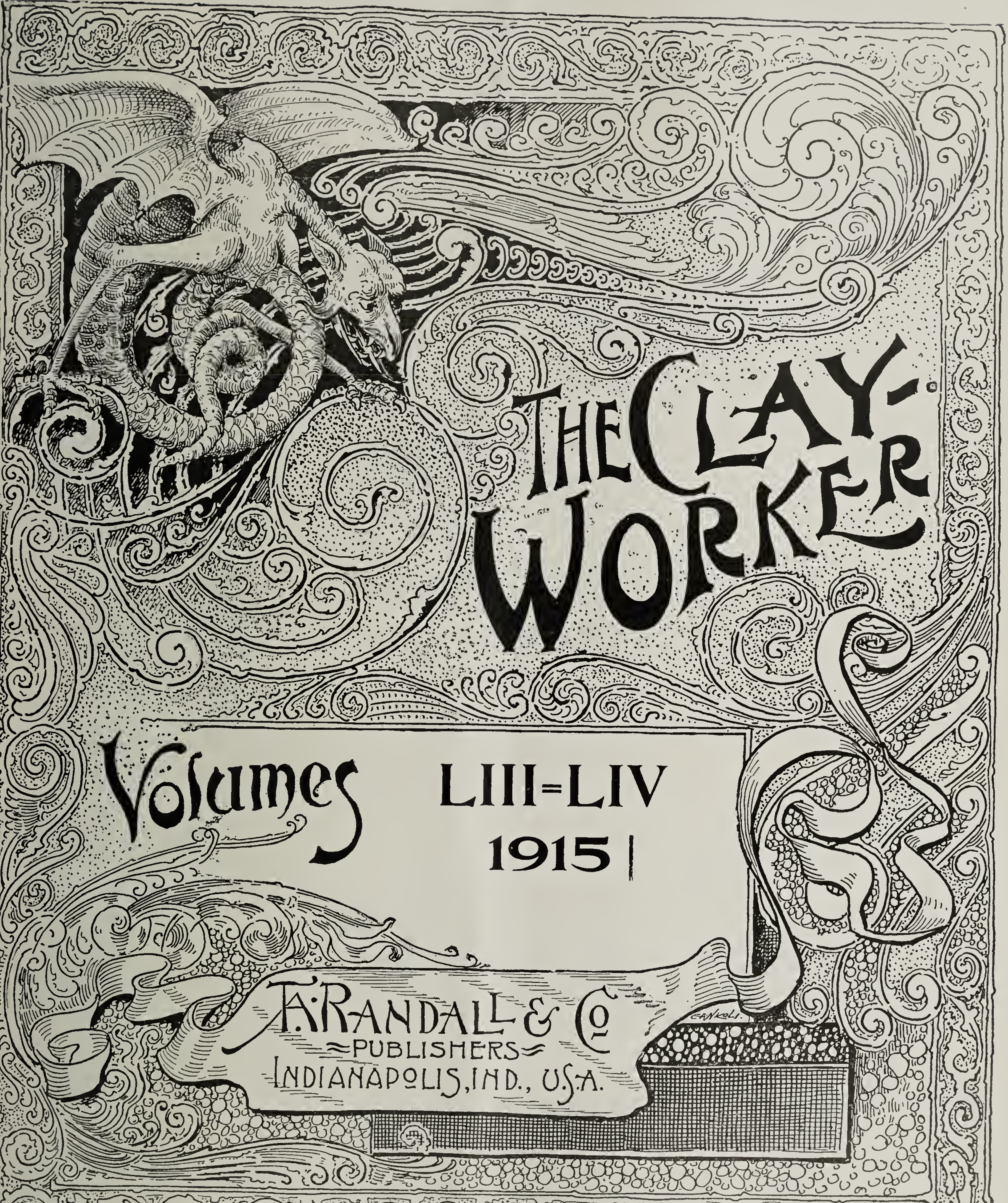
## BRICK AND TILE IN BRAZIL.

From Consul Robert Frazer, Jr., Bahia, Brazil, comes an interesting brief report of the building material in general use there. He says that the method of construction almost invariably followed there consists in erecting walls of brick and rubble and plastering them over with a mixture of clay and lime, finishing with a thin coat of lime and sand. The partition walls are made of brick.

The brick sizes given are 23.5 by 13 by 6.5 centimeters, which reduced to inches is 9¼ by 5.1 by 2.56, making a brick considerably larger than our standard. Brick prices are $12.50 to $15 per thousand. And the price of lumber is $110 per M feet, so evidently brick construction costs less than lumber there—which it also will here some day.

An interesting thing about their roofing is in not only that it is invariably of semi-cylindrical tile, but they are laid on transverse slats crossing the rafters or roof beams and are visible from below on the inside. Here we figure that there must be a solid lumber sheathing and then a covering of good roofing paper under the tile, making the roof construction more expensive.

That lime-clay plastering mortar is made by mixing lime and clay in the proportions of a cement barrel full of clay to ten gallons of lime, and it takes the place of what we call the rough coat in plastering. The finishing coat is somewhat similar to our own lime finishes.



# THE CLAY-WORKER

Volumes LIII=LIV
1915

T. A. RANDALL & Co.
PUBLISHERS
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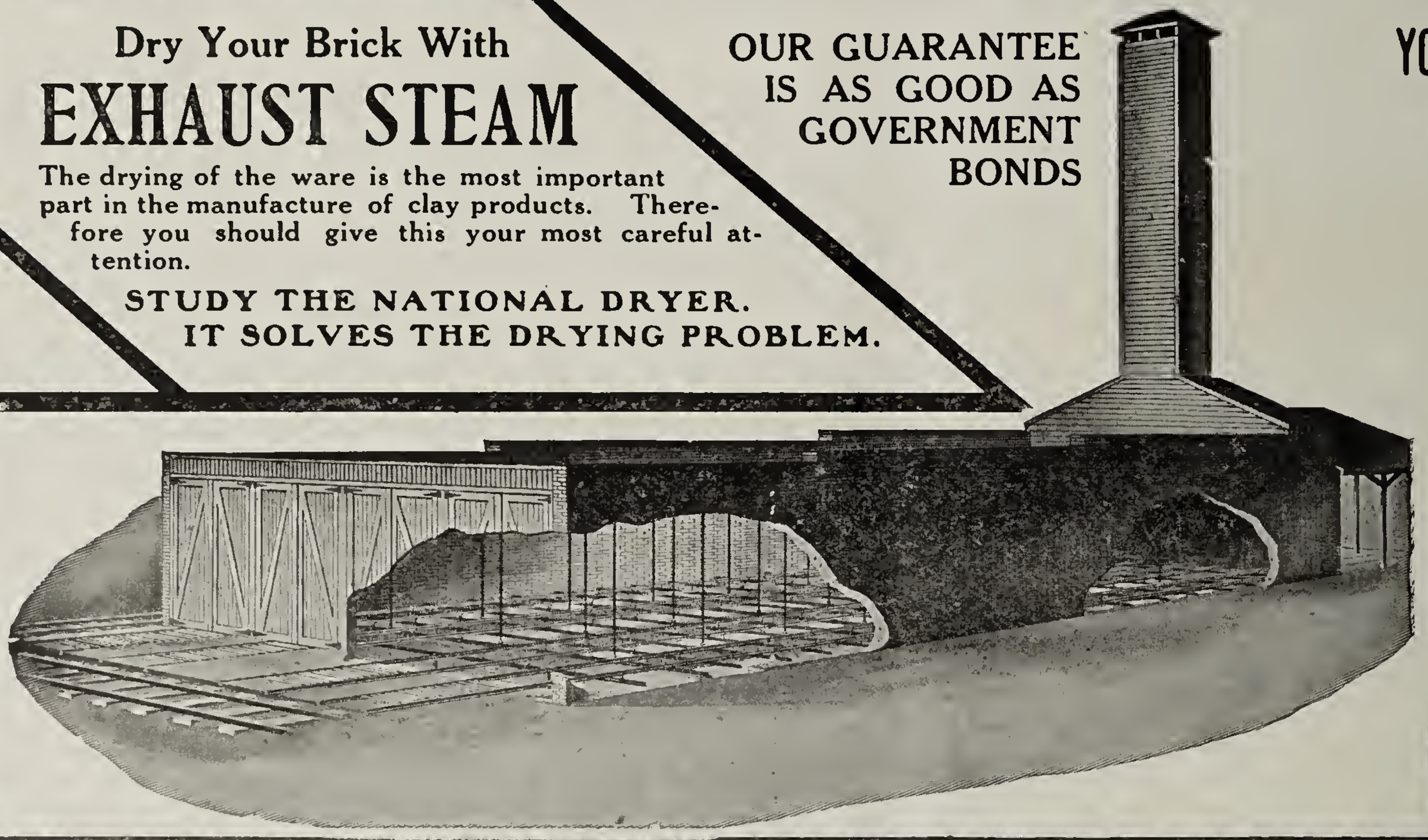

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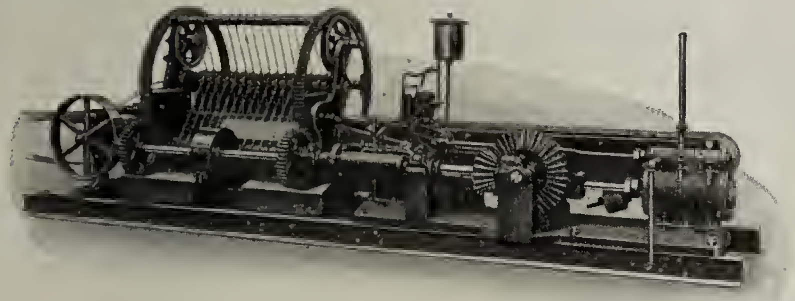

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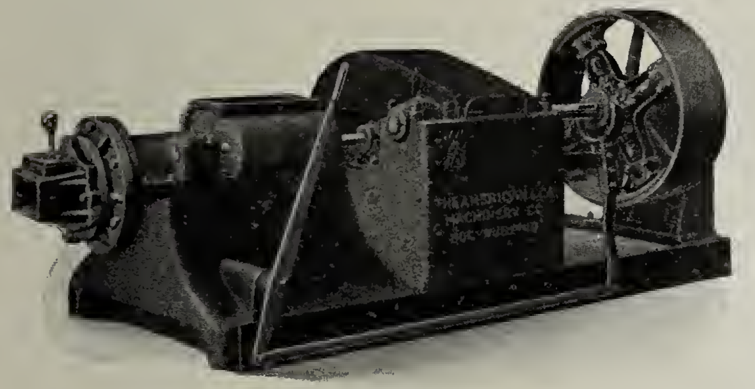

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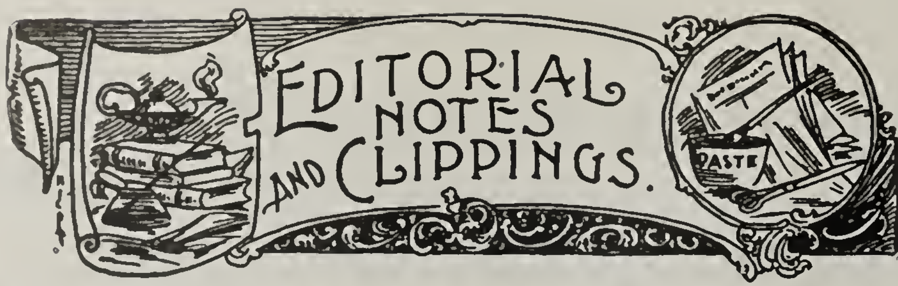


# EDITORIAL NOTES AND CLIPPINGS

M. B. McCarty and R. E. Fox contemplate starting a new brickmaking plant at Toledo, Ohio.

The Webster Brick Co., of South Webster, Ohio, has increased its capital stock from $100,000 to $200,000.

J. W. Morrison has been elected president of the Puritan Brick Co., Detroit, Mich., as successor to Mr. W. L. Holmes, who died recently.

Frank J. Helwig, of Pueblo, Colo., for many years associated with the **Standard Fire Brick Co.**, has taken full management of the Trinidad Brick & Tile Co., at Trinidad, Colo.

A West Virginian subscriber would like a list of names and addresses of brick manufacturers in West Virginia or adjoining states making radical chimney or stack brick both hollow and solid.

The Southern Silica Products Company has been organized at Birmingham, Ala. The officers are Robert J. Kerr, president and treasurer; O. W. Underwood, Jr., secretary, and T. F. Rorebeck, vice president.

The Beaver Clay Company has begun extensive improvements at its plant at New Galilee, Pa. New buildings, new kilns and other equipment will be installed involving an expenditure of probably more than $100,000.

The brick plant of the H. E. Buck Brick Manufacturing Company, Lake Charles, La., was slightly damaged by fire. The company also operates a lumber mill, and by hard work the worst of the fire was confined to the office and box factory.

C. A. Noll, president and general manager of the Blackwell Brick Co., with headquarters at Wichita, Kans., recently acquired controlling interest in the Howard Brick Company with a plant at Claremore, Okla., with capacity of 50,000 brick per day.

On account of increased business J. A. Mehring & Son is making quite a number of extensive improvements to their brick and tile plant at Napoleon, Ohio, including the erection of a fire proof building and the installation of new machinery and appliances.

John Baumgartner, superintendent and general manager of the Frederick (Md.) Brick Works, was instantly killed at the works when he was caught in a bank of clay which caved in. He had been identified with the brick plant since it was first incorporated in 1891.

Henry Legler contemplates the erection of a brick plant at Blackduck near Bemidji, Minn. He owns a large tract of land on which there is a good clay deposit and Mr. Legler is having tests of same made and if they prove satisfactory he will at once start the erection of his brickmaking plant.

At the annual meeting of the directors of the Eureka Brick plant at Mt. Braddock, Pa., the usual dividend of 8 per cent. was declared and a number of improvements for the plant decided upon. The plant is now operating at capacity and the prospects are good for an unusual trade the coming season.

C. K. Davis, president of the Ajax Brick Company, died at his home in Detroit, November 24. Mr. Davis was interested in a number of industrial concerns including that of the Underwood Engineering Co. His body was taken to Wellston, Ohio, his former home, for burial. Mr. Davis was forty-four years old and leaves a widow.

Walter F. Williams, of Escanaba, Mich., writes that he expects to go to Africa in February and will take equipment with him for a small brick plant with which to build a mission station. Mr. Walters, who is connected with the American Baptist Publication Society, has had some experience in brickmaking.

At the annual meeting of the stockholders of the Hayes Run Fire Brick Company, Orviston, Pa., General Manager C. W. Keller submitted a report showing that the company was out of debt for the first time since its organization, the last of the bonds having been redeemed and all liabilities paid. Ellis L. Orvis was elected president; B. F. Brown, vice-president; W. O. Bently, secretary; I. L. Harvey, treasurer, and Carroll W. Keller, general manager.

The American Sewer Pipe Company, East Liverpool, Ohio, has resumed operations after having been closed down since last July.

Fire of unknown origin destroyed the barn of the Ironclay Brick Manufacturing Co., at Columbus, Ohio, December 5, entailing a loss of $2,000.

L. P. Haldeman, of the Kentucky Fire Brick Co., Portsmouth, Ohio, announces that their plant is working both day and night shifts in order to take care of big orders now on hand.

The big brick plant of the Eastern Hydraulic Pressed Brick Company, at Winslow, N. J., is running its plant overtime on what is known as their "iron spot" filling orders for Pennsylvania, New Jersey and Ohio.

At a recent meeting of the St. Louis (Mo.) Brick Manufacturers' Association, the following officers were elected for the ensuing year: E. J. Ryan, president; H. C. Koenig, vice-president; Ben F. Ittner, treasurer, and Walter Pocock, secretary.

James Mapes Dodge, who has been connected with the Link-Belt Company, Chicago, Ill., ever since its beginning, died at his home in Philadelphia December 4. Mr. Dodge was one of the pioneers in the conveying and elevating business and his inventive genius has had much to do with the successful development of the same.

I. G. Poston, Emmett Poston and J. C. Hale have organized a company to be known as the Poston Brick Company and will erect a plant at Springfield, Ill., where they have secured a very advantageous site for a first class paving brick plant. They expect to have the plant running at full capacity by early spring.

J. F. McCann, formerly superintendent of the A. F. Smith Brick Manufacturing Co., at New Brighton, Pa., has taken the superintendency of the new plant of the Streator Clay Manufacturing Company, at Streator, Ill. Mr. McCann made the trip from New Brighton to Streator by automobile, and was about four days on the way.

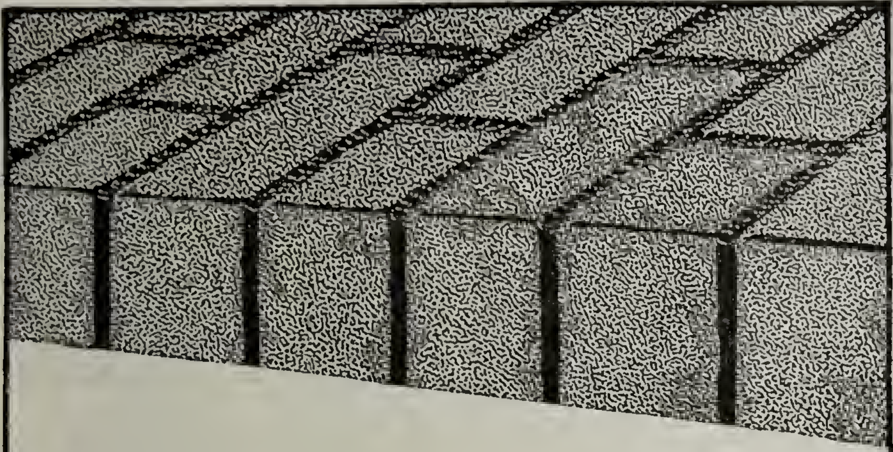
Arthur Ward, formerly secretary of the Sunset Brick and Tile Company, Gonzales, Texas, writes that an error was made in the November Clay-Worker in stating that the Sunset Brick and Tile Company which has recently been organized by O. B. and R. L. Robertson and W. T. Miller would be known as the Emmet Brick and Tile Co. The company has been organized all right but the new owners will continue to operate it under the old name of The Sunset Brick and Tile Company.

The A. C. Ochs Brick and Tile Co., Springfield, Minn., an old established concern, has recently been incorporated with $200,000 capital stock, all of which is owned by the Ochs family, including A. C. Ochs, Mary Ochs, William A. Ochs, Arthur C. Ochs and Walter M. Ochs, all of Springfield. The officers of the company the first year are: President, A. C. Ochs; vice president, Arthur C. Ochs; secretary, Wm. A. Ochs; treasurer, Walter M. Ochs. Extensive improvements including a complete new plant are now under way.

The Mankato Brick and Tile Company, of Mankato, Minn., which is now manufacturing a good grade of common brick by the soft clay process at the rate of over 50,000 per day will probably add machinery and appliances for making hollow brick and tile. They also expect to be in the market before long for a good dry press. They have for sale a Martin horse power machine and a number of second-hand supplies including trucks, tempering wheels, barrows, dumping tables, molds, etc. Interested parties will do well to get in communication with them direct.

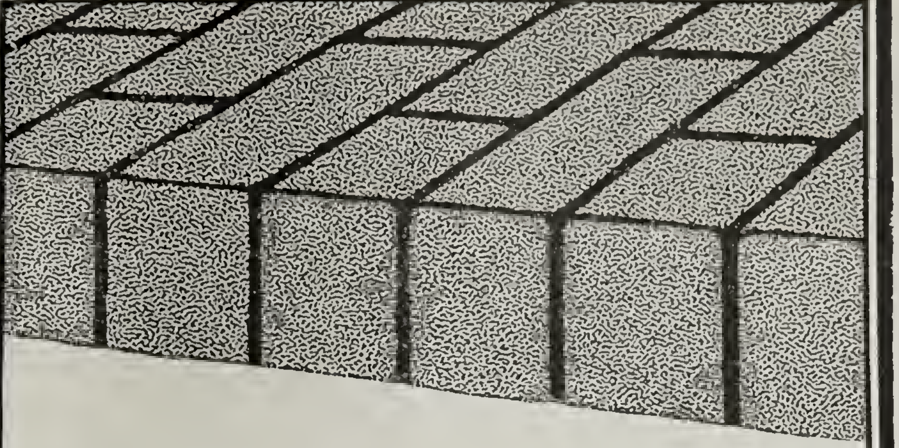
The American Enamel Brick and Tile Co., of New York, N. Y., manufacturers of enamel brick exclusively, issued an invitation to its representatives to hold a meeting at New York from the 3d of December until the 7th. A large number of the representatives accepted the invitation and one of the features of the meeting was a day spent at the company's plant at South River, New Jersey, for the purpose of becoming more familiar with the material handled. Following the New York meeting most of the representatives left for Old Point Comfort to attend the joint meeting of the American Face Brick Association and the Face Brick Dealers Association. The representatives of the American Enamel Brick and Tile Company have held a number of meetings of this sort which

(Continued on page 674.)



*In Cold Weather*

*the blocks contract, the joints widen, the pitch sinks and keeps the seal intact.*



*In Hot Weather*

*the blocks expand, the joints grow narrow, the pitch squeezes upward. The seal is intact.*

# Barrett's PAVING PITCH

## Every Joint an Expansion Joint

THE use of cement grout as a filler for brick pavement attempts to defy one of the oldest laws of nature. In hot weather, brick will expand; in cold weather, contract. When brick and cement are combined in one pavement, making a great monolith, tremendous internal stresses reveal themselves, sometimes by explosion, when the pavement buckles up with a shower of fragments. Sometimes the expansion throws the curb out of line or develops long, unsightly cracks.

To remedy this condition engineers attempted more or less unsuccessfully to provide for expansion by the use of an expansion joint filled with a plastic material.

If the block is of inferior quality the use of cement in the joints may serve to protect the edges from abrasion by traffic, but good brick requires no such protection, especially if the bricks are laid properly, close together. On the other hand expansion joints, coming at a distance of 8 or 10 feet apart, must necessarily be so wide, in order to take up the great expansion, that protection of the edges is impossible and so in old cement-filled pavements you will find wide grooves running across the pavement at the expansion joint where the exposed edges of the last line of bricks have been hammered into dust.

The use of Pitch Filler instead of cement obviates all these difficulties. Every joint is an expansion joint. In cold weather the pitch sinks in the joint as the block contracts, but as every joint is an expansion joint the amount is infinitesimal. In warm weather the pitch merely rises a little in the joint. In either case the pitch adheres firmly to the block, preserving an absolutely waterproof, perfect seal.

The best pitch for the purpose is Barrett's Paving Pitch.

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EDITORIAL NOTES AND CLIPPINGS—Continued.

have been found very advantageous both to the company and the men handling the American Company's products.

Superior Clay Company, of Clayton, St. Louis County, Mo., has been incorporated by John F. McDermott, J. C. Pratt and R. B. Gibson, and has a capital of $50,000.

F. H. Meier, until a short time ago owner of the St. Anne Brick and Tile Company, St. Anne, Ill., is seeking a new location where he may enter into the clay products business again.

The Ephrate Shale and Brick Company was recently incorporated at Wilmington, Del., by H. M. Brown, A. J. Sherman and L. S. Dorsey, all of Wilmington, Del. The company is capitalized at $100,000.

The Harbison-Walker Refractories Company, Pittsburgh, Pa., is opening up 100 acres of coal at its plant at Retort, Pa. The output of the mine will be used exclusively by the brick plants of the company.

C. J. Craycroft, president of the Craycroft-Herrold Brick Company, of Fresno, Cal., died recently from injuries received when he fell from the top of a house. Mr. Craycroft was seventy years old and a pioneer of Fresno.

The Great Northern plant of the Stratton Fire Brick Co., located at Stratton, Ohio, resumed operations the middle of November after having been closed down for several months. It is anticipated that the plant will continue operations indefinitely.

John Till, a well-known brickmaker and bricklayer of Fort Wayne, Ind., is at the head of a movement to inaugurate a "Build with Brick" campaign in that locality, both brick manufacturers and bricklayers will join with Mr. Till in this campaign for better construction.

Fire which caught from an overheated kiln at the brick plant of I. L. Stiles & Son, North Haven, Conn., threatened for a time to destroy the entire plant, but by hard work on the part of the fire fighting brigade of the company, together with the regular fire department, the fire was extinguished with but $3,000 damage.

Extensive additions are to be made at the plant of the United States Fire Clay Company at Murray, Utah, for the purpose of including terra cotta and sewer pipe in the company's product. F. N. Cameron is president of the company; L. R. Weber, secretary-treasurer, and J. A. Spiker, general manager. The capital stock of the company will be increased from $100,000 to $500,000.

A company to be known as the Paris Tile, Roofing and Flooring Company has been organized at Paris, Tenn., and an application for a charter of incorporation has been sent in. The incorporators are leading men of Paris, T. B. Walker, R. A. Johnsonius, C. V. Krider, H. C. and F. B. McNeill, A. L. Snow and H. E. Kibbons. The authorized capital stock is $25,000.

William C. Sproul, of Chester, Pa., president of the General Refractories Company of Pittsburgh, has bought the plant property of the Mount Union Silica Brick Company at Mount Union, Pa. In addition to the plant there is a tract of 3,200 acres of ganister, the material from which silica refractories are made. The great boom at present in the steel trade and by-product coke oven business has, it is said, created a great demand for silica brick. It is understood the purchase price of the property was $600,000.

Eben Rodgers, president of the Alton Brick Company at Alton, Ill., and recently president of the N. B. M. A., is authority for the statement that styles in brick change frequently as styles in ladies' hats. Mr. Rodgers belongs to a business men's club, of Alton, which holds a weekly luncheon, and was the speaker at one of the recent functions of the club, when he took the opportunity of boosting the brick game, and as a result the business men of Alton know more about the advantages of building with brick than they ever did before.

M. W. Mayes writes that he is moving his tile plant from Bowman, S. C., to Summerville, S. C., where he has purchased fifty acres of clay land. The tract, which is covered with ten feet of workable clay, is especially suited for the manufacture of drain tile. He is located on the Southern railroad, which will give Mr. Mayes excellent shipping facilities covering the coastal plains of South Carolina, where farm drainage is much needed to make the land suitable for agricultural purposes. Mr. Mayes says that the farmers in that section are much interested in tile drainage, and he expects to build up a very good tile trade within a short time.

The Adamantine Clay Products Company of North Mountain, W. Va., recently received an order for a car load of paving brick for Cuba.

Hiram Swank's sons are making a number of extensive improvements in their fire brick plant at Johnstown and Irvona, Pa. When completed it will give them an annual capacity of thirty-five million brick.

We are advised that the town of Mexia, Texas, is a good city for any one looking for a location for a brick and tile plant as there is an abundance of natural gas for fuel and splendid clay suitable for the manufacture of brick, tile or pottery.

The plant of the Clay Products Company at Earl Park, Ind., was destroyed by fire the latter part of November, entailing a loss of some ten thousand dollars, which is partly covered by insurance. The fire is supposed to have been started by tramps.

The Bessemer Brick Company recently received two immense orders, one of which calls for a quarter of a million fire brick, which will keep their plant at Large, Pa., extra busy for a month or two. Frank R. Colvin is general manager of the company.

The Clay Product Corporation, of Hampton, Va., recently contracted with the National Dry Kiln Co., of Indianapolis, Ind., for six track drier of the fire proof construction including brick stack. The drier will be operated with both exhaust and live steam.

Alfred M. Wiles, for sixty years a manufacturer of brick machinery, died at his home in Stony Point, N. Y., December 14. Mr. Wiles was born in England eighty-seven years ago and came to this country in 1830. He is survived by one son and two daughters.

Charles J. Crawford, formerly connected with the Danville Refractories Company, Danville, Ill., has purchased the plant of the Columbia Clay Works at Columbia, Ill. This plant has been closed for several months, but Mr. Crawford will remodel same and get it in shape for operation on a more extensive scale than ever before.

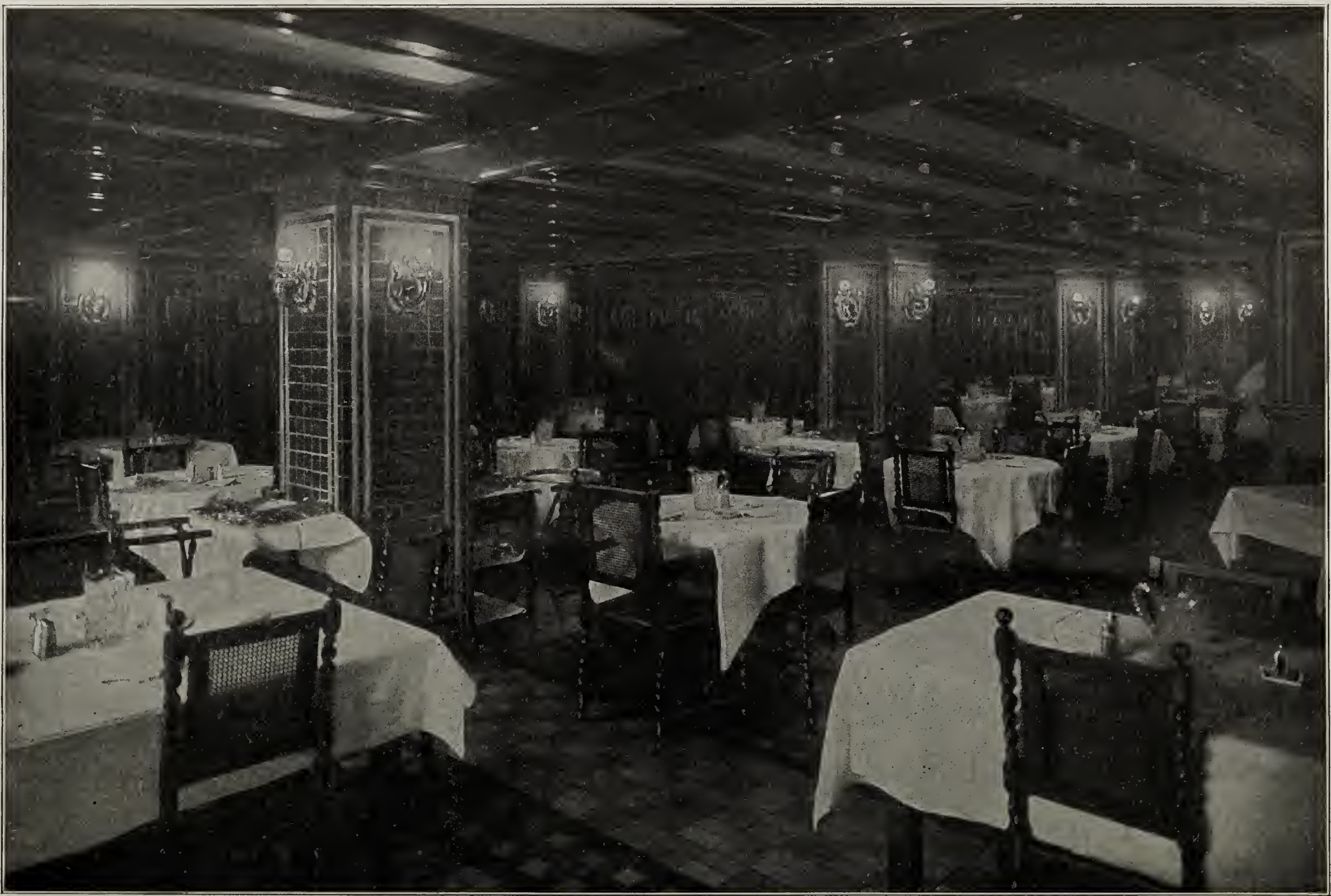
Edward Whitmer, for many years a well-known brick manufacturer at Jacksonville, Ill., and later at Thurbur, Tex., died at his home in Chicago, November 19. Mr. Whitmer was fifty-two years old and had been engaged in clayworking nearly all of his life. He leaves a wife and three children. The body was taken to Jacksonville, Ill., for burial.

N. P. O'Neal, manager of the Hope Brick Works at Hope, Ark., is investigating the various methods of burning, with the view of installing some new kilns at the plant during the coming winter. The company was hardly able to supply the demands of the trade the past summer, and Mr. O'Neal intends to get his plant in shape for an increased business next season.

The Alton Brick Company, Alton, Ill., had a small fire recently which destroyed the only part of the plant which was not fireproof. When the new plant was built the company continued to use the old coal conveyor, and this is the part of the plant which burned recently. This will now be made fireproof, and from now on the company never expects to have another fire.

It is usually considered remarkable when a man completes a term of service with one concern covering a quarter of a century, but Patrick Halligan, a teamster in the employ of the I. L. Stiles & Sons Company, North Haven, Conn., probably holds the record for continuous service, inasmuch as he has just completed his fifty-third year as an employe of that concern. Although Mr. Halligan, or "Pop" Halligan, as he is affectionately termed by his fellow workmen, will soon round out his seventieth year, he is at work every day with his team and is as spry with his work as any one about the plant.

T. A. McNicol, of the T. A. McNicol Pottery Company, of East Liverpool, Ohio, was elected president of the National Association of Operative Potters at the annual convention at Washington, D. C., early in December; William Burgess, of Trenton, N. J., was chosen first vice-president; Charles C. Ashbaugh, of East Liverpool, Ohio, second vice-president; Marcus Aaron, Pittsburgh, Pa., third vice-president; Charles F. Goodwin, East Liverpool, Ohio, secretary-treasurer. Chas. F. Gosser, of Coshocton, Ohio, was added to the executive committee. Patrick McNicol, of East Liverpool, Ohio, succeeds T. A. McNicol on the labor committee.



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DOLLAR SAVER
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BETTER BRICK
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PYROMETERS

Brown Pyrometers will mean more uniform burning of your kilns, less fuel consumption, better ware. Why not install them as all progressive concerns are doing?

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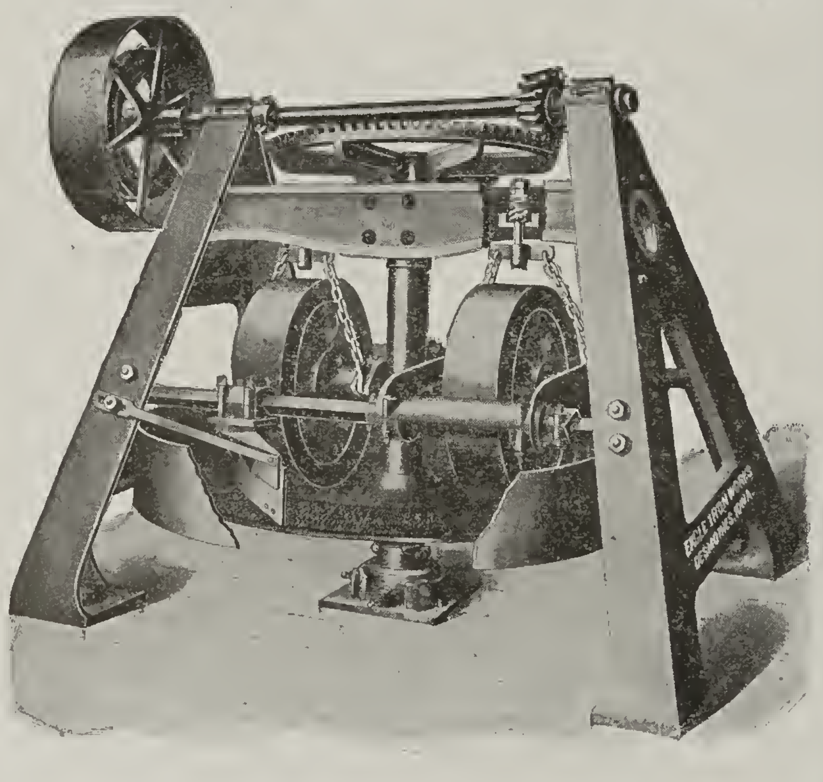
Independent and Suspended Mullers
the distinguishing feature of our DRY PANS



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Des Moines, Iowa

## CLAY PRODUCTS AS AN ENGINEERING MATERIAL.

(Continued from page 623.)

terial, and 33 per cent. greater than that for the specimen in which $b_1 \div h = 0.66$. The practice of testing whole brick flatwise is especially to be condemned, since the amount of side restraint in this case is very great and is certain to result in a fictitious value.

### (d) Practice of Testing Brick.

The common American practice is to test half-brick, bedded in plaster to secure parallel surfaces. It would be far more desirable to test two half-brick, one cemented upon the top of the other, as is done in German practice; or, still better, to cement together three halves, so as to form a column of greater height. In this manner the side restraint of the machine heads would affect the top and bottom pieces, but would not affect the middle piece. The objection to this practice is, of course, the more laborious preparation of the specimens. A compromise might be suggested, viz., the testing of half-brick on edge. While not as desirable as the method suggested above, this manner of testing is greatly to be preferred to placing the brick flatwise. It gives more consistent, sharper results, and is carried out even more easily.

The relation between these two kind of tests was examined by determining the crushing strength of brick* collected from about fifteen brick plants within a radius of 150 miles from Washington, D. C. In this work the brick were cut in two, one half having been tested flatwise, and the other on edge. The brick tested were of the harder grades and nearly all of them had been made by the stiff-clay process. Both shale and clay brick were represented, and 178 brick were thus tested. The average compression strength of the brick tested flatwise was 6,226 pounds per square inch and of the brick tested on edge 5,399 pounds. The ratio was hence $6226 \div 5399 = 1.153$.

### (e) Brick Specifications.

Any one familiar with the various grades of brick used throughout the country must realize that, owing to the widely differing kinds of raw material, considerable variations prevail in regard to the physical strength of the products. The alluvial clay deposits of the Hudson river produce a different grade of brick from the calcareous glacial clays of the Chicago district, or the shales of Pennsylvania, Ohio, Indiana, West Virginia and other states, or the surface and loess clays of the more western states. A discussion of this subject is necessary, therefore, in order that it may be possible to adopt specifications insuring to the user products of reasonable strength. It would not be fair to make no differentiation between a well-made and burned product and an inferior one, as is now the case in many places where the average contractor looks more to cheapness than quality. By recognizing quality, and thus offering the possibility of a better price for better products, an incentive is furnished the manufacturer, which is lacking at the present time. One phase of the subject to be mentioned is its legal side. Definite requirements for brick and similar products are necessary, in order that legal stipulations concerning quality may possess a well-defined basis.

These facts have been realized by the Committee on Building Brick of the American Society for Testing Materials, and in their report of 1913† four classes of brick are recognized, with the following limits for crushing strength and absorption:

Class A. Vitrified brick. Average compressive strength not less than 5,000 pounds per square inch; average absorption not more than 5 per cent.

Class B. Hard-burned brick. Average compressive strength 3,500-5,000 pounds per square inch; average absorption not more than 12 per cent.

Class C. Common brick. Average compressive strength

---

* Trans. Am. Ceram. Soc., 12, 564.
†Am. Soc. Testing Materials, 13, p. 286.

2,000-3,500 pounds per square inch; average absorption not more than 18 per cent.

Class D. Common brick, second, not to be used in exposed work. Average compressive strength not less than 1,500 pounds per square inch. No limits are set as regards absorption.

### (f) Tests of Brick from Several Districts.

In co-operation with the above committee, twelve testing laboratories undertook to test brick collected from ten states. It was found in this work that the absorption values could not be used as a means of differentiating the different classes of brick; hence, these were discarded for this purpose. The general averages obtained for the compressive strength were as follows: Class A, 8,493; Class B, 4,171; Class C, 2,791; Class D, 1,762.

From extensive tests carried on at the Department of Experimental Engineering of the University of Minnesota, on brick made in that state, the average values for the different classes were found to be: Class A, 5,663; Class B, 4,762; Class C, 2,584; Class D, 1,739; Class E (strengths below Class D), 907.

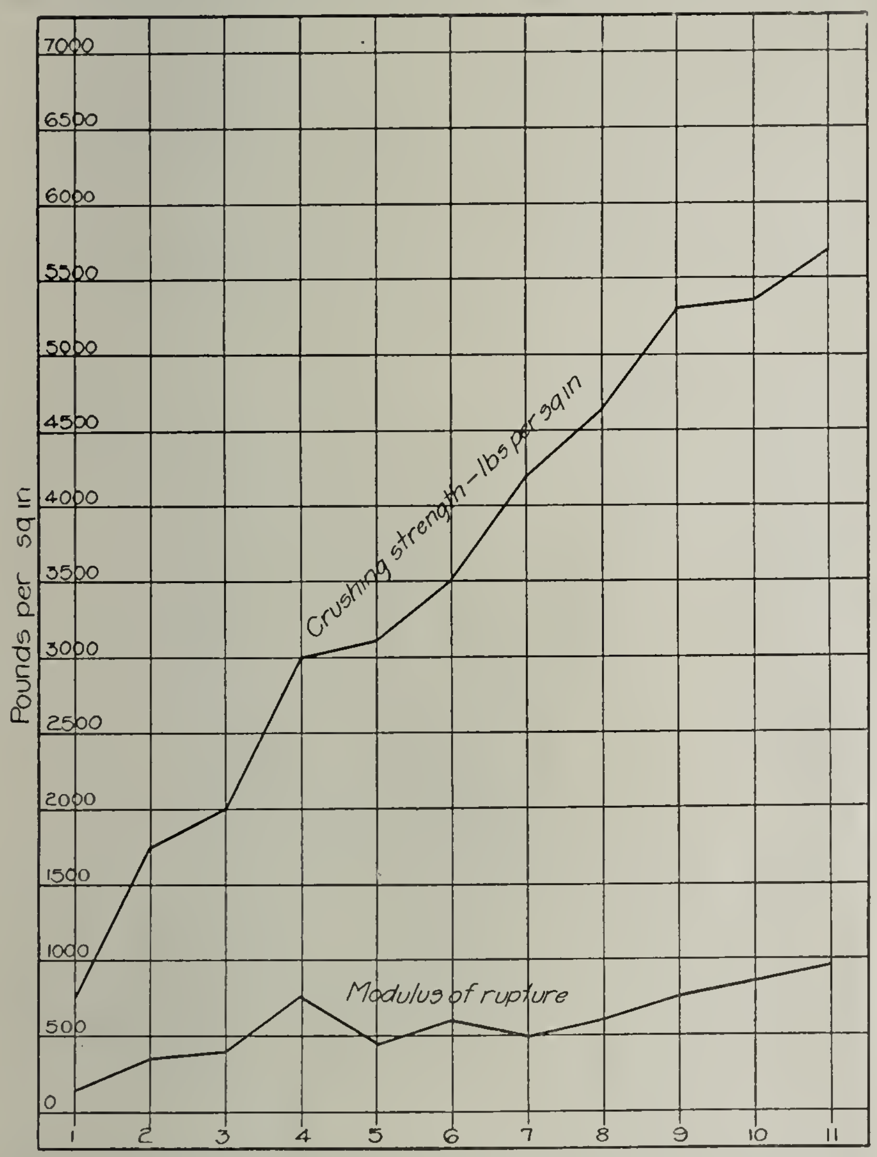

Fig. 2. Curves of Tests for Compressive Strength—Modulus of Rupture Relation.

The results obtained by Prof. Ira A. Woolson, in connection with brick from the Hudson River district used so largely in New York City, indicate a mean compressive strength of 3,943 pounds per square inch.

Tests made by the Bureau of Standards on brick obtained from twenty brick yards in the Chicago district showed an average crushing strength of 2,156 pounds per square inch and an absorption of 23.79 per cent.

A series of brick burned to different temperatures, tested by the same Bureau, collected from a typical plant in the Pittsburgh district, showed a very consistent relation between porosity and crushing strength which could be expressed by the empirical equation, $y=5400-38.7.5x-16.25x^2$, where $y=$

(Continued on page 678.)

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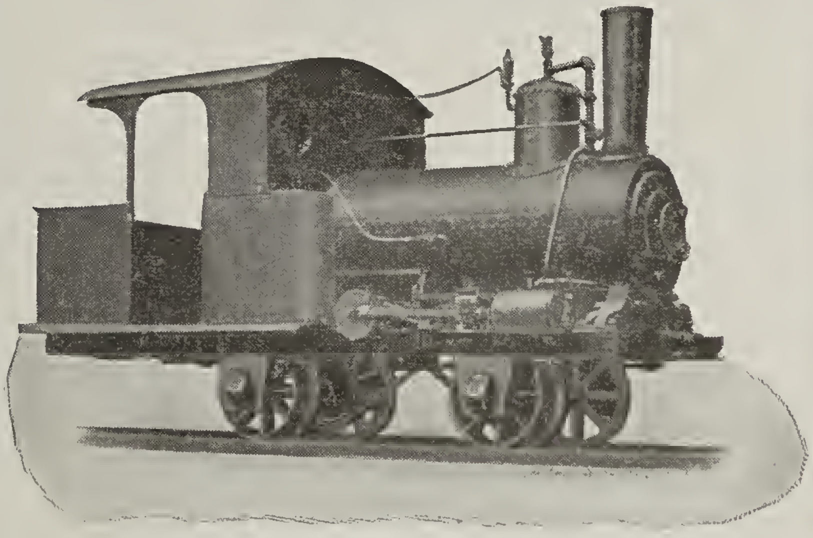
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The last word in economical clay transportation.

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## CLAY PRODUCTS AS AN ENGINEERING MATERIAL.

(Continued from page 677.)

crushing strength in pounds per square inch, and x= per cent. absorption.

(g) Transverse Strength.

It is common practice in the testing of brick to make both the transverse and crushing-strength tests. Undoubtedly, both of them are of value, but in some respects the transverse test is superior, inasmuch as brick in actual use are subjected to transverse stresses in a very large measure. This test brings out the effect of inferior structure very sharply. It would seem that the transverse test would make possible a sharper differentiation of the various classes of brick. There is, however, no direct connection between crushing strength and the modulus of rupture. Brick with a high compressive strength may show a low modulus of rupture and vice versa, as has been shown to be the case in the work of Prof. Ira H. Woolson in connection with building brick from New Jersey.

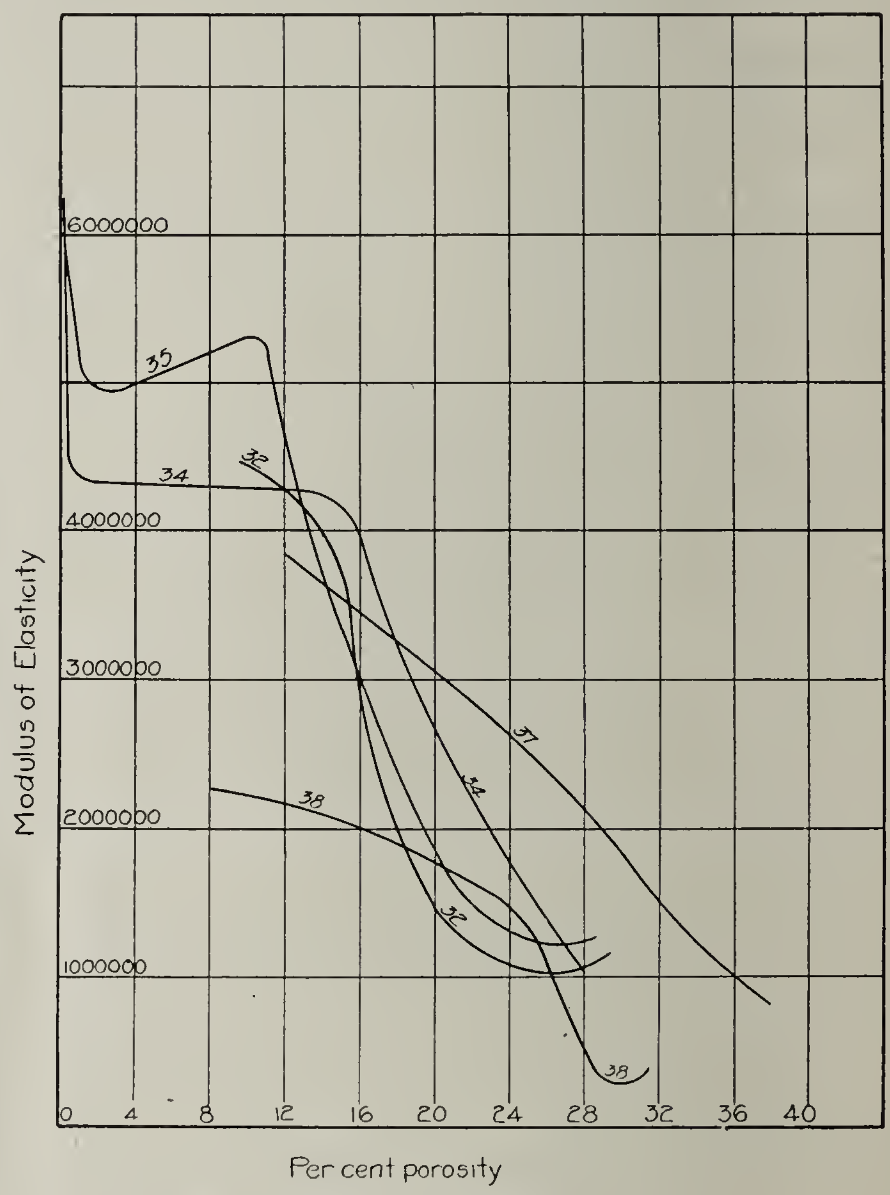

Fig. 3. Variation of Modulus of Elasticity with Porosity

The general average values obtained in the transverse test by the laboratories co-operating with the Committee on Brick Tests of the American Society for Testing Materials were found to be as follows: Class A, modulus of rupture, 1,482; Class B, 668; Class C, 621; Class D, 469. The results obtained in the test series of the Department of Experimental Engineering, University of Minnesota differentiated the different grades of brick in the following manner: Class A, 1,253; Class B, 926; Class C, 576; Class D, 403. A comparison between the modulus of rupture and the compressive strength is shown in the diagram of Fig. 2, presenting results obtained by Prof. Woolson on brick from the New York district. It will be noted that the rate of increase in crushing strength is very much more rapid than that for the modulus of rupture and that, hence, no well defined relation exists between the two factors.

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THWING HIGH RESISTANCE MULTIPLE RECORD PYROMETERS

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We Can Save You Money, Time and Trouble on WIRES

Let us send you samples and prices.
Daily capacity, 20,000 finished wires.

The Mittler Wire Mfg. Co.
Robbins, Tenn.

**(h) Modulus of Elasticity.**

Owing to the characteristic rigid structure of brick and stone materials, the elastic limit is not always observable on single specimens, though it may be observed on built-up structures. The Pittsburgh laboratory of the Bureau of Standards undertook the study of the intrinsic modulus of elasticity of a number of typical clays. The size of the specimens was 3½ in. x 3½ in. x 12 in., the ends of which were ground parallel. In the majority of the stress-strain curves the inflexion point of the elastic limit failed to appear, due in part to the structure planes caused by the auger machine and in part to flexure of the column. The deformation, as expected, was found to be a function of the porosity, as is shown in Fig. 3, in which the modulus of elasticity is plotted against the porosity. In the case of the shales it seems to be characteristic that the modulus increases gradually from the point of maximum porosity, remains practically constant during the later interval of vitrification and rises rapidly as complete vitrification is approached. The No. 2 fire clay appears to show quite a regular increase in rigidity. The same relation in the case of the calcareous surface clay is almost linear and indicates that, when well prepared, this type of material possesses excellent structural properties. The other surface clay evidently possesses far lower rigidity. The highest moduli are shown by the shales, the lowest by one of the surface clays. These results are compiled in Table II.

**Table II.**

| No. of Sample. | Kind of Clay. | Burning Temperature, in cones. | Modulus of Elasticity. |
|---|---|---|---|
| 32 | No. 2 fire clay | 06 | 1,180,000 |
| 32 | No. 2 fire clay | 5 | 4,330,000 |
| 33 | No. 2 fire clay | 08 | 1,170,000 |
| 33 | No. 2 fire clay | 3 | 3,050,000 |
| 35 | Shale | 06 | 1,480,000 |
| 35 | Shale | 5 | 6,400,000 |
| 34 | Shale | 06 | 1,350,000 |
| 34 | Shale | 3 | 5,940,000 |
| 40 | Shale | 06 | 1,930,000 |
| 40 | Shale | 1 | 3,560,000 |
| 37 | Surface clay (calcareous) | 08 | 850,000 |
| 37 | Surface clay (calcareous) | 3 | 3,830,000 |
| 38 | Surface clay (red burning) | 06 | 376,000 |
| 38 | Surface clay (red burning) | 5 | 2,240,000 |

The marked differences in the value of the modulus of elasticity in favor of paving-brick shales calls attention to the several proposals found in the literature concerning the application of a function of this factor as regards the toughness of the materials. According to Johnson,* "the area of the stress diagram up to the elastic limit, divided by the volume of the specimen under test is a measure of the ability of the material per unit volume, to absorb and give out energy or to resist repeated shocks without injury; and the total area of the stress diagram is to measure the ability to resist a single blow without rupture."

**(j) Shearing Strength.**

Results on shearing strengths of brick are comparatively scarce. Some of the results obtained by J. E. Howard are compiled in the following table.†

**Table III.**

| Kind of Brick. | Per cent Absorption. | Shearing Strength, lbs. per sq. in. | Crushing Strength, lbs. per sq. in. |
|---|---|---|---|
| Dark red | .... | 1,011 | 10,643 |
| Light buff | 19.00 | 642 | 8,144 |
| Red | 14.80 | 784 | 5,589 |
| Dark red | .... | 714 | 6,814 |
| Buff | .... | 1,767 | 13,292 |
| Buff | 11.6 | 1,097 | 15,374 |
| Light Chocolate | 14.5 | 988 | 13,059 |
| Gray | 15.2 | 536 | 3,070 |

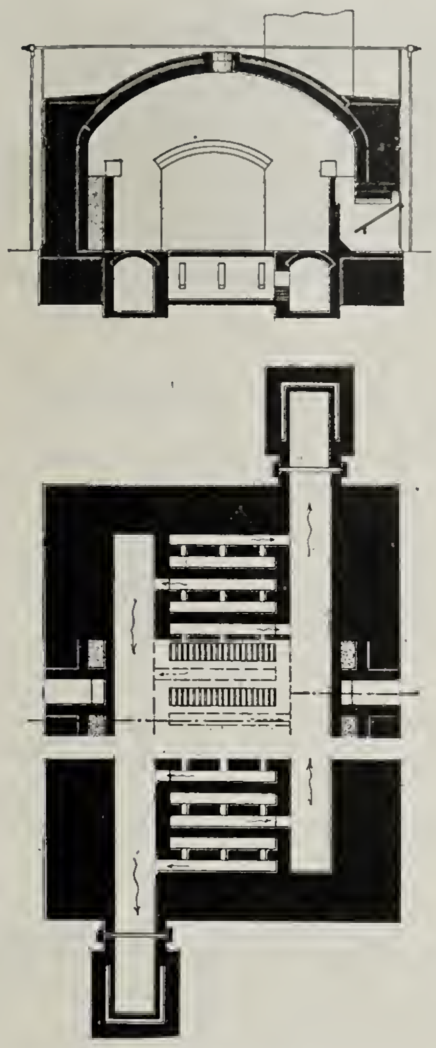
---

* J. B. Johnson, The Materials of Construction, p. 81.

† Watertown Arsenal Report, 1894, J. B. Johnson, Materials of Construction, p. 662.

(Continued on page 680.)

AN EDUCATION IN KILNS---Continued.



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Consulting Engineers for the Clay Industries.
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Perfection Clay Screen

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Stop that HOLE where gold dollars leak out in your plant, make greater capacity, better product

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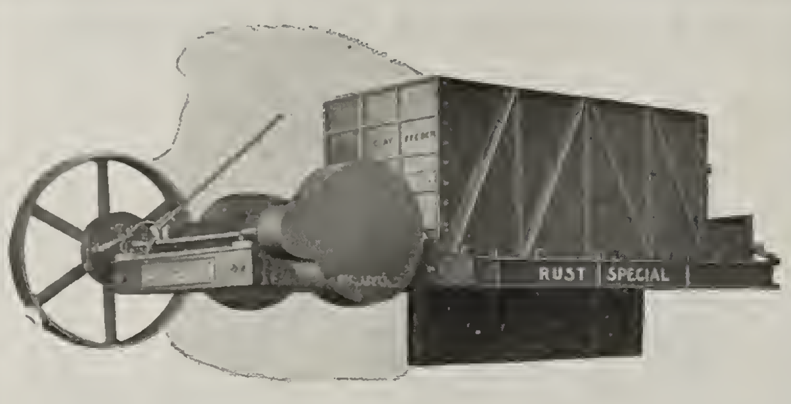

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is a machine with a purpose. It is used not only for **efficiency**, but for decided **economy**—saving you upwards of $500.00 a year in your clay plant. While it saves you real money, it also permits a more uniform mixture of your material and therefore improves your product.

You may dispense with something else, but not with the Rust Clay Feeder—it is indispensable. Shall we send you more evidence?

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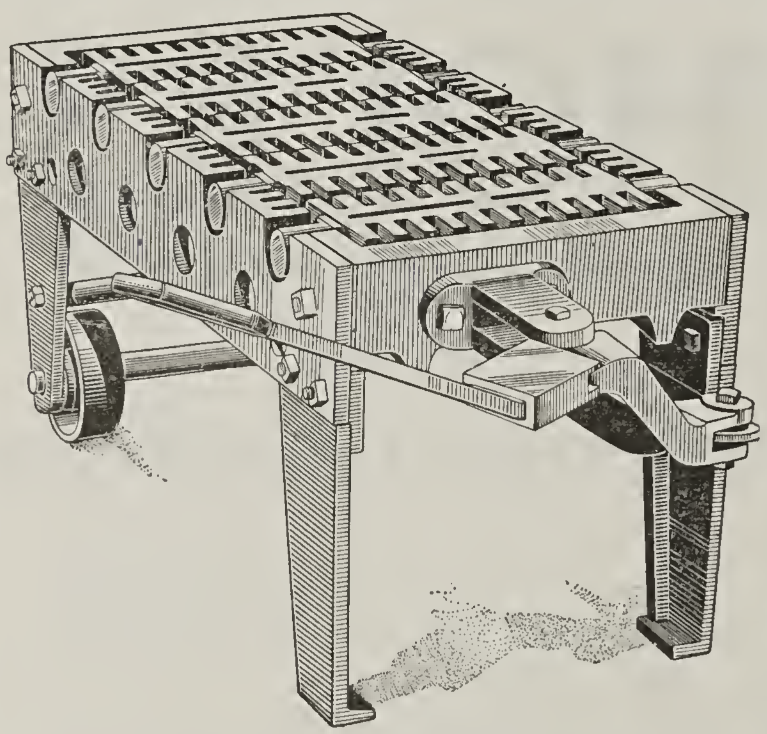

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will fill a want in many tile and brick plants. Made either with or without wheels.

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## CLAY PRODUCTS AS AN ENGINEERING MATERIAL.

(Continued from page 679.)

### (i) Hardness and Toughness.

For building brick, the function of hardness is identical with good crushing strength and is usually determined, in a practical way, by the ring of the bricks when knocked together, or by the cutting effect of a hardened steel tool. The determination of the hardness by exact means is scarcely ever necessary, nor is toughness a quality specially looked for in building brick. The standardized sand blast test* affords a satisfactory measure of hardness where it seems desirable to emphasize this quality.

---

* A Comparison Between the Rattler Test and the Sandblast Test for Paving Brick, Edw. Orton, Jr., Trans. Am. Ceramic Soc., 14, p. 180.

(To be continued.))

## THE CHICAGO SITUATION.

THE BUILDING MARKET continues active in Chicago, even allowing for the natural tendency to slacken a little as the year draws to a close. Some have been heard to express the opinion that a perceptible let-up during the first week of November, as shown by the records of the city building department, reflected to some extent the rise in price of some building materials. It was further suggested that this condition might serve to curb building projects, at least during the early part of the coming year.

The first week in December, however, brought the number of permits sought and expenditures contemplated back to practically the level that has maintained all fall, and the optimists are gloating over the "croakers" again. Naturally, under existing conditions, steel products are up perceptibly and this includes structural iron and steel.

Among the new projects contemplated is a sixteen-story office building, to be erected at the southwest corner of State and Randolph streets, at a cost of about $500,000. The plans have been prepared by Mundie and Jensen, architects, for Aaron J. Jones and Max Goldstine, who lease the ground from the Boston Museum of Fine Arts.

The Union League Club is planning a new home on its present site which ultimately will cost, it is estimated, close to $1,000,000. The present Federal street annex is to be improved by the addition of three new stories. It is intended that the annex, as completed, will be a permanent part of the new club building, so that the money, as it is expended, will bring permanent and not merely temporary returns. The new floors will contain a big swimming pool and gymnasium, conveniences which the club hitherto has lacked. If the plans recommended by the board of managers are ratified by the club, the work will be started probably during the winter, and approximately $190,000 will be expended at present. The Union League's home has, and will continue to be, a fine example of how attractive a brick-built club house can be.

For the eleven months of the year there was an increase of 314 in the number of building permits issued in the city hall by the building commissioner, as compared with the record for the first eleven months of 1914. The increase in frontage feet to be improved was 22,520, and in total cost, $9,603,130—enough to put up a goodly number of fine skyscrapers.

Most of this increase has been made up in the latter months of the year. November, for example, showed a gain of about 70 per cent. over the corresponding month of 1914. Up to November 30, there had been taken out this year 9,677 permits issued for structures or improvements to cost $86,659,480, as compared with 9,313 permits, covering a cost of $77,047,350, for the year 1914.

So, everything considered, the building material folks are about ready to wish the whole world a merry Christmas and get ready for a glad and busy New Year. SCRIP.

Written for The Clay-Worker.

## MILWAUKEE AND WISCONSIN BRICK NEWS.

THE PLANKINTON Arcade building, one of the largest building projects which has been under way in Milwaukee for some years, is at last assured, and building material dealers anticipate much activity during the next several months. The razing of the historic old Plankinton Hotel on Grand avenue, between West Water and Second streets, which will be torn down to make room for the new structure, has begun and active building operations will start soon after the opening of the new year.

The Plankinton Arcade building, which will be erected by the Plankinton Arcade Company, made up of capitalists of Cleveland, Ohio, and Milwaukee, was designed by Holabird & Roche, Chicago architects. The building, which will cover an entire block, on the Grand avenue front, will be only two stories and basement at the start, but a foundation will be laid for eight stories.

More than $1,000,000, to be expended in erecting the Plankinton Arcade, the theater and the hotel building to be put up on the Plankinton site, has been deposited in the First Trust and Savings Bank of Cleveland by the Plankinton Arcade Company.

Building operations in Milwaukee during November exceeded all previous months for that period. During the month there were 279 permits issued for structures to cost $1,132,925, as compared with 236 permits and an investment of $643,888 during November, 1914. The total building investment for the first eleven months of the year showed a gain of approximately $1,500,000, and Building Inspector W. D. Harper says that the building record for the year will reach a new high mark.

More large apartment houses, costing from $50,000 to $100,000 each, have been erected in Milwaukee this season than during any previous year, and, as brick has been used without exception, this has meant a good business for Milwaukee brick dealers. Contractors are now preparing bids to be submitted to Leenhouts & Guthrie, Milwaukee architects, for the erection of the Louisiana apartments at Grand avenue and Eleventh street, at a cost of $80,000. The building will be four stories high and basement, of brick and concrete construction, 60x110 feet in dimensions.

A manufacturing building to cost $60,000, of brick and concrete construction, will be erected in Milwaukee by Architect F. W. Andree, who is withholding the name of the owner for the present. The structure will be five stories high, 75x150 feet in dimensions.

Indications are, even at this early date, that Wisconsin cities will lay considerable brick paving next season. A record amount of brick work was done during 1915, bringing a good business to many Milwaukee concerns, including Ricketson & Schwarz, well-known building material concern, 111 Mason street. B. C. Brennan, superintendent of public works at Kenosha, Wis., is preparing preliminary plans for about 8,000 square feet of brick paving with concrete foundation, curb and gutter, on Pomeroy street, from Fremont to Newall. Bids on this work will be taken early next spring. News from Madison, the capital city of Wisconsin, states that the board of public works in that city has outlined a paving program for next spring to cost about $135,000. As brick paving has always given excellent satisfaction in Madison, it is expected that a good proportion of the work will call for brick.

The National Drain Tile Company, of Streator, Ill., was awarded the $15,000 drainage contract by the Racine county board of supervisors at Racine, Wis. The contract calls for one and one-half miles of drainage work at Caledonia, near Racine, and will require tile, sixteen to twenty-seven inches in diameter.

The Whitewater Brick and Tile Company, of Whitewater, Wis., is making fine headway with the erection of its new plant. Two large buildings are nearing completion, and the Weber Company of Chicago is rushing the work of erecting a 106-foot chimney.

A. BADGER.

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FUEL,
TIME,
LABOR.

IMPROVE THE QUALITY OF YOUR WARE.

INCREASE THE CAPACITY OF YOUR KILNS

By turning them more often.
All this can be done by the installation of the

HOOK SYSTEM OF BURNING

Old kilns can be converted to the Hook System at comparatively small expense and new kilns built at less cost, as a rule, than kilns of other types.

We can furnish plans for remodeling old or building new kilns, or where desired, send competent masons.

*Estimates on request.*

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## Mr. Brickmaker:

Your brick can be dried in TEN HOURS, without cracking or checking, at NO EXPENSE FOR FUEL.

Air and sunshine won't do it, nor will any artificial dryer do it except the BOSS TEN-HOUR UNIT-CONTROL DRYER.

**NO CLAY TOO TENDER.**

Ask us to show you how we do it.

**JOHN C. BOSS COMPANY**
**Elkhart, Indiana**

**WEBB WIRES WEAR WELL**

WRAPPED
TWISTED
SOLDERED

Combining all the best of looped wires with the Red Label features of other makes superior quality of our Piano Wire.

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Complete brickmaking outfit, capacity 33,000 per day; Martin brick machine, Martin steam dryer, clay cars, etc. Also stiff mud machine. Address,

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BRICK CO.,
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A brick, tile, hollow block, sawmill and cider mill plant. All combined and in up-to-date operation. Its a money maker. Business in best condition. Cannot supply home trade. Will sell at a bargain on easy terms if sold soon. Thirty-seven years experience given to purchaser.

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FOR SALE.

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FOR SALE.

Brick and tile plant. Excellent shale. Three kilns. Will sell for half original cost. Address,

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FOR SALE ON ROYALTY.

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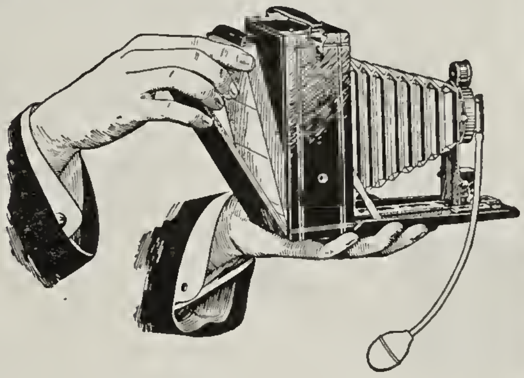

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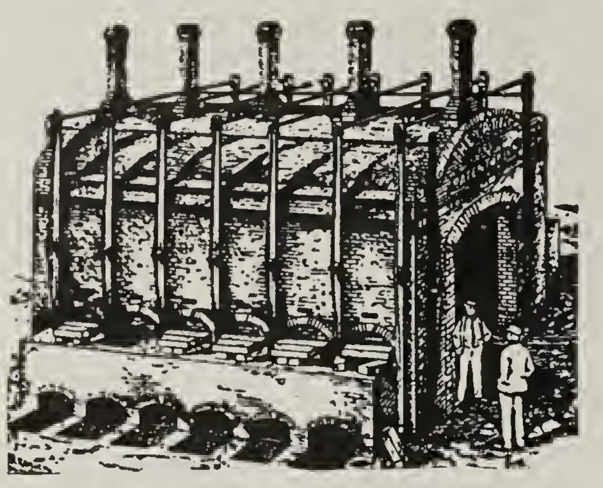

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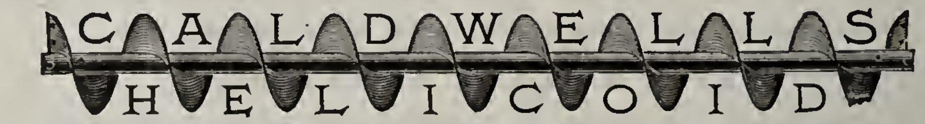

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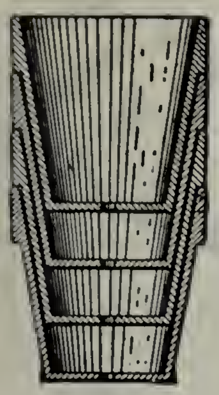

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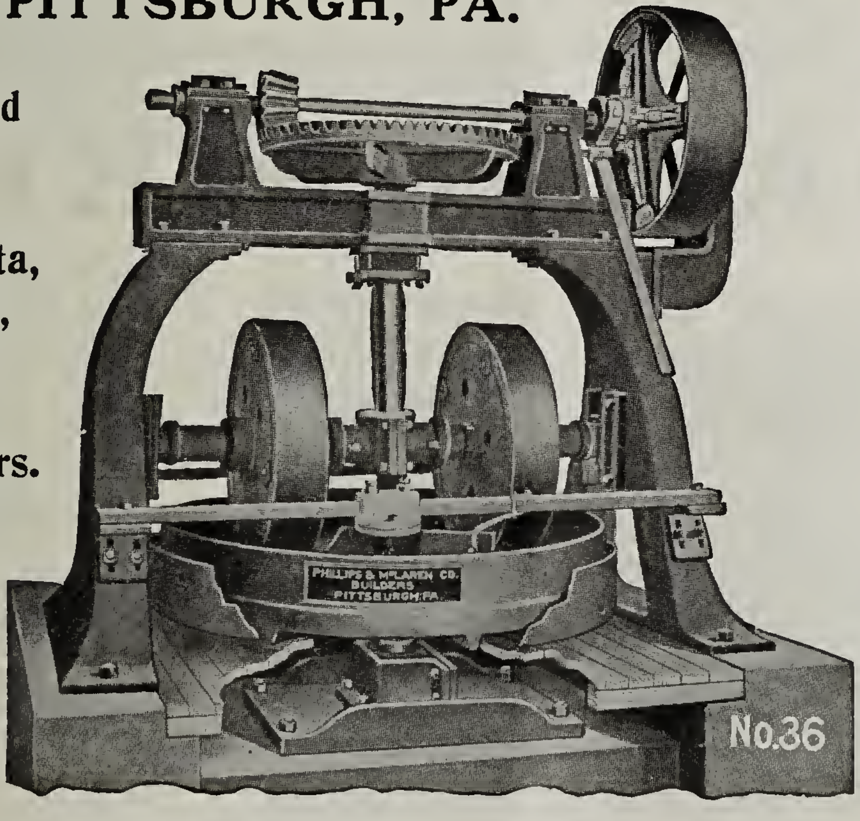

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Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Clay Glazes and Enamels," $5.00; tells how to glaze and enamel brick and gives valuable recipes. "The Effect of Heat Upon Clays," by Prof. A. V. Bleininger, price $2.00; a book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent. "Analyses of Clays," $2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," $2.00; a manual for all engaged in the manufacture of articles from clays. "Clays"; their occurrences, properties and uses, with special reference to those of the United States, $5.00. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

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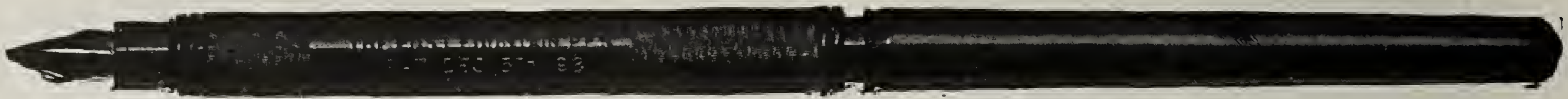

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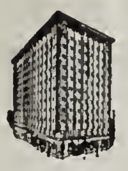
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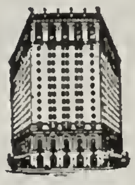
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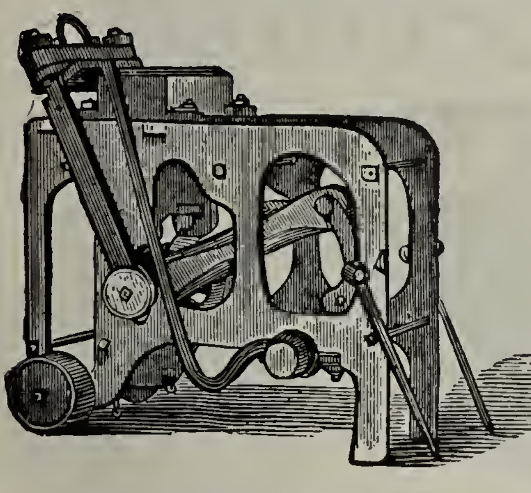
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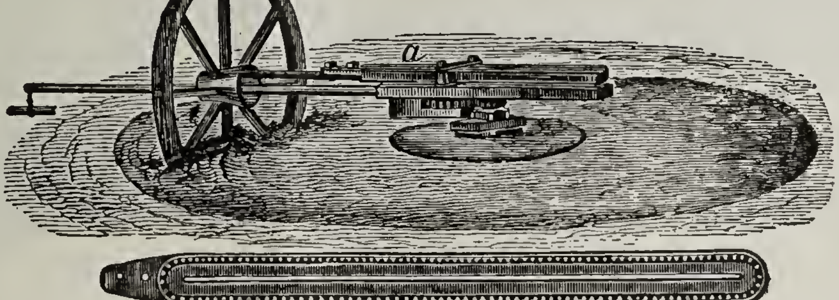

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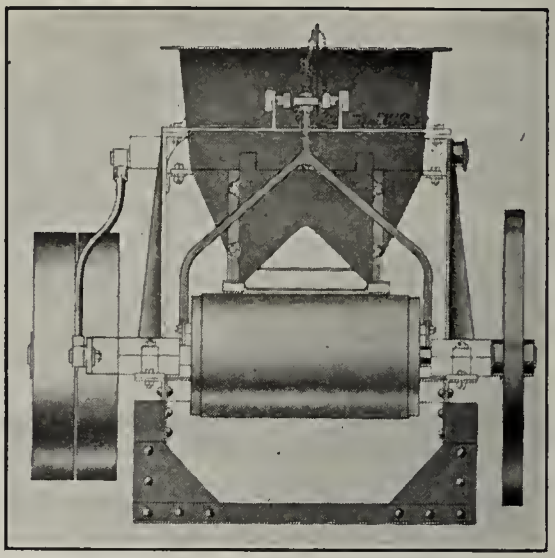

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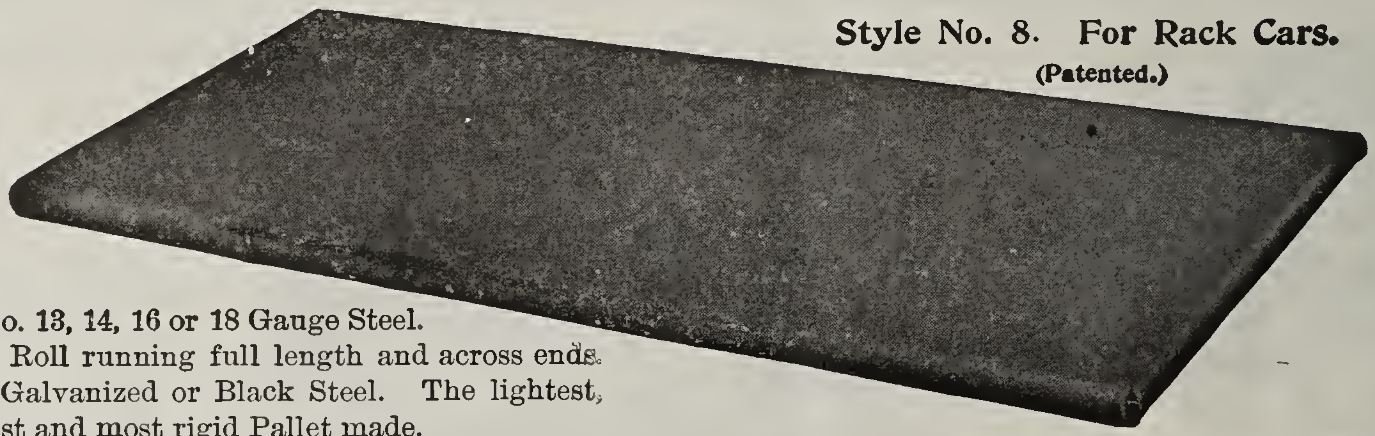

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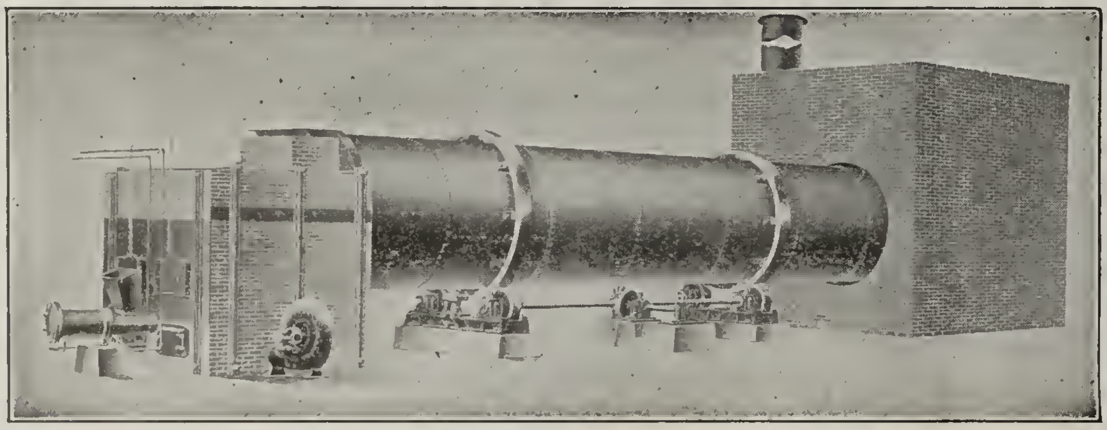

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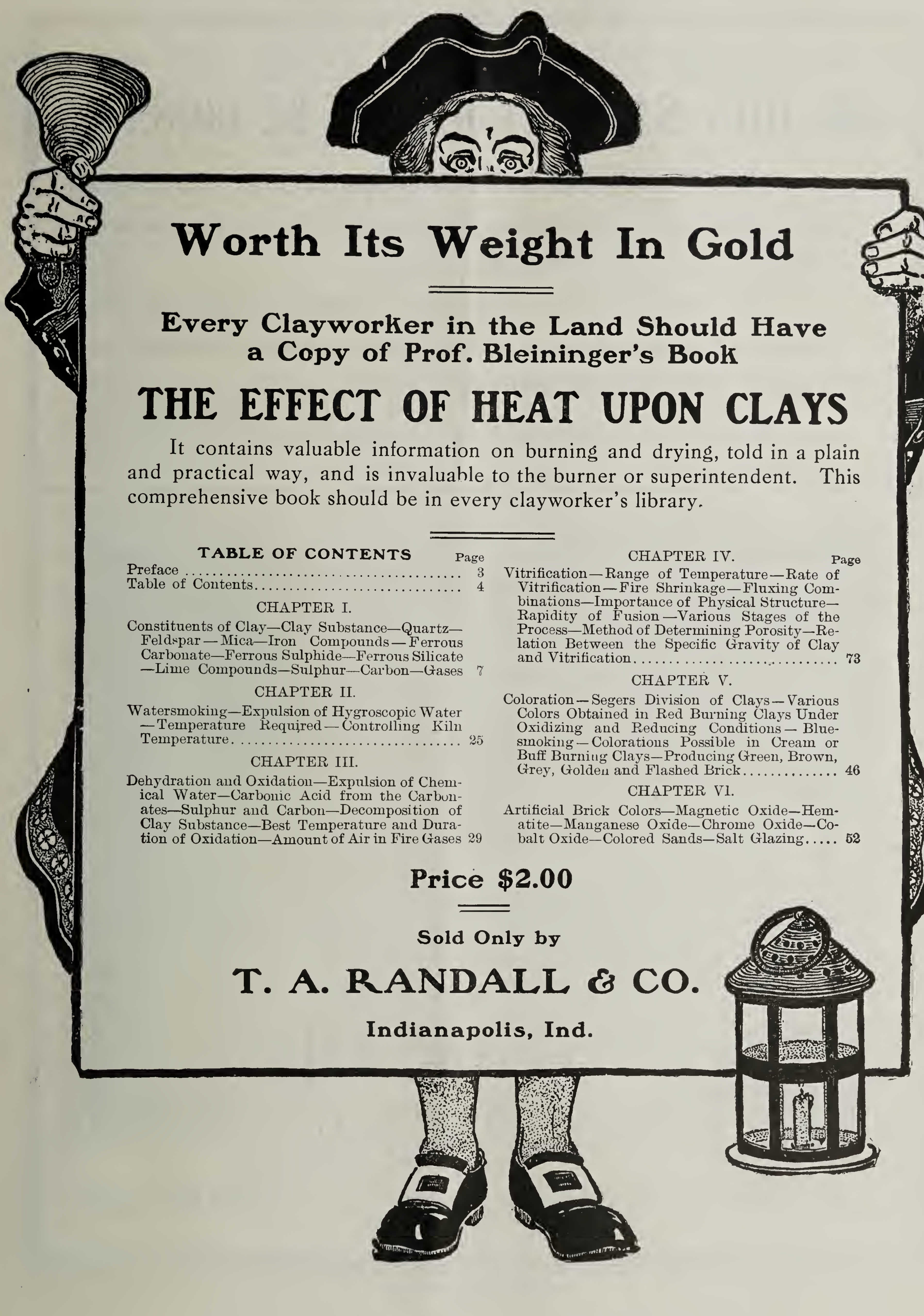

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It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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**Indianapolis, Ind.**

# AND THEY SAID IT COULDN'T BE DONE!

More than one hundred firms and individuals in a dozen different states have united in a campaign to educate the American builder in the way of SAFE building.

The men back of this national movement represent every accepted fire-safe material and include engineers, architects, contractors, fire engineers and city officials.

This is not a campaign to sell any one material, nor is it an effort to "knock" any type of construction.

The medium of this great movement is an organization devoting its whole enery to convincing prospective builders that it not only is safer and better to build with materials that will resist fire, but that it actually is cheaper in the long run.

This organization is known as THE SAFE and it is making converts every day, and in the territories where it is active the building records show a marked increase of the use of fire-safe materials.

Why aren't you a part of this movement?

Let us send you free copy of address delivered by John J. Thomas, The Lloyd-Thomas Co., Chicago, which PROVES that safe buildings are cheapest.

SAFE

PROTECT YOUR HOME

## THE SAFE

## Society Advocating Fire Elimination

R P. Stoddard, Secretary

356 Leader-News Building CLEVELAND, OHIO

# THIS DRYER WILL SAVE YOU MONEY

THE "Wellington" Improved Steam Pipe Rack Dryer combines every possible Economy with the highest degree of Efficiency.

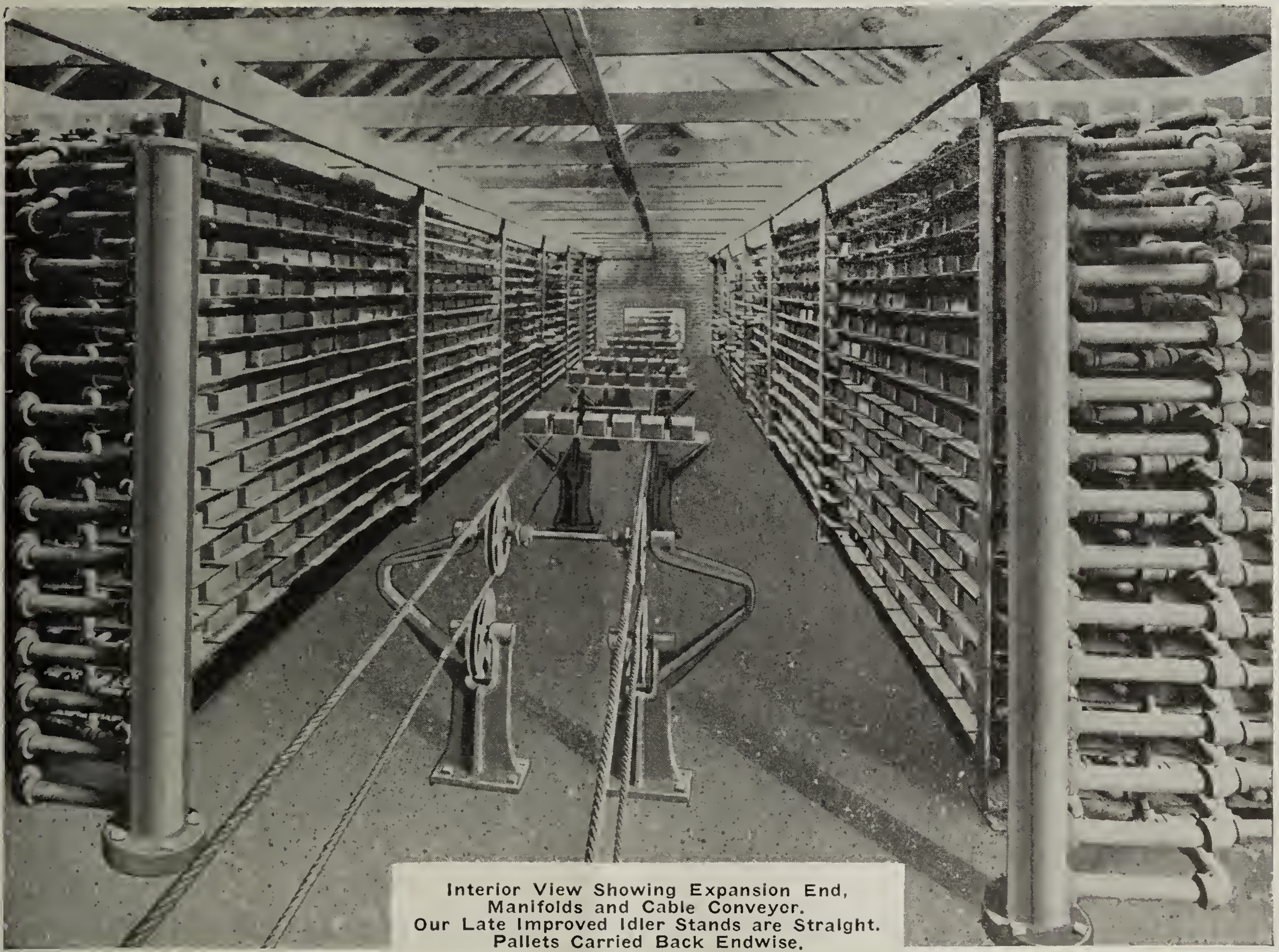
IT is a low pressure vacuum system with the FIRST COST LOWER than any other dryer. It can be installed at LESS EXPENSE and operated at a big saving in power and labor.

WE will give you the facts and figures to PROVE IT or you can ask any of the many satisfied users of this economical dryer.

> WHAT ONE OF OUR MANY SATISFIED CUSTOMERS HAS TO SAY.
>
> Wellington Machine Co.,
> Wellington, Ohio.
>
> Have found your Dryer a grand success. We are having no trouble and are actually drying brick in this Dryer that does not cost us a cent. The Wellington Dryer is one of the best on the market. THE OHIO BRICK CO.,
> A. R. Kuhlman, Mgr., Toledo, Ohio.
> June 29, 1915.

## Ask Any of the Following Representative Brick Companies:

| | |
|---|---|
| Barkwill Brick Co., Cleveland | 120,000 capacity |
| American Bldg. Brick Co., Cleveland | 30,000 capacity |
| Collingwood Brick Co., Toledo | 35,000 capacity |
| Ohio Brick Co., Toledo | 35,000 capacity |
| Walker & Frank Brick Co., Detroit | 35,000 capacity |
| Farr Brick Co., Cleelandv, H plant | 120,000 capacity |
| Standard Brick Co., Cleveland | 120,000 capacity |
| Owen Hatten Brick Mfr., Philadelphia | 25,000 capacity |
| Thornton Bros., Rudyard, Mich | 15,000 capacity |
| Ithaca Brick & Tile Co., Ithaca, N. Y. | 30,000 capacity |
| Mercier-Bryan-Larkins Brick Co., Detroit | 60,000 capacity |
| The Cook & Brown Lime Co., Oshkosh, Wis. | 40,,000 capacity |

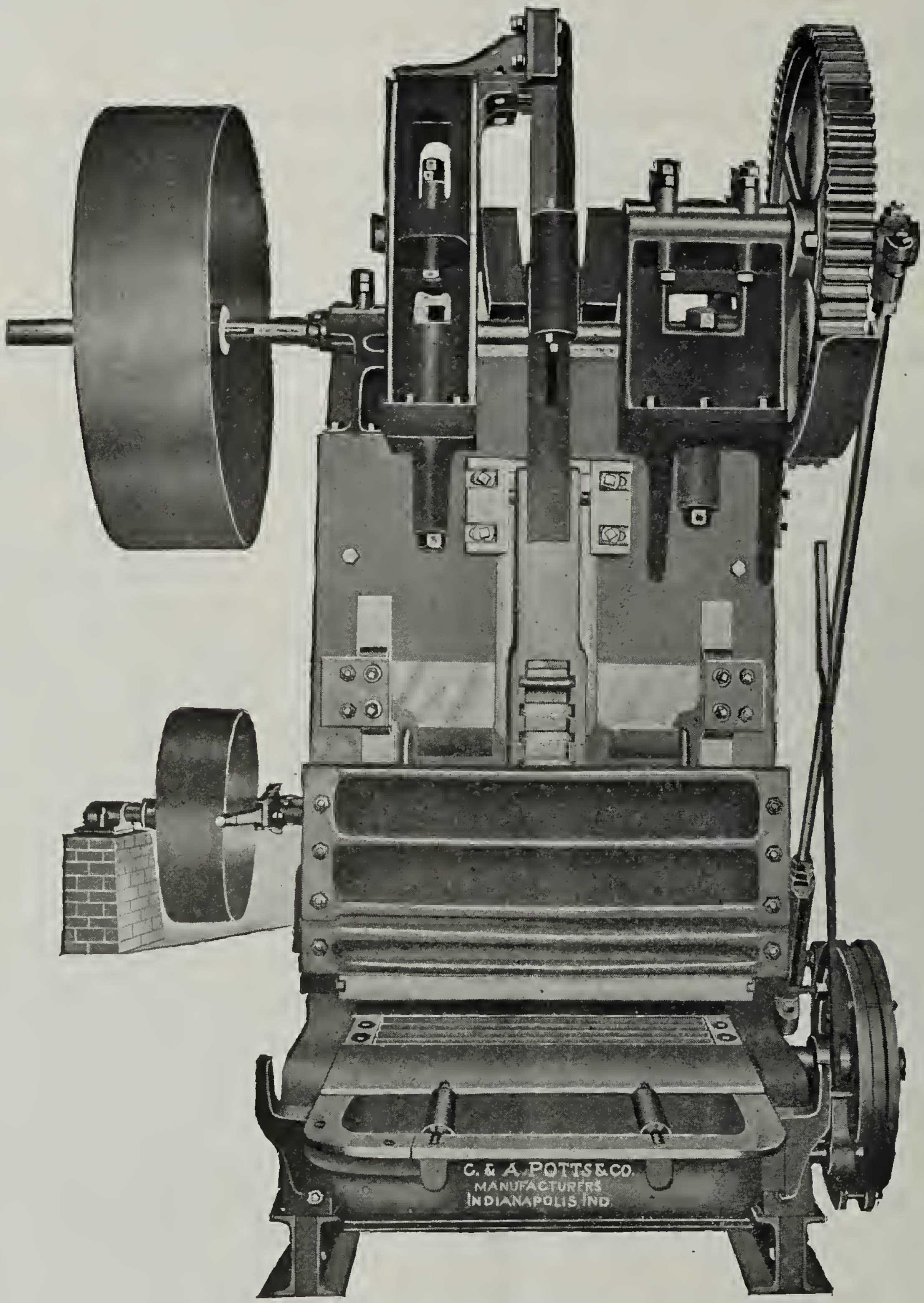


Interior View Showing Expansion End, Manifolds and Cable Conveyor. Our Late Improved Idler Stands are Straight. Pallets Carried Back Endwise.

## The Wellington Machine Company
### Wellington, Ohio

# The Potts Special Soft Mud and Fire Brick Horizontal Brick Machine

Drop Forged Crank Shafts. Cut Steel Gears. Large Bearings. Heavy Powerful Press. No Light Parts Working in the Clay.



FRONT VIEW

Note Heavy Construction of Press on Special Soft Mud and Fire-Brick Machine. Built for Service.

## The Most Complete Brick Machine Ever Built

WRITE
FOR
CATALOGUE.

## C. & A. POTTS & CO.
## INDIANAPOLIS, IND.

LET US
KNOW
YOUR WANTS.

# TURN FAILURE INTO SUCCESS

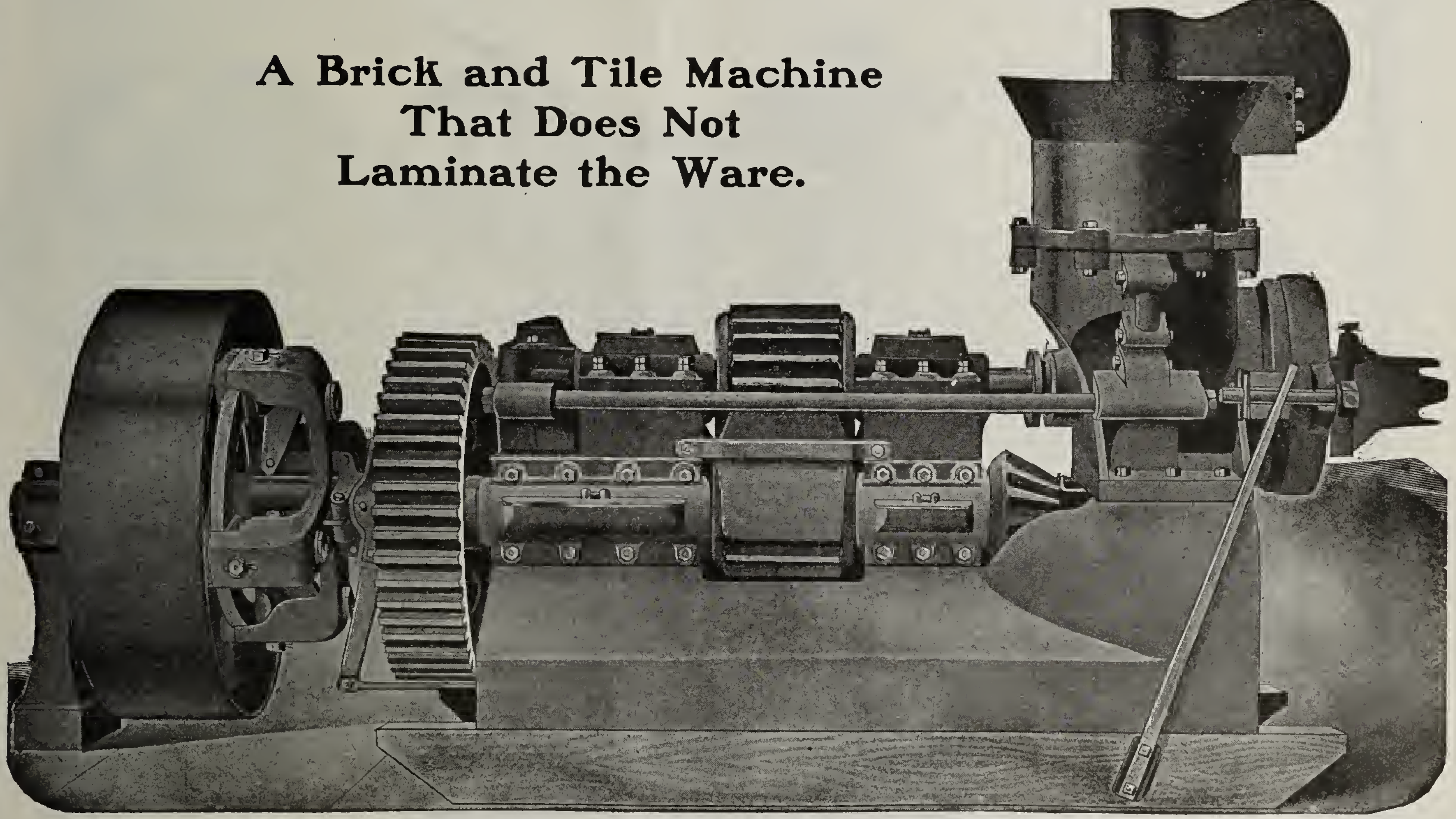
## With The Wonder Machine.

---

A Machine of Large Capacity. Unequaled in Record of Durability.

---

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

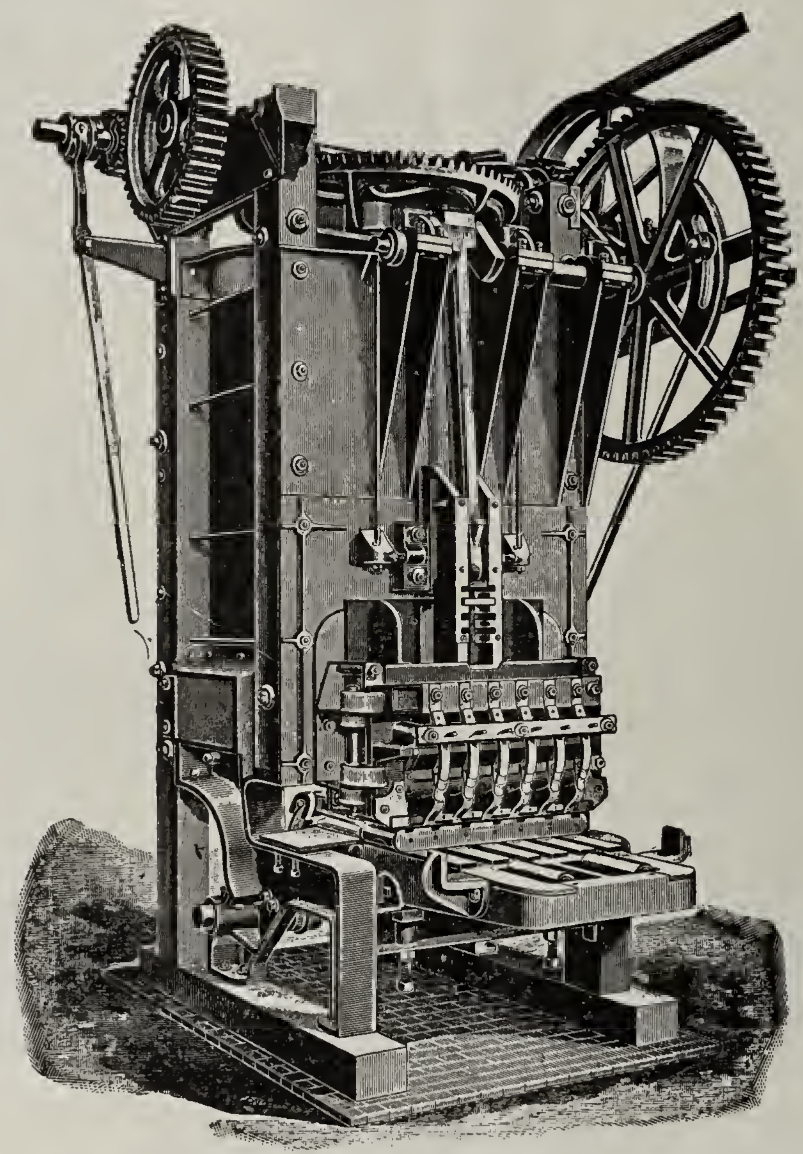
*Write for Catalog and Prices.*

# THE WALLACE MFG. CO.

FRANKFORT, IND.

# EARNING CAPACITY.

The thing which gives value to any machine is its earning capacity. The earning capacity of brick machinery depends as much on strength and thorough construction as anything. Most brickmakers have learned this in the expensive School of Experience. When a machine is broken down its earning capacity and its value is gone. Continued results, therefore, determine the economic value of a machine, rather than first cost. On this basis "New Haven" Machines have proven to be the least expensive on the market.



"NEW HAVEN" VERTICAL BRICK MACHINE.

Because of their simplicity, unusual strength, and excellent construction, "New Haven" Vertical Brick Machines are seldom out of repair, and hence earn more and are much more valuable to their owners than the light weight affairs that break so often. They do better work than is possible with less powerful machines. It will pay any prospective buyer to think seriously about this matter of earning capacity, and look into the merits of the "New Haven" Machine from that point of view.

---

**The EASTERN MACHINERY CO.**

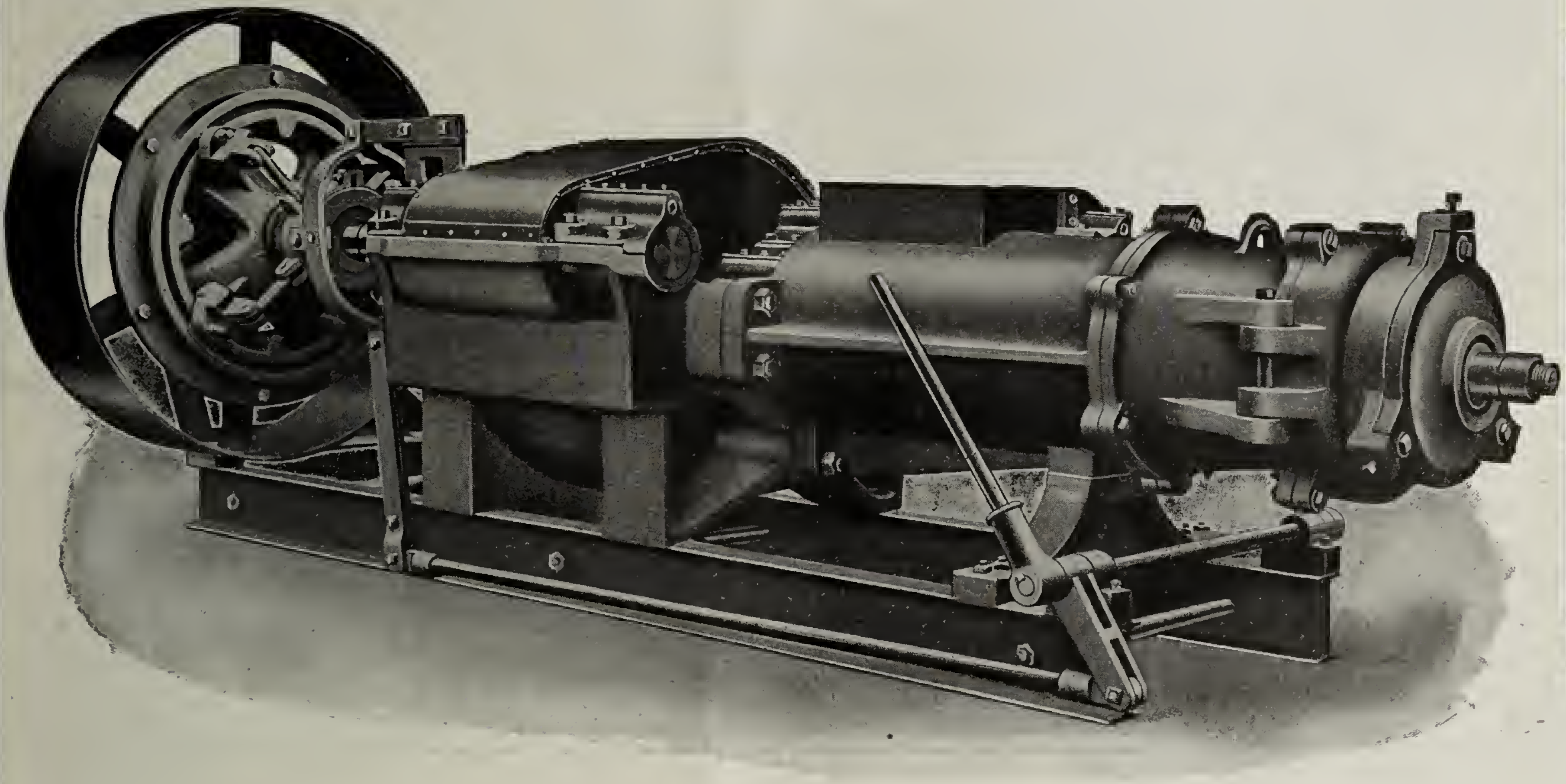
**NEW HAVEN, CONN.**

IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD · IF MARKED BREWER IT'S GOOD

## The Brewer No. 88 Horizontal

# DRAIN TILE MACHINE

A high grade, high speed, heavy duty pattern, new enough to be up to the minute, but old enough to have shown what it can do.



## Here Are a Few Construction Points:

Cut gears, covered and running in oil.
Gear frame cast in one piece.
Cylinder cast in one piece.
Hammered steel shafts. Self-oiling bearings.
Sectional lined screw case. Heavy 29-in. disc clutch.
Tool steel bushed dies.

***Ask for complete catalog, references and prices.***

**H. BREWER & COMPANY, Tecumseh, Mich.**

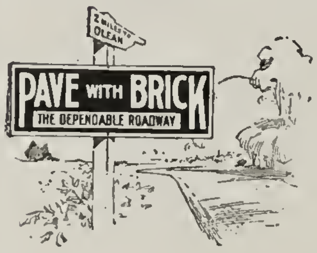
# JOIN THE

**BOOST** BUILD WITH BRICK **BOOST**

# CAMPAIGN

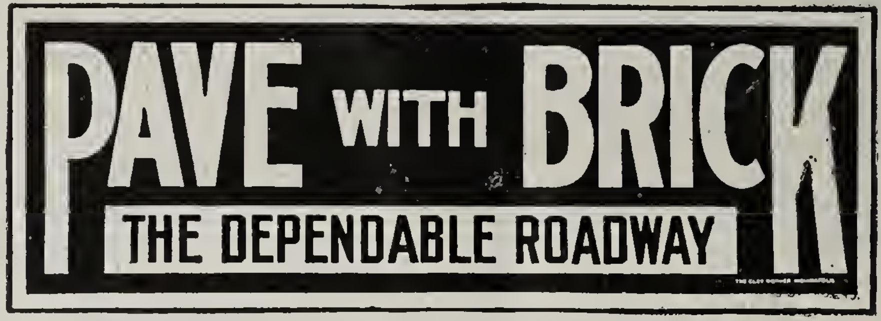
A Movement Worthy of Your Support. It Increases the Demand for Burned Clay Products, Helps to Decrease the Cut Price Evil and Stimulates the Business in General.

## THE BUILD WITH BRICK MOVEMENT.

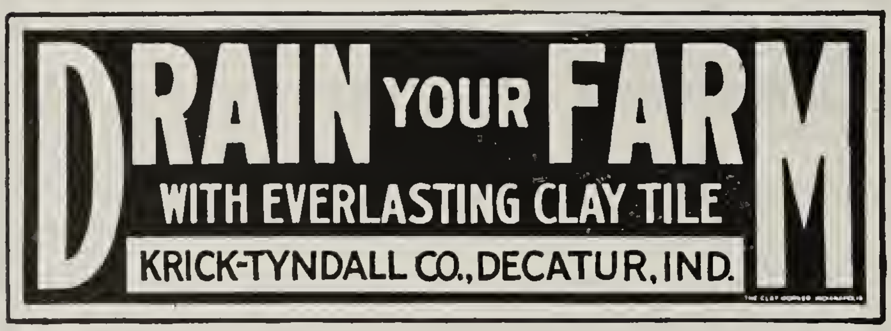


IT IS a proven fact that the public does not know the advantages and economy of burned clay products, for it stands to reason that if the average man knew that our materials were the best and cheapest in the end, more buildings and homes would be built of burned clay goods.

Our competitors have been teaching the public that clayware is a luxury and only obtainable by a large expenditure of money. The function of the Build with Brick Campaign is to combat this idea, to teach the prospective builders the many advantages of our material over others and to forcefully impress the need of building safely and well.

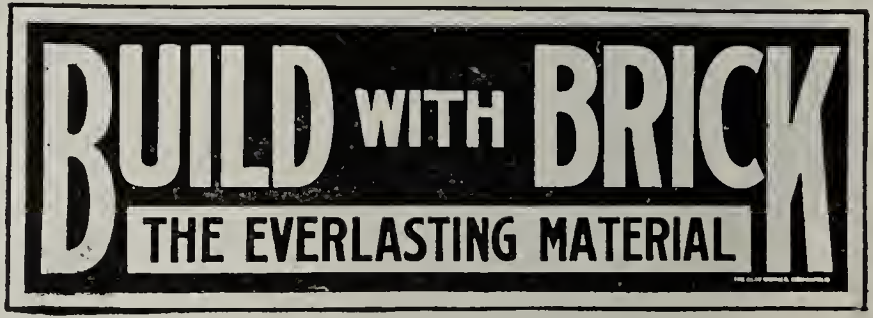


It is a movement worthy of your support. Remember you spend your money your own way in your own territory and get direct results. It costs but a very little to cover your section with Build with Brick signs which will work wonders for you and the trade in general.



Attractive signs go a long way toward driving home the idea you wish to convey to prospective builders. It was with that thought in view that we gave considerable time and careful study in originating our BUILD WITH BRICK posters and metal signs. The three miniatures shown on these pages are the standard signs, made 7 inches high and 20 inches long, with white embossed letters on a beautiful blue background. These metal signs are made of 38-gage sheet steel, easy to handle, will last for years and are so attractive that the pedestrian, autoist or driver cannot help but be impressed, as it stares at him from the roadway, vacant lot, or on trees, telephone poles, structures, etc.

Have you received a specimen metal sign? If not, you can have one for the asking. We will be glad to have you see one, for we know you will be much impressed. We have a contract with a manufacturing firm that enables us to quote you prices much lower than you can secure from any firm. The stock signs for "Build with Brick" or "Pave with Brick" sell for $5.00 per hundred. If you care to have your name substituted for the wording in the white space, the cost will be $6.00 per hundred. The "Drain Your Farm" sign, with firm name, costs $7.00 per hundred. Just think, 100 signs placed a mile apart along the country highways would cover 81 square miles. Think of the pulling force such a small expenditure would give you in your territory.



T. A. Randall & Co., Publishers The Clay-Worker.

Gentlemen:

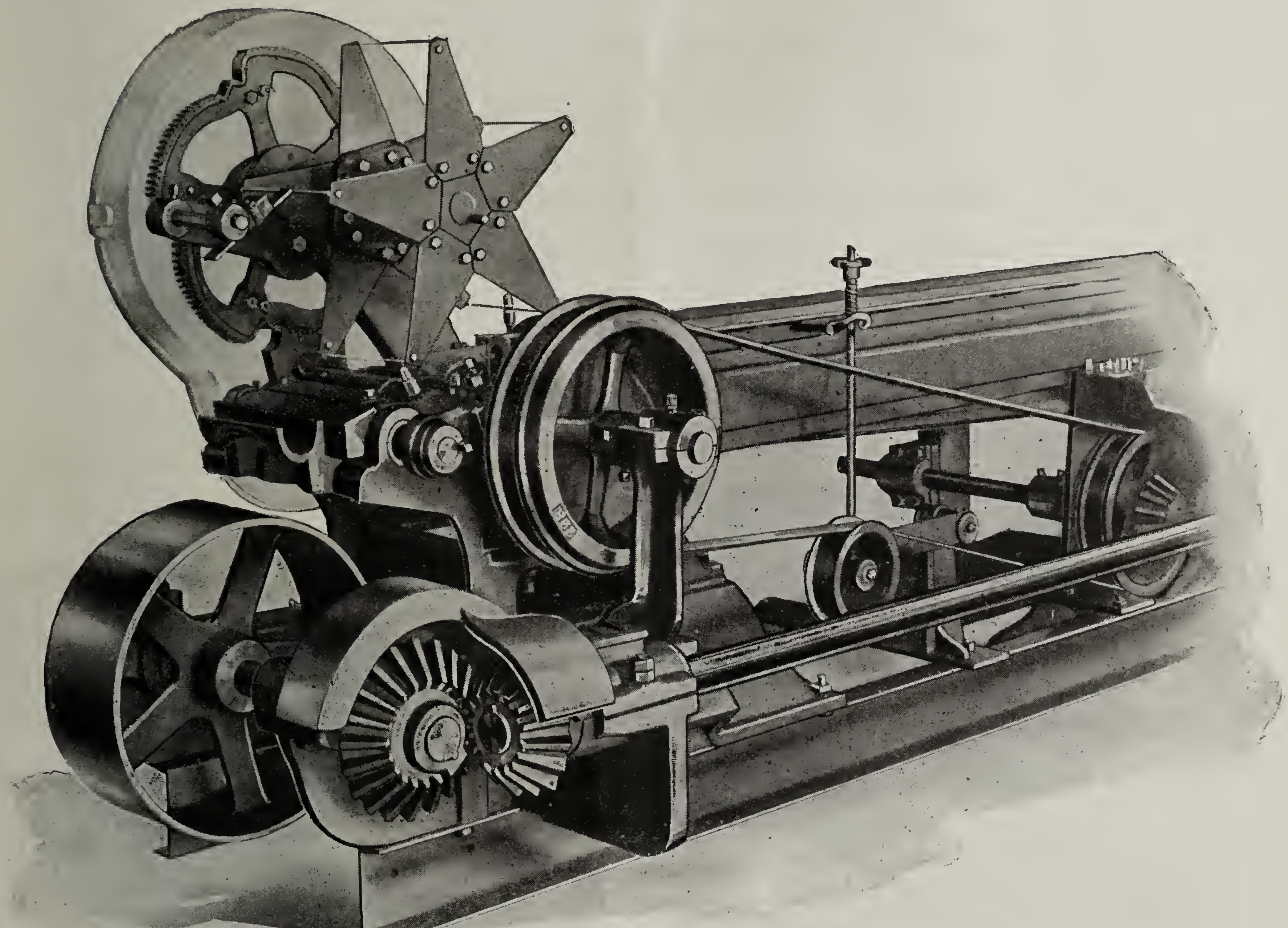
You may send me........of your Build with Brick, Pave with Brick, Drain Your Farm metal signs. These are to be the stock sign or addressed with following firm

name ..................................................

..................................................

(Cross out the items not wanted, fill in and mail us the coupon.)

## You Have Heard of the Reputation of the Steele End Cutter You Realize the Advantage of Square Cut Brick If You Have Any Doubt of the Superior Principle or Workmanship of This Cutter Frankly Ask Us to Show You



The cut is controlled direct by Irregular Gears which prevents lost motion, reduces friction and practically eliminates wear.

Will handle the largest capacities.

Will work with any machine.

Nearly one thousand in use.

Don't let your competitor get in this cutter first.

# J. C. STEELE & SONS

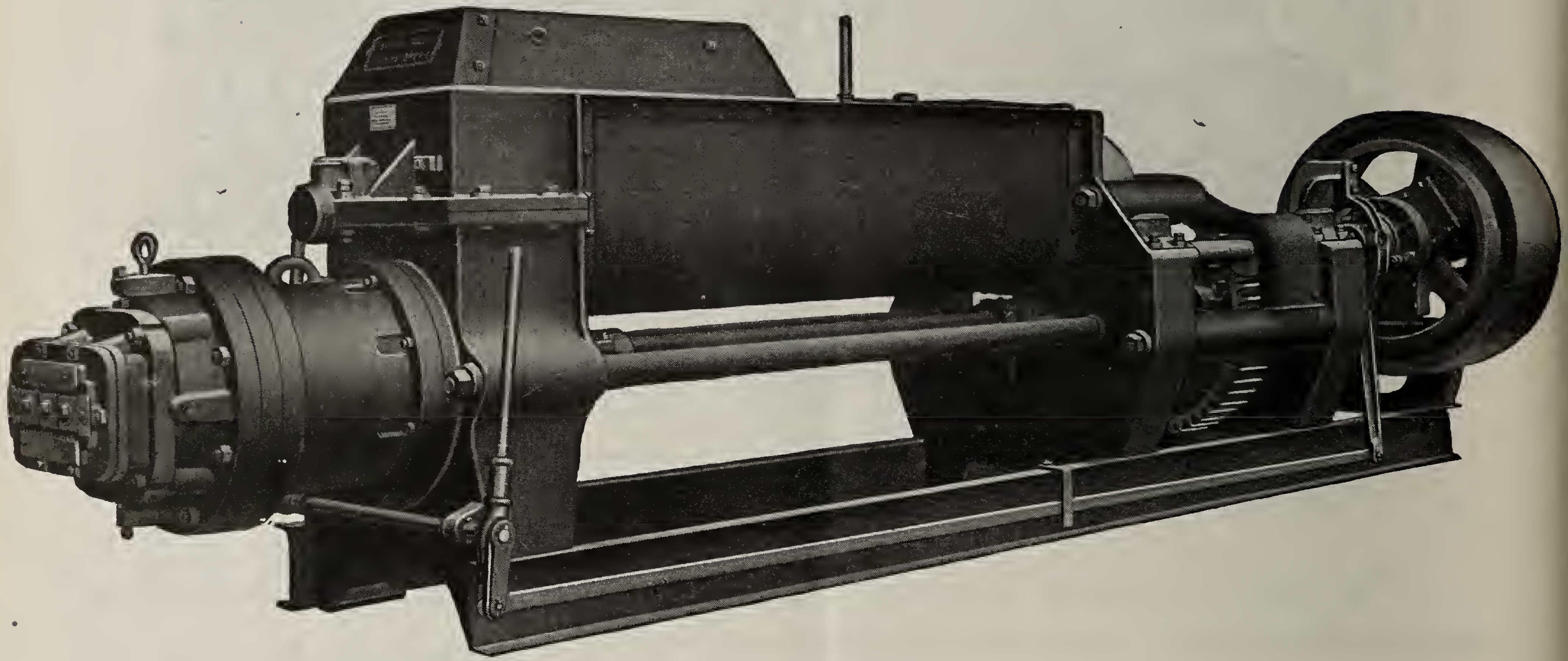
**STATESVILLE, N. C.**

**George H. Smith, Western Agent, 203 Sheidley Bldg., Kansas City, Mo.**

Why does the KB Union Hollow-ware Machine produce 50% more ware than the machine previously used—a machine nearly as large?

Why does it consume 25% less power than the machine previously used?

Why does one of its users say it is the nicest piece of clayworking machinery he has ever had on his plants?



Union Hollow-ware Machine

**A worry=eliminator for the hollow=ware manufacturer**

**E. M. FREESE & COMPANY, 140 South St., Galion, Ohio**

**Dependable Machinery of Proven Efficiency**

For
Sixty-Three
Years
The Name

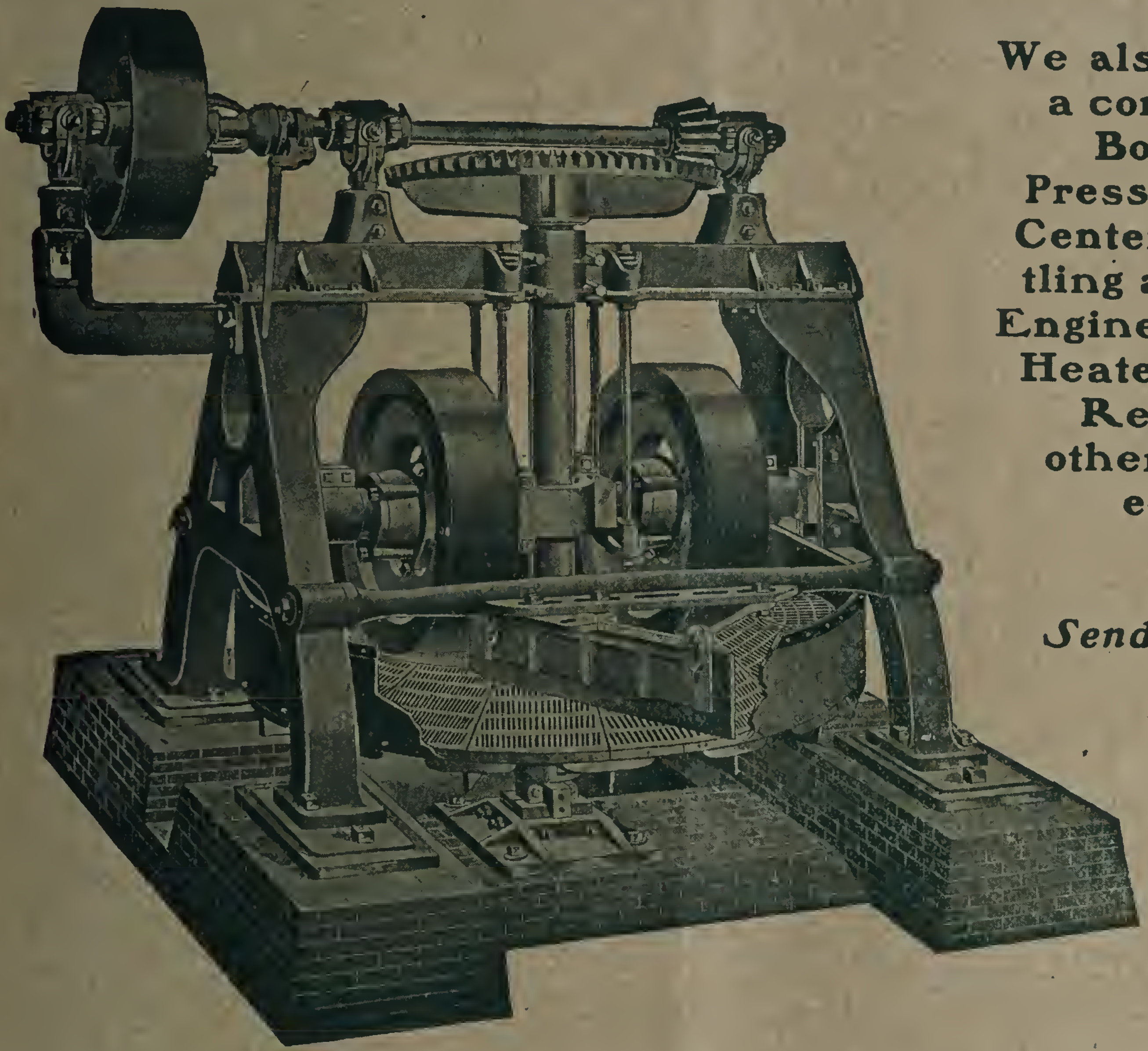
# Frost

Has stood for all
that is best in
Power Plant
Equipment,
Crushing and
Mixing Machinery

ESTABLISHED 1851

**There are *more* Frost Dry and Wet Pans being operated successfully in all parts of the World than any other similar machine.**

**WHY! Because their capacity is greater and the cost of upkeep, due to natural wear, is less. They ALWAYS give satisfaction. Write us for descriptive matter.**



**We also manufacture
a complete line of
Boilers for all
Pressures, Side and
Center Crank Throttling and Automatic
Engines, Feed Water
Heaters, Tanks, Air
Receivers and
other power plant
equipment.**

---

*Send for Bulletins.*

# The Frost Manufacturing Co.

Works at
GALESBURG, ILL.

Sales Department
112 West Adams St., CHICAGO, Ill.
Cable Address, "FROSTMANCO," Chicago.

The Wise Man of FATE

# “The Plymouth
# Cheaper than

It costs less to buy—less to install—less to operate, than any other power. We make these three statements without qualifications or mental reservations—and they are printed here with all the confidence and assurance born of a knowledge based on ACTUAL Experience and the RECORDS of Time.

## We Make These Six Claims and Prove Them

1 It will do **Your** Haulage **Cheaper** and **Better** than Man, Horse, Compressed Air, Electric, Steam or Any Other **Gasoline** Locomotive.

2 Its **Fuel** Cost is **Less** than the Feed Cost of Horses—Power for Power, Duty for Duty—**Less** than the Fuel Cost of Steam, Compressed Air, Electric or Any Other **Gasoline** Locomotive.

3 Its **Operation** and Maintenance Cost is **Less** than a Horse, Steam, Compressed Air, Electric or Any Other **Gasoline** Locomotive.

4 It is **Simpler** in **Operation**, is Fool-Proof and Does Not Require a Licensed Engineer, Electrician, Mechanic or Other High-Priced Help to Keep it in Running Order.

5 It will Take a Higher **Grade**, Pull a Heavier Load per Horse Power and Do More **Work** than Any Other Locomotive—whether Steam, Compressed Air, Electric or Gasoline.

6 It Costs Less to **Buy**—Less to **Install**, than any Other Locomotive—whether Steam, Compressed Air, Electric or Gasoline.

## Here is WHY These Six Claims Are True

### Claim No. 1 *It Will Do YOUR Haulage Cheaper and Better, Because—*

It Uses Gasoline—the most economical of ALL Fuels.

It uses the “Plymouth” Friction Drive, which gives **more** power, a greater **flexibility** of operation, a **limitless** number of speeds—the same forward, the same backward, a quicker **pick-up** of loads, and a greater freedom from **jerks** and **strains**, than does **any other** system of transmission.

### Claim No. 2 *Its Fuel Cost is LESS than Any Other Locomotive Because—*

It uses **Gasoline** and it does it in the **“Plymouth”** way—

And the **“Plymouth”** way of using it makes gasoline cost less in the “Plymouth” than in any other **gasoline** locomotive.

### Claim No. 3 *Its Operation and Maintenance Cost is Less Because—*

It requires no feed or care in idle hours or on rainy days, as do the many teams of **horses.**

It requires no time-off to haul coal and water, no licensed engineer to run it, no Sunday work at double pay to clean its flues, no early morning effort to get it started, nor late night labor to “put it to bed,” as does the **steam** locomotive.

It requires no expensive high-pressure air-compressing plant, no intricate system of air pipe lines, nor frequent interruptions to recharge, as does the **compressed air** locomotive.

It requires no expensive generating plant, no elaborate system of transformers, feed wires, cables or trolley wires, nor interruptions for recharging or renewals for storage batteries, as does the **electric** locomotive.

It has no expensive gear drive to get out of order or break, no elaborate lubrication system to maintain its highest efficiency, no complicated construction to encourage repair bills, and no light steel frames to cut down traction power, as does all other **gasoline** locomotives.

### Claim No. 4 *It is Simpler in Operation than Any Other Locomotive, Because—*

It has no water or steam gauges to watch, no fires to keep going, no flues to clean and no complicated levers to pull or set, and, therefore, requires no licensed engineer, as does the **steam** locomotive.

It has no deadly wires to dodge, or avoid, no short-circuits to puzzle, no complicated parts to confuse, and, therefore, requires no experienced electrician, as does the **electric** locomotive.

It has no airtanks or gauges to watch, no complicated mechanism to bother with, no troublesome and time-killing recharging at “the station,” and, therefore, does not require an “expert” to run it as does the **compressed air** motor.

It has no complicated clutches to operate, no multitudinous gears to manipulate, no differentials to think about, no puzzling levers to set, and, therefore, does not require an “expert” to run it, as does **all other gasoline** locomotives.

### Claim No. 5 *It will Take a Higher Grade and Pull a Bigger Load, Because—*

It has a heavy two-piece cast iron frame instead of a light, steel built-up frame, and, therefore, possesses greater traction power than any steam, compressed air, electric or any other gasoline locomotive.

### Claim No. 6 *It Costs Less to BUY and Less to INSTALL, Because—*

It is simpler in construction, has no expensive gears or transmission, requires no wires, trolleys, cables, transformers or generating plants, nor an air-compressing plant or system, nor any of the excessive overheads so necessary for all other locomotives to put it into service.

## Naturally, You Do Not Believe Us===

We expect that—because our statements **seemingly** are strong ones, to say the least, and we know that You know that manufacturers are prone to be over-enthused about their products. And so, we say to you, DO NOT TAKE OUR WORD— TAKE THAT OF SOME DISINTERESTED CLAYWORKERS! You'll believe them, won't you?

# ocomotive Hauls Clay
# y Other System

## THESE CLAYWORKERS PROVE OUR CLAIMS

"Plymouth" at Work for the E. Biglow Company

"Plymouth" at Work for the Alliance Clay Products Company

Here are two disinterested clayworkers who have bought, installed and operated "Plymouth" Locomotives. They OUGHT to know whether what we've said is true. Note carefully the **bold face portions of these letters** and see how truthfully we have spoken.

### Read What This User Says:

"The **friction drive eliminates all jerking** and the danger of smashing the men's fingers, for the driver **can start as easy as he wishes,** which cannot be done with the gear-driven locomotive, because it starts with a jerk. The **friction fibre** is an **inexpensive item in repairs,** as we had one in use for **four years, and it was,** apparently, **in good shape** and would have run a considerable time.

"Our **repair bills** on The Plymouth in the ten months we have had it have been practically **nothing.**

"As a **load puller** The Plymouth **has pulled ten cars of one and one-half yards each, and did it with ease. The cars weighed 46,000 lbs. net.** We do not know whether it would pull more or not, for that is all the cars we have. These cars have four 12-inch wheels, some of them in not any too good shape. The track is 16-lb. rails.

"**It costs us $2.30 a day for a common laborer to run The Plymouth,** and we have **less breakdowns** and **use less fuel** than we did with our former locomotive—a gasoline engine."

"We consume about **five gallons** of gasoline per day and use about **3-4 pt. of oil.** This is about the same amount of gasoline we formerly used, but less lubricants, but we get **more work** out of The Plymouth for the fuel.

"We consider The Plymouth the **cheapest form of power**—not excepting **horses, steam** or **any other** locomotive, and our frank opinion of The Plymouth Friction Drive is that it is **far ahead** of any gear-driven transmission. We consider The Plymouth one of the **best** investments we have made, for it has **given us little trouble** and the repairs are **practically nothing.**"

—The E. Biglow Company,
New London, Ohio.

### Read What This User Says:

"It **takes less work to care for The Plymouth** than did the **steam locomotive** we had, for we do not have to **spend extra time Sundays cleaning the flues out,** nor **extra time weekdays to keep it in repair.** Nor do we have to get up **early in the morning to get it ready to start out**—for which we would have to pay a man, **as we did with the steamer,** to fire-up and **raise** steam. With our **steam locomotive** it was **necessary to run in for water and coal several times** during the day and this requires time. The work of filling the gasoline tank is comparatively small compared with water and coal.

"The 'Plymouth' uses an average of **six gallons of gasoline per day** against **one-third of a ton of coal our** steam locomotive used, and it does **better work** with **less fuss and bother,** is much **cheaper to operate** in every way."

—The Alliance Clay Products Co.,
Alliance, Ohio.

## Now You Have the Proof What is Your Verdict?

We've made certain statements of claim for "The Plymouth," we've told WHY these claims were true and we've PROVED they were true by giving you the TESTIMONY of actual users.

If the "Plymouth" will do these things for others, is it not reasonable to suppose it will do equally as much for you? It is worth while, at least, investigating, is it not?

## We Have a Big Book of Facts You Ought to Have

Every piece that enters into the construction of "The Plymouth" is fully described in this book—

Every "Plymouth" principle is laid carefully before you in text and illustration—

And it is a book you truly ought to see. The coupon at the right—or a post-card will bring this book.

And, if you wish, our engineering department will make you a proposal, with an estimate of the saving "The Plymouth" will give you, if you state your haulage conditions.

**The J. D. Fate Company** 240 Riggs Ave.
Plymouth, Ohio

The J. D. Fate Company
240 Riggs Ave.
Plymouth, Ohio

Send us "The Plymouth FREE Book of Facts." This does not obligate us in any way:

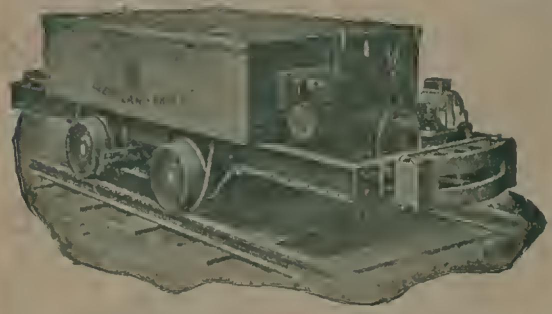
(Firm Name) ................
(Signed by) ................
(City) ......................
(Street) ......................
(State) ......................

REDUCE YOUR HANDLING COSTS by the Purchase of Efficient Equipment

**No. 1205**
Triple Deck Dryer Car supplied with or without decks of wood or steel.

**Rocker Side Dump Car**
Also made in end dump. Above car made for loading with steam shovel.

ATLAS
High Efficiency
Cars and
Electric Locomotives



Storage Battery Locomotive for general use.

will meet your requirements. Let us send you catalogue and quote prices.

**THE ATLAS CAR & MFG. CO.**
Dept. D
**1189 Marquette Road, Cleveland, Ohio**

# BAIRD

## POT MOLDING MACHINERY

We specialize
Machines
for the
Manufacture
of Pottery
and Guarantee
Every One We Sell

***Write us for information***

**Baird**
**Machine & Mfg. Co.**
**54-56 Jefferson Ave.**
**Detroit, Mich.**

With Chase Flexible and Reversible Bearing and Folding Deck.

**Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.**

**The Chase Foundry & Mfg. Co., Columbus, O.**

# "LAKEWOOD LINE CARS"

**Dryer Cars**
**Rack Cars**
**Dump Cars**

LAKEWOOD NO. 166

Our No. 166 car was designed to combine strength and rigidity with lightness, thereby building a light running car, yet strong enough to withstand hard usage. See it before buying.

---

**The Lakewood Engineering Co.**
*(Formerly The Ohio Ceramic Engineering Co.)*
**Cleveland, Ohio**

5

Chicago: 506 S. Canal St. Pittsburgh: 1230 Fulton Bldg.
New York: 30 Church St., Room 802.
Baltimore: Munsey Bldg. Kansas City: N. Y. Life Bldg.

UNIVERSITY OF ILLINOIS-URBANA
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